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Millet from the Margins: Value, Knowledge and the Subaltern Practice of Biodiversity in Uttarakhand, India

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MILLET FROM THE MARGINS:
VALUE, KNOWLEDGE AND THE SUBALTERN PRACTICE OF BIODIVERSITY
IN UTTARAKHAND, INDIA

by

PRIYA R. CHANDRASEKARAN

A dissertation submitted to the Graduate Faculty in Anthropology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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PRIYA RAJALAKSHMI CHANDRASEKARAN

This manuscript has been read and accepted for the
Graduate Faculty in Anthropology to satisfy the dissertation
requirement for the degree of Doctor of Philosophy.

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THE CITY UNIVERSITY OF NEW YORK
Abstract

MILLETS FROM THE MARGINS: VALUE, KNOWLEDGE AND THE SUBALTERN PRACTICE OF BIODIVERSITY IN UTTARAKHAND, INDIA

by

Priya R. Chandrasekaran

Adviser: Professor Vincent Crapanzano

Millet from the Margins: Value, Knowledge and the Subaltern Practice of Biodiversity in Uttarakhand, India analyzes what is at stake for small-scale, predominantly women, farmers as local varieties of rainfed food grains such as finger millet are being newly commodified and valued as a biodiversity resource. With support from a Doctoral Dissertation Improvement Grant from the National Science Foundation, I conducted seventeen months of ethnographic research with farmers, activists, scientists, NGO leaders, government officials, transnational functionaries and agribusiness representatives in segregated yet interconnected realms ranging from a village in the Himalayan foothills to transnational institutions in Rome.

This work demonstrates how, as environmental conditions like drought become more generalized and publicized, crops cultivated to meet the changing needs of agrarian producers long deemed “unproductive” to capitalist agriculture are being recognized as necessary for humanity’s survival. In other words, plant life once categorized as primitive, coarse and unfit for human consumption is now imbued with the potential to drive human “progress” and secure human futures. Though the marginalized grains in my study – known in Uttarakhand as mandua/koda and madhira/janghora (barnyard millet) – are also becoming nationally and globally visible, they still grow at the periphery of these processes. Geographically, this “periphery” is rural Kumaon and Garhwal, the two ethno-linguistic sides of the small and
mountainous north Indian state. Economically, it is a place of compounded marginality. This region has been cast as feminine and unproductive, a reservoir of “natural” resources and a place where small-scale farm work has long been perceived to be of little consequence. For precisely these reasons, it is among the many places where the externalized costs of capitalist accumulation strategies onto the dual realms of the environment and the household converge.

Moving from an examination of the trifecta marginalization of particular plants, people and places, I problematize the concept of “biodiversity” and theorize the “subaltern practice of biodiversity” as a multi-scalar human and interspecies relation in which power and uncertainty are always at play. By doing so, I disrupt the idea that grains and seeds have “genetic material,” “nutritional attributes” or “climate resilience” distinct from the human contribution to these qualities. The subaltern practice of biodiversity calls attention to aesthetics, temporality and everyday life, understanding these as vital to democratic and sustainable human futures. If an analysis of millets from the margins complicates narratives of capitalist development and commodification, it also challenges assumptions that only things that have been or can be "scaled up," mapped or listed on GDP graphs matter in a national or global frame.

The ethnography of this work conforms to the life it depicts, emulating forms of receptivity, open-endedness and sensory attunement. Through the narrative, I aim to cultivate a manner of thinking that problematizes commodity logic and “inevitable” refrains of history or “progress” and to enter into spaces of nonlinear logic, extended family ways of relating and temporal attunement to multiple species. I attend to “messy” and noneconomic aspects of everyday life, which are often out-framed or rendered “unnecessary” by capitalist ideologies but which are in fact fundamental to socio-environmental relations. In each chapter, the narrative form reflects (and has emerged out of) aspects of the social relations that underpin its content. Thus, each chapter engages differently with ethnographic material, time and space. As the argument of this work does not follow a linear trajectory, this work invites the reader to participate in a shared labor.
Dedication

for the dahlias that grow
in my father’s garden
and beside homes in Uttarakhand

you wouldn’t understand any of this,
and you know it already
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Thank you
to the farmers and the families who spent time with me during my visits to Uttarakhand between 2011-2015. With your humor, generosity, intuition and insight, you taught me about mountains, agriculture, animals, nourishment, human relationships and life. I hope the ideas and text that follows do justice to the lessons.
to mandua, madhira, dhan, gehu, kala bhatt, lobiya, rajma, pahari kakdi, til, kafal, haldi and all the grains, pulses, oilseeds and spices that grow in the hills. You are my teachers too.
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A Small Rebellion

"Jal, Jangal, Zameen" is an intersectional node

"Jal, Jangal, Zameen" is a rallying cry

"Jal, Jangal, Zameen" is a "countertopographical" terrain of solidarity

"Jal, Jangal, Zameen" is a method

Finally, "Jal, Jangal, Zameen" is a way of thinking about and forging democracy

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SEVEN THESSES and an observation

one
human-human relations are intertwined at the roots with human-nonhuman relations; human futures depend on both as well as the relationship between the two

two
“remote” places and “small” scales that do not appear to add economic value play a foundational role in sustaining capitalist development and agriculture

three
forms of social life and (agri)cultural labor that have continued through and against processes of marginalization are imbedded in the “genetic material” of food grains now being commodified; traits like “climate resilience” are not intrinsic but born in part of human resilience, agency and change

four
biodiversity is a practice; this is also to say it is historical, socially differentiated and situated in multi-scalar processes

---

1Rodolfo Stavenhagen (1969) similarly posited “Seven Erroneous Theses about Latin America.”
five
the practice of biodiversity occurs at the site where externalized costs of capitalist accumulation strategies converge onto the dual realms of the “environment” and the “household”

six
the loss of the biodiversity which comprises the basis for human sustenance reflects a hegemonic narrowing of human forms of life, human ways of relating to nonhuman species and human possibilities for education, democracy and progress

seven
socio-environmental contingencies cannot be eradicated but only denied, displaced or temporarily contained

each statement above concerns patriarchy, colonial violence, “uneven” capitalist development, racism, class and local forms of exploitation²

² Smith (2008).
1. Map of India: The central Himalayan hill state of Uttarakhand, which is the focus of this study, borders Nepal and Tibet.
2. A closer look at Uttarakhand’s two ethnolinguistic regions, Kumaon and Garhwal, from Google Maps
3. A map used by a locally based NGO (run by Pooja’s adoptive father in Chapter Two)

4. From a map of village “Gow” in Kumaon (the focus of Chapter Two)
OPENING

The Time of “Added Value”

When I returned to New York in September 2014 from my longest period of fieldwork in India, I was struck by the widespread use of a term that I had encountered frequently in the milieus of my research pertaining to small-scale food production and contentions over biodiversity.¹ This term was “added value.” “Good employees” were being encouraged to “add value” to their companies by exhibiting “high levels of self-esteem, self-motivation, and self-reliance.” Teachers of “core” subjects were being assessed for the “value” they “added” to their students' test scores and art teachers were expected to “add value” by incorporating Math or English into their lessons.² A radio talk show host said for the first time I noticed, “Your comments... added value.” In other words, the caller’s words were worth the listeners’ time.

Vernacularized in many arenas, “added value” and its inverse “value added” seem to float free of historical and ideological strings, even as they remain knotted in threads of intellectual genealogy. In the field of economy, “value added” has indicated revenue generated at a particular stage of production or the utilitarian “enhancement” of a commodity, whether product or service, which distinguishes it from competition and “adds” to its functionality or consumer appeal. In development, the concept of “value-added” goods has played an important role in shaping policies that connect marginalized people and places to the market in a world increasingly driven by economic necessities. However, particularly relevant to this work are the ways these specific meanings conjoin with a broader signification: “added value” belies the

¹See my “Reflections on Methodology” for a description of how I conducted fieldwork over 17 months.
²For example, refer to the article “New Study Strikes Latest Blow Against ‘Value-Added’ Teacher Evaluation” (Walker 2014).
anxiety to perform, produce or be productive in the liberalized global economy – intimating, in other words, the “anxiousness” of capitalism.³

Capitalism is, as David Harvey reminds, a process of (adding) “value in motion.” While commodities retain “use value,” or utility to humans, it is their “exchange value,” or competitive “worth” as measured by an equivalent (such as a money, itself a commodity) that most matters in the market. One of Marx’s abiding insights is that capitalist processes of adding (exchange) value occur through corresponding subtractions, which extend far beyond the cost of production. In the global network of social “equations,” a host of ideological “subtractions” are less quantifiable. These include obscuring forms of exploitation and dispossession and eclipsing alternative and non-calculative ways of relating from the purview of visibility, legitimacy and imagination.⁴ Thus, commodities appear to possess their own mystique untethered from the living labor that produces them or the conditions in which that labor was performed.⁵ As critical human geographers have laid bare over the past four decades, these subtractions also occur through divisions, both socio-spatial and epistemological.⁶

The pervasiveness and global circulation of “added value” discourse today evinces the extension and intensification of capitalist relations and the proliferation of financial calculations in people’s work, homes and lives. It reflects an ideology that understands the “booms and busts” of the market, and resulting “collateral damage” on humans, other species, the earth and beyond, as inevitable.⁷ It reflects a proliferating “common sense” that registers economic value

---

³ I borrow “anxious” from Gidwani’s (2008) “Capital’s Anxious Whole.”
⁴ through institutional, legal, ideological, technological, cultural and socio-spatial means. In this work, both “primitive accumulation” (a term coined by Marx at a time of rapid industrial expansion in Britain) and “accumulation by dispossession” (a term coined by David Harvey to help understand changing regimes of accumulation in the neoliberal era) are at play. I discuss these more in Chapter One.
⁵ Marx’s (1992) “commodity fetishism.”
⁶ Work on political economic subtractions and divisions by critical human geographers that is influential on my thinking in this project includes that of David Harvey, Neil Smith, Ruth Wilson Gilmore, Neil Smith, Doreen Massey, Vinay Gidwani and Cindi Katz.
⁷ Ho (2009).
as the only kind of value and market-based solutions as the only answers to challenges and problems in our world. Thus, projects to “improve” the lives of those impoverished by market-dominated relations and attend in the most basic ways to sustaining life get yoked to projects centered on the profit motive. This is certainly true when it comes to crises related to food, “rural livelihoods” and biodiversity in our world today – crises situated at the critical “human-nature” interface – even though it has been widely acknowledged that these very crises have in part developed out of capitalist “globalization.” For the purpose of this analysis, two historical currents of "added value" are most relevant.

First, a current of social values. This flows from an 18th-century Enlightenment idea of progress that has shaped much of what we know as “development.” Today a globally circulating sentiment is that people, experiences, relationships and things in and of themselves lack – and therefore must perform and “add” – some quantifiable worth. Exemplified in the opening examples, standardized rubrics do not just determine value but impart it by making subjects individual, attributes discreet and thought legible to particular, socially positioned, codes of evaluation. As formalized markers of individuation become “public information” through media and policy, they appear to be widely or “equally” accessible, even in the face of profound social disparities. Against this homogenizing tendency, “finding oneself” or discovering a

---

8 For example, the World Bank and International Monetary Fund Structural Adjustment Programs (SAP) “helped” impoverished countries raise money by employing neoclassical development theory to promote privatization, trade liberalization and austerity measures.

9 I join others including Tim Ingold, Phillippe Descola, David Arnold and Donna Haraway in challenging the ideological line drawn between humans and “nature,” hence I put this phrase in quotation.

10 In Chapter One, I elaborate on aspects of present trends in neoliberal capitalism most relevant to this study.

11 See Foucault’s (1995[1975]) Discipline and Punish. These notions correspond with systems of industrial production in which “people’s productive capacities and nature’s resources have to be organized into markets and rationalized in accord with cost accounting: the unity of production and human life is broken into smaller and smaller quantifiable subcomponents” (Taussig 2010[1980]:4). The subject, who “adds value,” must express their/its skill, efficiency or uniqueness even as the conditions of life become increasingly precarious (the possibility of violence, hunger, and death palpably exists). See Butler (2006).
group’s, place’s, commodity’s or experience’s unique and intrinsic expression bestows that touch of character to distinguish it from the pool of standardized merit. Herein lies its possibility for “innovation,” marketability, wealth or even security.

Second, a current of global economic value. This flows from the era marking the end of World War II and the culmination of many liberation struggles. Many scholars have understood this as a period of global possibility and Keynesian prosperity, as multilateral agreements were negotiated and leaders of “darker nations” collaborated to design a world that rejected colonial inequities and follow a course of nonalignment at the onset of the Cold War. While more than a half-century later the transnational sphere reflects complex and shifting regimes of power, the multilateral institutions, agreements and banks forged through the hope and fire of that mid-20th century moment have nonetheless enabled the United States, its allies and countries whose wealth accrued though centuries of colonial and settler colonial occupation to continue to wield considerable geopolitical power – whether through institutional mechanisms like the veto power of the UN Security Council or through unofficial economic and political power accrued in part through historical conquests. Gross Domestic Product (GDP), also implemented in this era, exemplifies this refrain of “added value.” Like the standardized rubrics that assess an individual’s worth, GDP quantitatively measures the "output" (goods and services) of nation-states. Within that, categories denote the “added value” of categorical sectors and regions. This measure, in other words, hails the nation-state as the fundamental economic

12starting with Bretton Woods Conference in New Hampshire in 1944.
13Representatives from India played a key role in originally drafting of the UN Declaration of Human Rights. See Bhagavan (2013) and Prashad (2008).
14The UN Security Council, comprised of five permanent members and six rotating members, has the power to veto any agreement made by the general body, and the structure of the Security Council itself cannot be changed unless this group ratifies this amendment. This has raised many objections. For example, South Asian countries contribute a large number of on the ground UN Security forces, yet none has a permanent representative. Furthermore, the decisions of the majority cannot override the Security Council and resolution passed by the majority are “recommendations” not binding legislation (tour of United Nations, NYC November 24, 2015).
15GDP (Gross Domestic Product) was initially GNP (Gross National Product).
unit and encourages global comparison by criteria important to those with a stake in maintaining geopolitical inequities. Yet, the mathematical averages and financial equivalents used to determine GDP "subtract" from view the class disparities within regions and the forms of labor that do not appear to add economic value. Furthermore, this measure encourages governments to pursue highly destructive and wasteful activities as they follow a course of undifferentiated growth, externalizing costs into unseen realms of human and nonhuman life.

In the mid-1900s when the multilateral architecture of “globalization” was being designed, India was among those countries that joined the “Third World” Non-Aligned Movement to defend against colonial and neocolonial exploitation in the emerging world system.\textsuperscript{16} India was also among those countries resolutely focused on their national economies in ways that mixed Keynesianism with elements of the Soviet model.\textsuperscript{17} Contending with and forging new geopolitical relationships upon India’s independence from British rule, the Indian government was also balancing national goals of economic development with establishing the world’s largest democracy and forms of distributive justice.

In less than seventy-five years since, India has made a remarkable economic rise. This “developing country” has gone from being debt-bound and dependent on US Food Aid to being one of five “newly industrialized” countries that now account for 20 percent of the aggregate Gross World Product.\textsuperscript{18} However, this geopolitical trajectory has brought a host of socio-

\textsuperscript{16} Twenty-nine countries met for the first time in Bandung, Indonesia in April 1955 in the name of Afro-Asian solidarity and to advocate for non-interference in other countries' domestic affairs. However, they faced intense geopolitical pressures in the emerging cold war between NATO and the Communist Bloc.

\textsuperscript{17} Despite the inclusion of agriculture in its initial five-year plans, the Indian government invested little in developing its agricultural infrastructure until the Green Revolution of the 1960s because it was following a Soviet style course of heavy industrialization to move people out of the peasantry.

\textsuperscript{18} The acronym BRIC (Brazil, Russia, India, China) was coined by the chairman of Goldman Sachs in 2001, and South Africa was added in 2010 to make it BRICS. They are “developing” countries with fast-growing economies and current members of the G-20; hence, they hold considerably more power over global and regional affairs than most other “developing” countries. The coining of the term signified shifting global economic power. Collectively, BRICS countries comprise roughly 42% of the world population, and 20% of the Gross World Product.
environmental challenges that raise deeper questions about how value should be produced and what “progress” should mean. At the UN Framework Convention on Climate Change in December 2015 representatives of India called for “climate justice” for developing countries which have not primarily benefited from the centuries of environmental degradation wrought by industrial coal and oil use; they claim it is the obligation of “developed countries” to foot the bill for a global turn to renewable energy. At the same time, India is now among the group of "developed and developing" countries responsible for 90 percent of current global emissions whose effects, many scientists agree, will become irreversible and catastrophic unless substantial action is taken to reduce them. Furthermore, large segments of the India’s populace and democratic polity, in particular the rural poor, have not benefited from India’s economic success and contend daily with its social and environmental impacts. Indeed, since 2000, national entitlements – through legislation such as the 2005 National Rural Employment Act and the 2013 National Food Security Act – have been so important because they help to mitigate the harmful social consequences of industrialization, urbanization and development.

Agriculture has played an important, and paradoxical, role in India’s geopolitical ascent and the corresponding decline of biological diversity within its borders. In the 1960s, industrial agriculture helped to launch the slow upward trajectory of India’s GDP. The Green Revolution enabled India to become nationally “self-sufficient” in grain production and to increase agricultural exports that catered to global markets. From the 1980s, the increase in

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There are varied opinions about how quickly and what kind of social power this collaboration will accrue.

19 The actual agreement will have four components: a legal agreement; national greenhouse gas emissions reduction commitments for 2025 or 2030; an economic plan and concrete commitments by non-governmental groups to help execute the plan. Global temperatures have continued to rise throughout the sequence of talks from 1997 Kyoto (which the US did not sign), to Bali 2007, to 2009 Copenhagen (which the US took a long time to sign and which was adopted in 2010). For basic information, see articles by Hepler (2015) and Harvey (2015).

20 and has contributed to India’s "climate" impact: India is the world’s major producer of rice, primarily through flooded rice paddies, whose methane emissions contribute to the world’s rising temperatures.
India’s agricultural "output" has derived from shifts in the crops in the face of plateauing crop yields.\textsuperscript{21} Even as agriculture continues to play a major role in India’s economy, the country’s skyrocketing GDP since the mid-1990s has coincided with the decline of agriculture’s relative contribution.\textsuperscript{22} This shift coincides with the Indian government opening doors to foreign companies, developing "special economic zones" for industry and accommodating to multilateral stipulations that significantly reduce tariffs on trade and agricultural subsidies.\textsuperscript{23}

As the “information age” has inaugurated transgenic or “GM” technologies, agriculture is poised to make a leap in the value it adds to India’s “output.” Now researchers can combine bits of genetic information to "design life" according to highly specific criteria, and officials can collect and store vast amounts of geographic and personal data. Legal forms of land dispossession are moving in tandem with of legal forms of “biodiversity” and seed appropriation, and in a context of rapid climactic change. In 2014, among the final acts of the outgoing National Congress Party was to set in motion the approval of field trials on transgenic food crops, which activists had managed to halt by arguing that the trials undermined biosafety protocol India had multilaterally agreed to uphold.\textsuperscript{24} Among the first acts of new Prime Minister Narendra Modi’s BJP administration was to enact an eminent domain law to seize rural land to create industrial “agriparks.”\textsuperscript{25} These governmental decisions are meeting with forceful dissent.

\textsuperscript{21} K. Siviramakrishnan (2015) commented on this in his role as discussant in the panel “New Intermediaries and Changing Regimes of Agricultural Production in South Asia” at the 114th American Anthropological Association Annual Meeting in Denver.
\textsuperscript{22} India is the world’s greatest exporter of rice.
\textsuperscript{23}World Bank (2015) data estimates that “agriculture” comprised roughly 17\% of India’s GDP in 2014 (India is still major producer of world’s cotton and rice), though this appears to be falling. India’s farming population fell from roughly 77\% in 1980 to 68\% in 2014. For recent analysis of SEZs in India, see the works of Michael Levien and Jamie Cross, as well as the collection Power, Policy, and Protest: The Politics of India’s Special Economic Zones, edited by Jenkins et al. (2014).
\textsuperscript{24} I discuss this later in the introduction and in Chapter Three. There are also scientists who argue that biosafety for transgenic technologies has been tested and they are safe. See Hartung et al. (2014).
\textsuperscript{25} Prime Minister Narendra Modi’s proposed Land Acquisition Amendment Bill (to use eminent domain in part for the purpose of creating agriparks) has met with great resistance in India’s Parliament in 2015 as well. It has been called “anti-farmer” and “anti-poor.”
For this political moment is also one of transnational protests against the power profit-driven corporations hold in multilateral negotiations; it is one of highly publicized information about farmer suicides in India’s cotton belt, of documented declines in India’s plant genetic diversity, of drought, of plummeting farming populations and of plateauing crop yields. It is a moment, in other words, when the unaccounted ecological and human costs of decades of capitalist “added value” policies on India's rural regions and biological diversity have been brought into stark relief.26

**From “Orphan Crop” to “Comeback Cereal”: Millets in the Time of “Added Value”**

If “added value” tells a story of market visibility, the food grains that are the focus of this work have hovered at the margins of this tale. They are dryland cereal or pseudocereal crops informally categorized as “millets,” which farmers have domesticated and grown primarily in Asia and Africa for roughly 4000 years.27 Their common English names include finger millet, barnyard millet, sorghum, pearl millet, foxtail millet, among others. Their continued cultivation through the European colonial era until the present reflects forms of labor and ways of life that comprise the “unseen acts” which Gandhi argued constitute the force of history.28 Their history of cultivation is a history entangled with present democratic unrest and climate anxieties; it is the history of farmers, grains and places that have been marginalized by colonial and national policies; it is a history written into land.

My primary field site in the west-central Himalayan foothills of Uttarakhand in north India, where women are the predominant farmers, is among these places. Though particular in its socio-environmental history, it can be understood as kin to other mountainous regions where

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26 See Howard, (2009) and UNCTAD (2013). Also Devinder Sharma writes a great deal about farmer crises in India’s public media.
27 In Chapter One, I theorize the category of “millets.” Pseudocereals also include amaranth and quinoa.
28 Gandhi (2001[1951]) understood this as “soul force.”
fields are small and not “scaled up,” and thus have not ostensibly contributed to the “national output” of agriculture. Whether categorized as “ecological refuges” or “biodiversity hot spots,” these regions are profoundly rich in variations of plant, animal and social life. Here the diversity of forest in profoundly varied microclimates abuts terraced fields – passed down through patrilineal lines – which have historically reflected diversified and mixed crop variations.29 Despite their long agrarian histories, these places have often been construed as “nonproductive” or even “nonagricultural” because their forms of agriculture – or social practices on the land for the purpose of human sustenance – have largely not added capitalist value.30

Similarly disregarded, the production of millets and the human consumption of these food grains in India fell through the British colonial era and more sharply since India’s independence. However, they continued to grow at the margins and in the shadows of industrial agriculture, economic exchange and “refined” grains, whether in remote, dryland or mountainous regions such as the hills of Uttarakhand, or at the perimeters of cash crop plots. That millets are now becoming more central to market-based agriculture is evident by how often the words “added” and “value” affix to mention of them. These include “value added” mechanisms intended to link millets to the “value chain;” “added value” processing to make flour, sweets, malts and biscuits; endeavors of farmers to “add value” through cooperatives or high yield millet varieties; national and regional projects to “add value” by promoting new modes of millet production and new forms of millet consumption; and entrepreneurial and NGO plans to sell organic “added value” millet products, at times marked with geographic indicators. This motley spectrum spans from grassroots projects to combat rural poverty through aspects of cultural heritage (noneconomic value) to projects to drive profits by bringing those same

29 James Scott (2010) also writes about this aspect of mountain geographies. The theory of “refuge regions” had brief popularity in Mexican anthropology (Aguirre Beltrán, 1979).
30 but for a few exceptions, such as tea estates. But these are more prevalent in other northern regions like West Bengal. While fruit orchards are beginning to expand in Uttarakhand, which many attribute to warming temperatures, they are not as common here as in the neighboring Himachal Pradesh where the market chain has been better established.
farmers into the realm of debt and exchange. And as definitions of “value added” and networks of social actors collide, often both these goals are at play simultaneously.

These crop varieties still exist to “add value” because farmers have continued to grow and consume them despite and indeed because of their market exclusion. Indeed, after decades of decline, India remains the world’s largest producer of finger millet, widely known in India as ragi or in Uttarakhand as mandua or koda. The relationship between farmers and these crops has been one of mutual sustenance under increasingly precarious conditions. Through periods of social upheaval, millet varieties represented and reproduced cultural heritage and forms of sociality. At times of economic and environmental distress, they signified and materialized forms of security and survival. Grains like finger millet have been called “poor person’s food” not only because they were often “free” or “cheap” and could grow in the poor soil cultivated by the rural destitute, but because their heartiness could relieve hunger with smaller quantities and for longer stretches than the market varieties of wheat and rice.\(^{31}\) Year after year, under conditions of marginalization and volatility, the seeds of those plants that most met the changing nutritional and environmental needs of some of those people most in need were selected, saved and sown.

Now the ecological and economic conditions in which millets survived have become more generalized and publicized; these include drought, malnutrition and existential precarity. In other words, plant qualities cultivated through sustenance farming practices that bore and diffused the costs and contradictions of various colonial and national “subtractions” are being recognized as necessary for humanity’s food security and environmental survival. And the technological and institutional means now exist to incorporate their necessity into national development plans and capitalist agriculture.\(^{32}\) During my research from 2011 to 2014, millets

\(^{31}\) Millets “require few inputs and withstand severe biotic and abiotic stresses” (Padulosi et al. 2015).

\(^{32}\) At the same time we see the social organization of the global economy rapidly affecting major processes in the earth’s metabolism. This too is opening opportunities for investment.
were included as subsidized food grains in India’s new Food Security Act; almost daily a headline proclaimed their nutritional or environmental benefits, promoted projects to industrially produce them or hailed the importance of their small scale or organic production.\(^\text{33}\)

If even twenty years ago, the “fact” of millets’ health and environmental benefits was not broadly recognized because it was not quantified, written or passed down from the elite or ruling classes, today those attributes possess internationally acknowledged value. Scientific studies conclude that finger millet (*ragi, mandua*) is “rich in phosphorus, potassium and iron” and has up to thirty times the calcium content of most other cereals. The human body can easily metabolize its eleusinian protein. Scientists confirm it contains important amino acids such as tryptophan, cysteine and methionine. The phytochemicals and polyphenols found in its seed coat make it rich in fiber and have been labeled “diabetes-resistant.” Research continues on its anti-microbial and antioxidant qualities.\(^\text{34}\) An article in *UC Berkeley News* entitled “Millets, Not Just Bird Food” described efforts of a six-member team to grow and promote millets in California as the state faces the prospect of intense, long-term drought. These studies often celebrate nutritional and climactic “components” as if they were intrinsic to the grains themselves; thus, the new importance given to marginalized food sources often detaches them from farmers’ lives, historical context and their conditions of production.

To say millets are “adding value” is also to say that plant life once largely categorized as primitive, coarse and unfit for human consumption is now imbued with the potential to drive human “progress” and secure human futures. Consider the caption I recently found on the homepage of the multilateral research institute ICRISAT: “Orphan Crops Have Become Sexy.” It

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\(^{33}\) As the team leader of this Berkeley project Amrita Hazra explains, “California is in a drought. And given that a large percentage of the state’s water goes toward agriculture, growing drought-tolerant crops such as millets is a natural first step to diversify agriculture” (Kell 2015).

\(^{34}\) “Nutritionally, they have high micronutrient content, particularly calcium and iron, high dietary fibre, higher amount of essential amino acids and low glycemic index and thus play an important role in the food and nutritional security of the poor” (Mal et al 2010). For more on how these nutritional qualities are described for the public and for promotional reasons, see Jhawar (2013), Isla (2015) and Ipatenco (2015).
was printed below a photo of a woman farmer apparently somewhere in Africa smiling in a field.\textsuperscript{35} This image presents the hope of project “HOPE” or "Harnessing Opportunities for Productivity Enhancement in Sorghum and Millets in South Asia and West/Central and Eastern/Southern Africa.\textsuperscript{36} It is the hope of financial backers such as the Bill and Melinda Gates Foundation that incorporating sustenance farmers into the “value chain” through access to credit, fertilizers, transgenic and hybrid seeds will save them and make the world food secure as it adds value for investors and national economies.\textsuperscript{37} It is the hope that by becoming the object of consumption and desire, a formerly excluded small-scale farmer will be welcomed into the family of humanity, and the grains she cultivates into the family of modern consumption.

This ingress does not indicate a unidirectional shift from a peasant mode of production to capitalist agriculture. The importance of millets and small-scale agriculture today has emerged out of rural social movements that have been expanding exponentially over the past two decades, with the largest transnational movement, La Via Campesina, now over 200 million farmers strong. In India these struggles have also been organized around millets and their future trajectory. Indeed, the temporality of sustenance agriculture has become perceptible on the global “clock.” On the one hand, this reflects changes in and contentions over how that clock marks time. On the other hand, as earlier noted, this signifies new forms of capitalist appropriation; for, the mark of consumable difference – of parochial particularity – now elicits the commodity’s allure. With millets, this mark is imbued with humanitarian urgency, “climate

\textsuperscript{35} Syngenta is a major seed and chemical company based in Switzerland. Its Foundation is funded by it but claims to be administered independently. One of their webpages cited research on millets and agroecology in Uttarakhand. After a stretch of “wrong emails,” “out of service” numbers and “switched off” phones, I got in touch with one of the Directors of Syngenta Foundation India who said: “You know, they are called orphan grains.” I eventually discovered the project was an initiative of the M.S. Swaminathan Foundation and Bioversity International, and only partially funded by SFI. Another SFI Director later met with me and spoke to me at length about their agroecological efforts.

\textsuperscript{36} http://hope.icrisat.org/

\textsuperscript{37} The Gates Foundation along with Rockefeller Foundation has invested significantly in ICRISAT since 2006.
resilience,” exoticism, and “healthiness.” As illustrated by the photo of the smiling woman in the field, adding market value no longer compels a turn to mass production or mechanized fields, but also might maintain the characteristic remnant of peasant life, femininity, remoteness or intimacy. Such images accompany present efforts by industry and developed nations to promote small-scale agriculture in developing countries as a way to mitigate the effects of their own undifferentiated growth (for example, through carbon trading).

The pejoratively labeled “minor” millets in my study – mandua/koda (finger millet) and madhira/janghora (barnyard millet) – are also becoming coveted. These marginalized grains are stamped with Himalayan or pahari (of the hills) mystique. Nonetheless, they still grow at the periphery of these processes. Geographically in my study this “periphery” is rural Kumaon and Garhwal, the two ethno-linguistic sides of the small and mountainous north Indian state of Uttarakhand. Economically, it is a place of compounded marginality. This region has been cast as feminine and economically unproductive, a reserve of “natural” resources like water and forests and a place where small-scale farm work has long been perceived to be of little consequence.38 For precisely these reasons, it is among the many places where the externalized costs of capitalist accumulation strategies onto the dual realms of the environment and the household converge.39 On various occasions in this work, I refer to this interstitial site – where a great deal of agricultural biodiversity is produced and practiced – as “sustenance work.”40

Sustenance work in Uttarakhand, and more broadly in India and other regions of the world, has become predominantly women’s work as men migrate to towns and cities for wages; thus, it reveals the gendered socio-spatial effects of the globalization of agriculture,

38 Soon after its separation from Uttar Pradesh and achievement of statehood in 2000, the state government declared Uttarakhand an “organic state.” This was in part a way of claiming an agrarian identity both internally and nationally. However, in my fieldwork I found that chemical inputs are still used by many farmers and promoted by some government officials and branches. 39 Agarwal (2013), Federici (2012), Shiva (2005), Razavi (2002).
40 I use “work” here instead of “labor” because this work is life and (though deeply connected) is not imbedded in capitalist relations. However, the boundary between these terms is porous, and I employ both at various times throughout.
industrialized food production and capitalist development on rural places. Sustenance work sustains capitalism yet inhabits the invisible realm of externalized costs. Sustenance work is how rural families on the losing side of industrial agriculture and capitalist development have sustained themselves in part through (agri)cultural practices and noneconomic ways of relating and knowing; conversely, through “sustenance work” one sees how local hierarchies, patriarchy and capitalist development interlock to make life hard for those tasked with sustaining the majority of humankind. Sustenance work is imbedded in the “plant genetic material” of food crops that are now recognized as necessary for global “food security” and plant biotechnological innovation. “Biodiversity loss” is, in part, the transformation of this work as globalized agriculture and climate change (the two are related) exacerbate the precarity of rural lives. A telling irony in the world today is that the majority of people in the world living in hunger or malnutrition are food producers. This raises profound moral and practical questions about what “progress” and “democracy” have come to mean – questions that bind human lives and human futures to the lives and futures of plants, animals, insects, bacteria, oceans, rivers, lakes, dirt, soil and much more.

This work understands the sustenance work – and mandua and madhira – in Uttarakhand, India to be part of a vast network of rural regions, crops and producers whose marginalization has masked their centrality to capitalist development and accumulation. As this centrality takes more visible forms, as small-scale farming becomes “important” to global food production and reducing carbon emissions, as millets “add value,” what does it make possible, foreclose and mean for those who are emerging as protagonists? What can an investigation of millets from these margins illuminate about ongoing processes of capitalist “subtraction?”

41 “Noneconomic” forms of relating are not inherently less exploitative. In Chapter Two I depict how caste and patriarchal relations in the local arena get exacerbated when compounded by consumer culture and widening divides between those who have and those who do not have money or land rights.
might the endangerment of “biodiversity” and sustenance work tell us about how dominant perceptions of “human progress” impede possibilities for democracy?

**The Subaltern Practice of Biodiversity: An Analytical Framework**

Over the four years in which I conducted this seventeen month study, I became convinced about the importance of issues of “biodiversity” to food production and consumption in our world; I also became convinced that biodiversity is about human relationships as much as anything one might call “nature.” Moving through divergent social environments made me aware of power as a key issue, one that undergirded any conflict related to technology or cultural heritage. It also made me aware of the importance of bringing to light the intimate ways in which human and nonhuman life are entangled at their very roots.

Problematizing the concept of “biodiversity” in this work, I understand the living labor, social life and practical philosophies of agrarian life to be seared into “seeds,” “crops,” “grains” and “plant genetic material” – and the opposite to also be true. "Climate resilience," “plant nutrition,” and "plant genetic diversity," in other words, speak of human sweat, human knowledge and human diversity. If “biodiversity” as “natural resource” accommodates to capitalist accumulation strategies because of its ideological severance from the human contribution to nonhuman life, the “practice of biodiversity” offers a heuristic counter frame. I am not concerned here with classifying or policing what falls inside or outside the borders of this term, but rather with opening up spaces for reflecting on how power works and how food is produced in our world.

Though one could argue that an analysis of millets "from the margins" of Uttarakhand, India cannot be “scaled up” to a generalization, biodiversity is precisely about social and geographically situated niches that: (1) reflect something about broader processes of globalization because of their crucial situatedness within these processes; and (2) are important in and of themselves. If a perspective on millets from the margins complicates narratives of
capitalist development and commodification, it also challenges assumptions that only things that have been or can be "scaled up," mapped, valued on GDP graphs or assessed on institutional checklists matter in a national or global frame.

The subaltern practice of biodiversity expands on "the social production of nature," a critical geographic theory of how evolving capitalist relations produce nature ideologically and materially. As Neil Smith writes,

...with the progress of capital accumulation and the expansion of economic development, this material substratum is more and more the product of social production, and the dominant axes of differentiation are increasingly societal in origin. In short, when this immediate appearance of nature is placed in historical context, the development of the material landscape presents itself as a process of the production of nature.\footnote{Smith (1990[1984]:34). Italics added.}

The subaltern practice of biodiversity reveals how “nature” is becoming “more and more a product of social production” through the effects of the globalization of food and agriculture on small-scale agrarian regions and lives. It also exemplifies how the social production of nature is intertwined with "uneven development" propelled by the drive to profit; infrastructures that “revitalize” or “develop” particular places simultaneously endanger and deplete others.

Specifically the subaltern practice of biodiversity attends to human contributions to, and direct co-existence with, the breadth of other life forms, particularly in rural realms of the “Global South” where the majority of the world's biological diversity resides and from where it has historically been siphoned to European, settler colonial and national metropoles. The subaltern practice of biodiversity offers an analysis of global capitalism from the “margins" and at a moment when information has become a major technological and institutional vehicle of cultural appropriation. Furthermore, the subaltern practice of biodiversity emphasizes the under-acknowledged importance of aesthetic sensibilities, everyday life, social reproduction and economically “unproductive” work to broader political economic and social processes, and to human futures.
As a framework of analysis, the subaltern practice of biodiversity reflects solidarity with scholars who make de-colonial, anti-racist and feminist arguments. In addition to the “social production of nature,” a few others guide this political economic analysis: (1) Cedric Robinson’s claim that capitalism is and from the start has been racial capitalism has helped me to make sense of geopolitical phenomena with colonial histories.\textsuperscript{43} (2) Stuart Hall’s “Race is the modality through which class is lived” has enabled me to see manifestations of caste as social and historical articulations rather than as grounded in static identities.\textsuperscript{44} (3) Chandra Mohanty’s call for conjoined feminist and political economic critiques has encouraged me to better recognize the underside of capitalist development in places I have been conditioned to think of as “domestic” or “small.”\textsuperscript{45} (4) The importance Antonio Gramsci gives to education, thought and belief has emboldened me to focus much of my analysis on these unseen realms of struggle.\textsuperscript{46}

Through the subaltern practice of biodiversity, I aim to: (1) complicate the belief that commodifying and classifying food crops or “natural resources” through quantitative and economic methods is the answer to the problems threatening human and nonhuman life in the world; and (2) bring into view the everyday life, sustenance work and power relations that constitute biodiversity as a practice. Ultimately, I hope this raises more questions about the “ideologies of nature” that underpin social inequities through “democratic” means, as well as provokes more conversation about how “saving biodiversity” entails bringing attention to the quality and vibrancy of our democracies in and through how we organize our relationships with nonhuman life.\textsuperscript{47}

\textit{Subaltern * Practice * Biodiversity}

\textsuperscript{43}Robinson (1983).
\textsuperscript{44}Hall (1980).
\textsuperscript{45}Mohanty (2003).
\textsuperscript{46}Gramsci (1993).
\textsuperscript{47}Ecuador and Bolivia have formed constitutional “Rights of Nature” and “Rights of Mother Earth” frameworks. This has no doubt been bolstered by the strong contingent of indigenous communities in both countries.
By briefly elaborating on key words of my underlying framework, I want to underscore and clarify the analytical threads and political exigencies that weave throughout this work:

"**SUBALTERN**" brings power front and center into the conversation about “biodiversity;” understands the practice of biodiversity to be historically situated in complex global, national and local circuits; and, attends to the exploitation and ideological subjugation that accompanies the endangerment and survival of sustenance work.

If words, as Mikhail Bakhtin claimed, reside in contexts embedded with histories and anticipations, those of “subaltern” evoke particular complexities. It is precisely for this reason that no other term – “subjugated,” for instance – could perform and enable the same analytical work. This term has a long and varied past, one that extends earlier than its use by Marxist and one-time leader of the Communist Party of Italy Antonio Gramsci with whom it is often associated:

In late-medieval English, it applied to vassals and peasants. By 1700, it denoted lower ranks in the military, suggesting peasant origins. By 1800, authors writing 'from a subaltern perspective' published novels and histories about military campaigns in India and America; and G.R. Gleig (1796-1888), who wrote biographies of Robert Clive, Warren Hastings, and Thomas Munro, mastered this genre. The Great War provoked popular accounts of subaltern life in published memoirs and diaries; and soon after the Russian Revolution, Antonio Gramsci (1891—1937) began to weave ideas about subaltern identity into theories of class struggle.

In the South Asian context, it is impossible to escape this word’s deep association with the Subaltern Studies Collective, an interdisciplinary conversation among Indian and English scholars (most prominently associated with the work of Ranajit Guha) that began in the 1970s and became more globally popular in the 1990s. Subaltern Studies reflects numerous strands of thought that cannot be neatly categorized but have together offered a postcolonial critique of

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48 Here I am particularly drawing from Bakhtin’s (1982) work in *The Dialogic Imagination*, but certainly Raymond Williams (1978) reminds us of the same.

49 See Ludden (2002) and Sivaramakrishnan (2005). Amitav Ghosh’s *Ibis Trilogy (Sea of Fire)* employs a military use of the term. Gramsci’s renovation of “subaltern” in his *Prison Notebooks* only became more widely known after it was translated and used by cultural theorist Raymond Williams.
history and modernity. At the same time, this body of work, taken generally, has been criticized for effacing class struggle and rendering the “subaltern” and “peasant subjectivity” as residing in a substratum outside of politics. Importantly, as David Ludden notes, “the intellectual history of subalternity has emerged outside and in opposition to Subaltern Studies as much as inside it.”

Certainly, the prolific work of the Collective has shaped this project and my broader thought. However, if “historians outside the project [have tended] to locate subalterns more carefully in changing environments that include economic, political, ecological, technological, and social history,” then my concerns are also located “outside.” I interpret “subaltern” similar to how Marcus Green reads “subaltern” in Gramsci’s writings. Green argues that the term is not simply “a stand in for ‘proletariat’” that was meant to escape prison censors and, furthermore, that it is “not limited to class relations” as it has often been assumed. Instead, it “encompasses an intersectionality of race, class, gender, and religion. For Gramsci, subalternity is constituted through constructions of identity, otherness, and marginality that are reinforced within an ensemble of social, political, and economic relations.” Similarly, I use this concept to analyze contentions over power, ideas and resources that cut across scales and manifest in material

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50 As Ludden (2002) explains, the Subaltern Studies Collective (with the first collected volume published in 1982) began as a critique of the “Cambridge School” of Indian history during the intellectual shift to “histories from below” and when the theme of peasant insurrection in India was becoming popular. Its analyses of resistance to state power later became more focused on “recuperating subaltern subjectivity,” as well as a critique of modernity and linear time through the influence of Foucault’s work. With the flow of scholars in and out, variety of global audiences and diverse and changing preoccupations of the core people in the conversation, “Subaltern Studies” does not mean today what it meant in 1982, 1985, 1989, or 1993 (pg. 2). See the work of former member Sumit Sarkar (1997) or, more recently, Vivek Chibbur (2013) for critiques.

51 Ludden (2002: 14): “state institutions, texts, personnel, and discourse, including those of the nationalist movement, stand in stark opposition to subaltern India and its indigenous culture.”

52 Ibid (3).

53 Ibid (26). This space outside, as Ludden alludes in the previous quotation, is nonetheless deeply related to the “inside.” Furthermore, by “outside” in this instance I do not mean “in opposition to.” My stake here is not to critique of Subaltern Studies but to explain the how “subaltern” works in this text.

54 See Marcus Green’s (2011) “Rethinking the Subaltern.”
ways. “Subaltern” in this study underscores how the everyday life and practices live within a complex geopolitical web in which local class relations and struggles over resources play an important but not absolute role.

“Subaltern,” in other words, evokes the inalienable yet profoundly versatile relationship between social values and economic value and the ways in which that relationship is always changing. While there are no “subalterns” in this text – as I want to highlight historical processes not social identities – “subaltern” as I employ it gestures towards the potential for solidarities born of practical and socially situated work/labor and experiences of subjugation. Its broad and prolific use among scholars of rural dispossession and rural social movements throughout the “Global South” (Wendy Wolford and Michael Watts provide examples) and for political purposes such as fighting for land rights illuminates points of connection.55

Finally, and importantly, “subaltern” here evokes a theory of space posited by Prema Devi, a farmer who later appears in this work. Sitting in her courtyard one evening, she asked me to describe my journey from New York. My imagery drew on the globe and the language of equivalents. She replied, “That's not how I see.” She described islands floating in layers and suspended in space. I had come from a layer “above.” Her description emphasizes the practical, relational and phenomenological effects of space with attention to power, mobility and gender. Put differently, Prema was remarking on the direct relation of our homes to each other from the positioned experience of living that relation. In addition, her islands are entire. Each fully encompasses life. This “wholeness” is not harmonious or closed, but tentative. It is a condition of erupting and resolving tensions. However, no “life world” or social world is more complete than any another is.56

55 In Chapter One and the concluding chapter, I make a similar argument about the category of “millets.”
56 The similarity of this theory with those of small-scale farmers in other regions is a site for further inquiry.
With her reference to “above” and initial inquiry into my presence, Prema posited that people, ideas and commodities move from one “island” to another in flows that are not “equal.” As someone who lives in pahar (the hills), she knows, physically and intellectually, that it takes more energy and resources to climb than to descend. And her situatedness as a pahari woman informs a perspective that one’s ability and inclination to “move” changes based on one’s gender and the socio-economic context of that identity; hence, she and I were different. Moving from one island to another requires leaps: subjective, social, experiential, cognitive, philosophical. With that leaping, the “islands” themselves (trans)form. This perspective on life and space, which emerges out of an awareness of being “below,” is suppressed by mechanisms that also limit the imaginative horizons for those positioned “above.”

For example, many would consider Prema’s map “wrong,” and that judgment of error circumscribes the possibilities for a shared subjectivity and ways of organizing our relationships.

"PRACTICE" brings the “messiness” of everyday life and the “domestic” into the frame of politics and biodiversity; shows local forms of exploitation and patriarchy to work with and against capitalist accumulation strategies; and, understands (agri)culture to be a form of education.

My use of “practice” builds on what various scholars and farmers have called "agricultural biodiversity practices" or "agroecological practices" — in this case those related to cultivating mandua (finger millet), madhira (barnyard millet) in mixed crop fields in rural Uttarakhand, India.

Agricultural biodiversity is the basis of all food, fibre and other products of ecosystems used by people, their livestock and other farmed, fished and harvested species (PAR and FAO 2011) and it has critical, but often under-recognised, linkages with culture, spirituality and livelihoods (Pimbert, 2006). It is a creation of humankind whose food and livelihood security and food sovereignty depend on the sustained management of the biodiversity that is important for food and agriculture: the origins of agricultural biodiversity are through the careful selection and inventive developments of women and men.

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57 Crapanzano (2013).
small-scale food providers over more than 10 millennia, since the dawn of
civilisation. (Mulvany, 2001; ITDG, 1996).  

These are methods associated with small-scale farming, local production-consumption circuits,
mixed crop systems, networks of farmer saved seeds and seed reciprocity, densely interwoven
domestic and agricultural labor and (often) legacies of cultural heritage, which are also
connected to their own legacies of patriarchy and social inequality.

I also employ "practice" to connote something beyond these features. Practice is
practical, and therefore prioritizes lived effects over ideals. Drawing from Prema Devi’s islands,
"a practice," signifies modes of living, or situated philosophies and shared life views that bring a
sense of coherency to life and reflect practical understandings of one’s place in the world.
“Practice” reflects the practical work involved in small-scale food production, which often
cultivates forms of attunement and receptivity to the temporalities and needs of nonhuman
species and actively incorporates notions of human restraint. “Practice” entails practicing –
something at play in all aspects of life, as the body and mind accommodate to and produce
socio-environmental temporalities and effects. During my time in rural Uttarakhand, I found
this involved kinds of experimentation that emphasize process, learning through absorption,
informal apprenticeship and direct connections between sensory and intellectual knowledge;
these existed in the context of patriarchy, violence, caste exclusion and class exploitation. In
other words, the practice of biodiversity does not offer a cure for the ills of capitalism and
colonialism, nor does it stand outside or before them.

Of the theories of "practice" that inform this text, two are foundational. First, Judith
Butler's analysis of gender and subject formation in which iteration is both habituating and
transgressive; by conforming to what Foucault understood as temporal "disciplining," the body
and mind consciously and subconsciously also open up spaces for and enact rebellions.  

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58 Excerpted from Patrick Mulvany’s (2014) contribution to a critical dialogue on food
sovereignty at the International Institute of Social Studies at The Hague.
Second, Gramsci’s exposition on education and “praxis” in which experience is practical and emerges dialectically through socio-historical tensions that are, in Stuart Hall’s words, “structured in dominance.” It is through living in the practical sense that one becomes educated into and potentially conscious of one’s social position, social values and the situatedness of one’s intellect, desires and repulsions. Shame, pride, blindness to and awareness of one’s “place” causes one to jettison, seek, reinforce or appropriate particular practices or a generalized practice of living.

"Biodiversity" highlights time and modes of living; recognizes that the endangerment of plant varieties has accompanied the narrowing of ways of relating, understanding nature and forging democracy; and, underscores the work that sustains human and nonhuman life.

“Biodiversity” is a site through which transnational and national contentions over seeds, food and intellectual property intersect; it raises questions about democracy and citizenship in the era of globalization. In Rio de Janeiro, Brazil in 1992, India was among the early countries to ratify the Convention on Biodiversity (CBD) when it was opened for signatures at the "Earth Summit." This multilateral treaty, which emerged in part out of civil society concerns and now has 196 parties with the notable exception of the US, was the first piece of international legislation to articulate biodiversity as “a common concern of humankind”.

The Earth’s biological resources are vital to humanity’s economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations. At the same time, the threat to species and ecosystems has never been so great as it is today. Species extinction caused by human activities continues at an alarming rate.

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60 Hall (1980).
61 The CBD developed out of an ad hoc working group from the United Nations Environment Programme (UNEP) in November 1988. The CBD remained open for signature until early June 1993. All UN member states – with the exception of the United States – have ratified the treaty. The CBD is associated with the 2001 ITPGRA or “Seed Treaty,” which also seeks to protect farmers’ rights.
62 from the Convention on Biological Diversity (CBD) website.
The CBD’s iterations mark shifting national and transnational protective measures related to evolving industrial innovations, historically specific patterns of deforestation, transnational agreements related to global trade and geopolitical regimes. For example, the Cartagena Protocol (adopted in 2000) was drafted to guard against the potential biosafety risks to biological diversity from living modified organisms (GM or transgenic) with then recent breakthroughs in plant biotechnology. Ten years later, due in part to intense civil society protests concerning the socio-environmental effects of the extension of “intellectual property rights” that protect industrial innovations, the Nagoya Protocol endeavored to provide a transparent legal framework for “fair and equitable sharing of benefits arising out of the utilization of genetic resources.” This was because those industrial innovations used as their base material, and without compensation or acknowledgment, plant life that small-scale farmers had contributed to producing through selecting, saving and replanting seeds over thousands of years. Making profits by selling this “genetic material” back to farmers in a new form was not only unjust, many argued, but also threatened the very practices that produced “plant genetic material” in the first place.

As a written instrument, CBD reflects the widespread acknowledgment in the national and transnational arenas of the importance of smallholders, “traditional” knowledge and “indigenous and local communities” to protecting the world’s biological diversity.\(^63\) However, in practice it reveals opposing claims and motivations for “preserving biodiversity.” Countries have varying stakes both in benefiting from and in protecting themselves against industrial endeavors to use “raw” genetic information to commercialize new forms of life. India and other members of the “Global South,” in which the majority of the world’s biological diversity resides, are asserting their rights, citing centuries of seed, plant and other “natural resource” extraction through

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\(^63\) India’s national plans include categories for sustainable use of “components” of biological diversity, biodiversity and tourism, capacity building and participation of indigenous and local communities, traditional knowledge and related provisions and capacity building for small holders.
colonial rule and occupation. The United States’ continued refusal to ratify the CBD reflects its own geopolitical interest in industrial innovation and maintaining forms of “free” access to the world’s plant genetic material. Corporations are using opposing multilateral agreements, in particular the UPOV ’91, to pressure national governments to create and enforce seed certification laws that restrict farmers from planting saved seed and criminalize farmers if they do. This has deeply undermined the principles and effectiveness of the CBD, in particular its Nagoya Protocol.\(^{64}\) If national governments have employed the “national resource” claim to appropriate land, water, forests and seeds from their populace, civil society groups, including those in India, have also used it – and India’s corresponding 2002 Biological Diversity Act – to pressure national governments against adopting industry-friendly legislation like the UPOV ’91.\(^{65}\)

These conflicts have centered to some degree on matters of property. No doubt, claims over biodiversity as a resource or as property are not abstract; they have been critical and strategic avenues for local groups to protect resources and their access to resources upon which they depend (and often vice versa), and they have halted processes of dispossession by private and government actors.\(^{66}\) This work furthers understandings of biodiversity as a (human-human as well as interspecies) relation in such a way as to deepen those claims and show how they extend to farmers who do not claim biodiversity in this way. By shifting the frame away from biodiversity as an idea, a state of purity, an attribute of nature, an outcome, a good, a harmonious system or a national/natural resource, I highlight how these struggles over ownership are also ideological struggles over the organization of time and social values. Prema

\(^{64}\) Many people whom I interviewed, from government officials to journalists, argued this has become the case in India.

\(^{65}\) India’s Biological Diversity Act of 2002 acknowledges the role of local people and local governance (through the village panchayat) in biodiversity conservation. The nonprofit the Gene Campaign and its Director Dr. Suman Sahai has written widely on this topic and some reports are available on the organization’s website.

\(^{66}\) William Cronon (1996) problematizes the concept of “wilderness” in similar ways.
Devi, like most *paharis* whom I met, children included, appreciates and names the diversity of plant and animal life that comprises her world, in forests and fields. In other words, she shares with others a “common sense” understanding of biodiversity as a practical effect and a source of life. However, she, like others, does not claim “biodiversity” as a categorical thing. Both the content and form of this work conforms to this sensibility.

**Writing the Subaltern Practice of Biodiversity**

Each ethnographic or writing project comes with its own root challenges. In this instance, mine has been to analyze aspects of the global political economy and India’s agricultural development while minimizing my reproduction of the “commodity logic” that drives quantitative, linear and instrumental forms of assessment and countering the valorization of these approaches to truth-making more broadly. Gramsci’s work reminds us that infrastructures of national development and political economy also produce and are fashioned out of infrastructures of thought and sociality, and they are transformed by the same.

For me, this task has not only entailed calling attention to what has been outframed – i.e., focusing on content, the “what” – but re-orienting the process of framing – i.e., emphasizing form, the “how.” In the pages that follow, I engage in a manner of thinking that either overtly problematizes “inevitable” refrains of history or “progress” or more subtly enters into spaces of nonlinear logic, “extended family” ways of relating and temporal attunement to multiple species modeled by *pahari* practices and philosophies. Taking time to “be with,” the narrative includes textural elements of living often rendered “unnecessary” by capitalist ideologies; it engages in

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67 Gramsci used “common sense” to mean a shared (common) understanding that derives from practical life, saturated in relationships of power.

68 Marilyn Strathern (1990) brought this question to the table long before me. I also use the plural for “commodity logics” as they too are not monolithic.
what Vincent Crapanzano calls a Bakhtinian and dialogic approach to anthropology, one that works against a tendency in social research to relegate the matter of life to "subject matter."  

Furthermore, the narrative form of each chapter delivers, and enacts, a fundamental aspect of that chapter’s argument, which cannot be made by simply stating a case. In part because in this work a great deal of what I analyze relies on the unstated, what is behind words and what words come to mean in social context. Analyzing the unstated realm across spatial arenas has necessitated heightened attention to the relationship between my written words and their form. Each chapter engages differently with ethnographic material, time and space. Together, the chapters attend to the ways *mandua*, *madhira* and other crops and animal life are embedded in and contribute to producing social life in Uttarakhand, as well as the ways they are being pulled into capitalist agriculture and consumption that work to technologically, institutionally and ideologically sever seeds and grains from that life.

Most importantly, writing about the subaltern practice of biodiversity has itself been an educational practice. If this project argues that the subaltern practice of biodiversity works through and embodies social contradictions, the same can be said of writing about it. If this project understands social life to be inherently messy, so too has simultaneously claiming my subject position and surrendering to a kind of dislocation from it been a messy task. Bringing socially segregated spheres into direct ethnographic contact through my humanness “in the field” or on the page has involved a series of revised choices and instinctual actions that reflect my own ethical and political struggles, biases and reflections on those struggles and biases. The result reflects moments of crystallization, which on the one hand cannot escape but on the other

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69 Crapanzano (1991). My approach also corresponds with various South Asian philosophies, art forms and religions that incorporate dialogue and the sense of extended networks into depictions of the world and the self. One example is Gandhi’s (1909) *Hind Swaraj or India Home Role.*
70 a humanness that was received differently and evaluated differently and simply was different in various settings.
71 I discuss these more in my final reflections on methodology.
hand can transform the conditions of their production. As the argument of this work does not follow a linear trajectory, this work invites the reader to participate in a shared labor.

**Chapters**

This work comprises five chapters, including the introduction and the conclusion, followed by reflections on methodology. I examine three aspects of the *subaltern practice of biodiversity* as it relates to the production of *mandua* and *madhira* in mixed fields in Uttarakhand. These aspects are:

1. Socio-spatial contingencies (conditions that produce *subalternity*);
2. Everyday life and labor in context of “feminized” rural distress (the practice of biodiversity as social life); and,
3. Millet commodification and related mechanisms of alienation (the stakes of becoming valuable as “*biodiversity*”).

These accompany the earlier mentioned attributes that make rural Uttarakhand a site of convergence for the externalized costs of capitalist development onto the environment and the household:

- (a) its association with "nature" as separate from humans;
- (b) its perceived economic "unproductivity;" and,
- (c) its proliferation of dryland small-scale agriculture.

While each chapter considers relations between different arenas, as the argument moves from chapter to chapter it focuses first on spaces “between;” then on everyday life and farmer fields in Kumaon, Uttarakhand; and finally on the movement of seeds away from the hills.

Chapter One “*Pahar-Bahar* [Hills-Outside]” depicts socio-spatial contingencies that shape the past, present and future of rural life in the hills. Here, I examine what I call the “triple marginalization” of *pahar*, *pahari* farmers and *pahari* grains, which constitutes a triple marginalization of place, people and the practice of (agricultural) biodiversity. I analyze the ways in which these forms of marginalization (being made “remote,” “unproductive” or

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invisible) are interlinked and occur in relation to places, people and modes of agricultural production constituted as central to the nation or industry. This chapter begins with two detailed ethnographic events that evoke two apparently disparate milieus. The first one occurs in pahar, in the fields with women farmers who are trying to protect their crops from suar (wild boar) at night. The second takes place bahar (outside), far away from the hills at a national/transnational meeting on “family farming” in south India. Moving out from these events, I examine four crosscutting contingencies – “Pahar/Bahar,” “Mandua/Millets,” “Economy/Ecology” and “Food/Security (Sovereignty)” – that relate them historically and in the present. Through this relational framework, I make the broader case that narratives depicting India’s Green Revolution and current biotechnological projects as “inevitable” or “necessary” work to narrow the scope of democratic possibility by eclipsing the roles of agrarian labor and political struggle. This “narrowing” has accompanied a decrease in plant varieties as well as moves by industry to contain and control the contingencies of seeds and plant life.

Chapter Two “Jan Gyan [People Knowledge]” examines how deeply the practice of biodiversity in Uttarakhand is intertwined with patrilineal and patriarchal relations, broader social life, religious beliefs and cultural rituals – such that pahari grains embody what is material, ideological, practical and spiritual. In this chapter, I depict how the practice of biodiversity changes in the face of national and capitalist development and globalized agriculture. Keeping in mind Prema’s framing, I attend to the robustness and “messiness” of everyday life in rural pahar while examining how subaltern forms of life, thought and education are being endangered. This chapter weaves interrelated narratives of human and plant life, as the ethnography performs and emerges out of the modes of life it depicts, mirroring forms of receptivity, motion, open-endedness, dynamic and dense social relationships and sensory attunement. Veering away from a tightly bound linear argument, the chapter’s four narrative sections highlight the importance of social reproduction and patrilineality to mandua and madhira production. These accentuate how: (a) (agri)cultural trends paradoxically and
simultaneously devalue and rely upon sustenance work and rainfed crops; (b) *pahari* practices and ways of knowing are both devalued and reinforced in a context of “feminized” rural distress; (c) women face competing pressures to perform class through whiteness and consumerism on the one hand, and through physical strength and hard work on the other; and, (d) NGO fieldworkers inhabit the contradictory social positions as they attempt to revive “traditional” crops.

Chapter Three “Kheth Khaana Beej [*Field Food Seed*]” analyzes the major contentions around “minor” (marginalized) food grains. Here, I examine what happens when *mandua* leaves small-scale *pahari* production-consumption circuits as “(agricultural) biodiversity” in the form of seed, grain and genetic information: what happens when the lives, work and knowledge related to the *practice* of biodiversity crystalize into the mobile “millet,” a “biodiversity resource” or “plant genetic material.” This chapter illustrates how, as they grow in places and as they travel through space and time, seeds are practical and political sites of democratic struggle. In this chapter, nine “Portraits” and nine “Passages” portray the kinds of dislocation and containment that accompany the new mobility and social/economic value of marginalized grains. As the “Portraits” move from a kitchen in *pahar* to an NGO seed bank to a vault in the National Bureau of Plant Genetic Resources, they do not follow an individualized "seed” or "grain,” but call on the reader to imagine the social realities this progression entails, excludes and makes possible. Corresponding "Passages" of analytical text illuminate processes that spatially, temporally and ideologically (dis)connect; in other words they represent passages (movement) of time and space.

The concluding chapter “*Jal, Jangal, Zameen* [Water, Forest, Land]” arrives at a looking glass take on capitalist “added value” development and agriculture, one that gestures towards a more expansive view. The title of this chapter is a historical and contemporary *pahari* chant that voices a political claim to local resources and a common *pahari* wisdom that categories of “nature” are inalienably connected to each other and to human existence. Using “*Jal, Jangal,*
Zameen” as an example, I look to the subaltern practice of biodiversity as an intersectional spatial and temporal node through which certain impracticalities and contradictions of capitalist logics and ideas of “progress” are unearthed. I contend that the subaltern practice of biodiversity (the practice, not the concept) opens up practical, intellectual and political possibilities. For this reason, “counter-topographies” and transnational rural alliances, such as a national farmer seed exchange and an Afro-Asian millet network, have formed across vast geographic and cultural distances.73

5. An example of the resurgence of interest in “orphan crops” described in the Opening.¹

6. Millets are entering a new “improved” status, as analyzed in Chapter Three.²

¹ Kebebew (2014).
7. As this Google search illustrates, numerous sites now advocate the health benefits of finger millet, known in Hindi as ragi and in Uttarakhand as mandua.
Chapter One

SUBALTERN practice of biodiversity

This chapter depicts socio-spatial contingencies that shape the past, present and future of rural life in the hills of Uttarakhand. I examine the “triple marginalization” of pahar, pahari farmers and pahari grains, in other words a “triple marginalization” of places, people and the practice of (agricultural) biodiversity. I analyze the ways in which these forms of marginalization intersect and occur in relation to places, people and modes of production deemed significant to national development or industry. In other words, they are made subaltern and rendered “remote,” “unproductive” and invisible. To understand subalternity is relational is to recognize that pasts and futures are historically contingent and produced through collaborations and contestations.

“Pahar-Bahar”

The title “Hills-Outside” calls attention to the relationship between the hills of Uttarakhand and the places paharis (hill people) refer to as “bahar,” or outside. The hyphen between the two words signifies lines of (dis)connection and undercurrents of unequal reciprocity that comprise the history of this relationship. At the same time, this hyphen signifies a recalibration of understanding – an attempt to challenge hegemonic tropes that characterize the “pahar” as “less”: less developed, less important to agriculture and less significant to India’s growing urban centers. Of the two terms in this chapter’s title, “pahar” comes first, as it is a place that has sustained India’s capitalist development. Here, I use “pahar” and not “Uttarakhand” to illuminate how it cannot be defined simply within the political terms of the nation-state.

In the Frame

In the pages that follow, I demonstrate the marginalization of pahar, pahari farmers and pahari grains through four “contingencies” that reveal important socio-spatial (dis)connections:
“Pahar/Bahar,” “Mandua/Millets,” “Economy/Ecology” and “Food/Security (Sovereignty).” These examine the relationship between:

1. a “remote” hill region and colonial and national development;
2. forms of classifying and understanding marginalized crops/foods/grains and how political economic projects are enacted;
3. global processes of seed commodification and crop varieties grown by pahari farmers;¹
4. current patterns in pahari food production/consumption and India’s recent national food security legislation.

Through this relational framework, I make the broader case that narratives depicting India’s Green Revolution and current biotechnological projects as “inevitable” or “necessary” work to narrow the scope of democratic possibility by eclipsing the roles of agrarian labor and political struggle. This “narrowing” has accompanied a decrease in plant varieties as well as moves by industry to contain and control the contingencies of seeds and plant life.

**On Form**

This chapter begins with two detailed events that evoke two apparently disparate milieus, recalling Prema Devi’s theory of social “islands” that are separated and connected through relations of power.² The first event occurs in pahar, in the fields with women farmers who are trying to protect their crops from suar (wild boar) at night. The second takes place bahar (outside), far away from the hills at a national/transnational meeting on “family farming” in south India. Moving out from these events, I examine the four crosscutting contingencies that relate them historically and in the present.

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¹ Razavi (2002).
² I elaborated on this theory in the section on “Subaltern” in the Opening.
Kashtee Didi surveyed the terraced fields beneath the cluster of village homes. “In a few days, we’ll have to do it,” she said. Neema, who was standing beside her in the adjoining courtyard, agreed. “Will you come?” she asked me. They both laughed.

The village, Gow, was perched at an altitude near 2000 meters in the Himalayan foothills of Kumaon, Uttarakhand, where India flanks China and Nepal. It was late August 2014. The most prominent crops below were the pahari food grains of mandua, followed by those of madhira, as well as different dhals (lentils) and some irrigated and unirrigated dhan (rice). All are kharif crops, meaning they grow in times of heat and rain, in the bhaarsat, the monsoon. In a place of stark seasons, mandua reflects the turn to winter’s nourishment, along with moongflee (groundnuts), store-purchased gud (raw brown sugar), wild growing bichugaas (stinging nettle), and other things that "make you warm.” Mandua here was still plentiful, though the hills were dotted with “ghost towns” where so many inhabitants had left you hardly saw it anymore. These crops had been grown from seeds saved from the previous harvest; they had dug their roots where they had landed after having been tossed into the air by someone in whose home they had likely been stored – in wooden barrels, small aluminum tins, beaten plastic canisters, mud pots, or tightly bound woven sacks – separate from what was meant for eating because they came from “the best plants.” And at the end of this season, once their promise was fulfilled, the “seeds” among them that had been saved but not planted would, in a soft shift of identity, be added to the stock of “grain” to be ground into flour, and eaten in rotees (flat breads) by humans or fed to the cows. Varied as their life trajectories could be, they had this in common: if it could at all be helped, they would produce something in the form of sustenance.

Mandua, like madhira, was not picky. In times of more rain and in times of less (as was now the case), it could be counted upon to grow. Three months after sowing, it seemed like the plants were sprouting higher every day. Recently the baal (the head of the plant) had appeared and now you could

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3 Spoken names here connote relations, as well as hierarchies of status. “Didi” means older sister. In other chapters I use “Devi,” signifying a married woman rather than the relational word (“didi”). I drop it after this initial intimation for reasons of style.
see the little pearls of grain. Predictable, yes, but it was also like magic; to watch a plant grow is to know it has its share of drama. However, what was most striking today were the swatches of red, orange, and purple cloth in the fields, some propped on sticks and billowing like flags. Two days back, they were not there; so something had happened. Life for a farmer is a practical enterprise, if marked by patterns then also by uncertainties. And change is expected. Just a few months ago, these fields had been wheat as far as the eyes could see, and then the wheat had turned to millets.

What had happened was that suar had returned. Suar are wild boar that live in the forests that cover upwards of 60 percent of this mountainous state. They come out in troupes – of five, ten, twenty. They come out at night, at all times of year but can be a particular nuisance when humans anticipate a harvest. Suar of pahar have become like mythological creatures – a folklore-inspiring status their brethren have also claimed in places as far as Italy and Greece. It is not just that I had heard people talk of sightings; I had heard them talk of talk of sightings, talk of missed sightings, and talk of talk of missed sightings. Two mornings ago, Kamla had seen them in a pack of ten or twelve as she was headed into the fields, and she and the others scared them off. Chetna, the twenty-four year old daughter of the woman in whose home I was residing as a paying guest in a neighboring village, almost tripped over one that was sleeping while making her five-kilometer trek through the forest to her job in the “livelihoods” division of a local NGO. People had told me that suar had killed someone on the path to the nearby Shiva temple that was frequented by Hindu pilgrims at auspicious times of year.

Inhabiting that liminal recess where real commingles with imagined and natural with supernatural, a myth must have its requisite doubter. I had met mine a few months earlier when I interviewed a German entrepreneur for the first time. He has been settled in the hills for almost a decade and co-owns a successful company that produces organic beauty and food products to tourists and well-off Indians. They had found a way to package mandua flour, which might go for only fifteen rupees (twenty-five US cents) a kilo in the local market, with a label whose elegant script read
“Himalayan Finger Millet” and sell it for twenty times that price. He said that he had “never seen a boar,” adding provocatively that Uttarakhand’s biggest problem” is human.” His disdain for nonprofits was no secret. He could talk at length about a smarter and more environmentally sustainable business model, using his implementation of water harvesting techniques as an example. But then, he was not a farmer who labored in the fields; his interventions were circumscribed by his small production; and he managed to get his necessary ingredients from one village if not another. People like him did not need to believe in suar.

I, on the other hand, had seen them. Two of them. From the window of a rickety early morning bus. They were enormous, each with a line of long hair trailing its spine. They were running through the pine trees faster than seemed possible for creatures of their size. Then they disappeared. My having seen them did not detract at all from my awe. For me, their mystique lay in the combination of their material and symbolic power. They performed their acts of destruction at those tender hours when humans were released from their waking obligations or most burdened by the weight of them. When suar tore up fields, they exposed more than a crop’s roots; they exposed fears that had become a part of daily living: the fear of so much mehenet kaam (hard work) being trampled. The fear of food being tighter, of expenses at the store, of money that might not come home because it would go to the government liquor store, of the expense of a daughter’s wedding, of what might happen to husbands, fathers, sons, daughters, brothers, sisters, and grandchildren who lived far away, of things that needed communal solutions when families were becoming insular. The problem of wild animals hardly existed before, older villagers consistently told me, though I had found numerous archival references to the nuisance dating back more than a hundred years. Whether things had gotten better or worse since then, it was clear that the problem now was bigger than anyone could remember. And the history of most concern was that of living memory.

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4 In 2013–2015, 58–65 rupees have “equaled” $1 US.
5 Managing domestic and wild animals has been a preoccupation of farmers since the beginning of domesticated agriculture – and this has certainly been true of wild boar, the evolutionary siblings of domesticated pigs. Myths, complaints and studies of wild boar throughout Eurasia abound, as exemplified in the work of Heinz Meynhardt and current research of Thomas Fleischman. Radhika Govindrajan (2014, 2015) also writes about human-animal relations in Uttarakhand.
No one seemed to really believe that draping old saris and shirts on sticks would do much to dissuade suar. It was not a “real” solution for the diminishing forest diversity or the thirstiness of the now dominant chir pine whose resin was sold to turpentine factories. It was not a “real” solution for the “changes in weather” – the extremes of droughts and floods. “Real” solutions were being discussed. Some environmental activists had begun advocating for a state plan to kill suar, and in neighboring villages men had purchased guns because many people ate suar meat. Local government representatives were considering building walls or fences or setting up nets between forests and fields, which – in a place where human life has depended on this precise entanglement – sounded akin to severing heart from lungs. It seemed to me that the display of cloth communicated something to fellow humans as much as to suar. That things had gotten bad enough to call for collective action. That labor here produced something valuable and worth protecting, even if the younger generations did not see it.

The “it” Kashtee and Neema were talking about was patrolling the fields between 10 p.m. and 1 a.m. as they had in April for the wheat. Married women from various households had rotated every other night for almost three weeks. It made them laugh, even still, that I had expressed interest and volunteered to participate in something they associated with drudgery, leg pain, and sleep-deprivation.

They were remembering, I knew, an April night whose denouement people still mentioned, when I had accompanied Heera and Nirmila on the patrol. That afternoon their twelve-year-old neighbor had taken me into the fields so I could see the damage wrought by suar for the first time; the fields looked like they had been hit by an erratic and determined tornado. My young guide revealed herself to be far less interested in this evidence of destruction than in the trees and bushes that would soon produce new life: “In hamare waha (our place/home),” she declared, “you can find everything to eat.” That night while we were flipping through TV channels waiting to head out, she showed up at because her father – whom I had encountered occasionally when he was plowing other people’s fields – was drunk. Like me, she would be sleeping over.
When it was time, Heera and Nirmila wrapped woolen shawls over their heads, as it was considerably colder beyond the insulation of the mud walls, and Heera summoned me with a nod. On the way out, Nirmila grabbed a plastic canister and stick, and beat them together to check the sound. It was hollow and loud. She seemed satisfied.

We trudged up and around the main footpath. Nirmila made music with her canister and Heera Didi called out names in the way they do in these hills, adding “oooooo” at the end of each one. Taptaptaptaaaaptaptaptaaaap..... Nandooooonandoooooo.... Taptaptaptaaaaptaaaap.... Manjoooomanjoo.... ooohhhh.... Deepoooooooooeeepoo.... With my eyes focused on the path ahead so as not to twist an ankle, I did not know how many had joined us; but I could hear the volume rise.

We passed the final homes and climbed over a few boulders to enter the area planted with wheat. The stalks parted like water with each body that passed through the narrow footpaths that separated the fields then swayed in again to brush against the body that followed. They varied greatly in size; some came to my face and others to below my chest. The season, thus far, had been kind – seeds had sprouted; sunshine and rain had been sufficient; and grains were ripening just in time to initiate the wedding season and relieve people's minds after last year's stock had run out. It would turn out to be what many called “the best wheat harvest in twenty years” – a marker of time that I learned had less to do with dates than with a perceived line that separated the dearth of “now” from the plenitude of “before.” It was the potential return to abundance that made theft unacceptable.

Though she could well be taciturn in daily life, Nirmila was among the most animated. She called out things, often to a tune, then those behind us hollered or laughed and played their improvised instruments. Every time she struck the canister, it expelled a blast of cool air against my cheek.

As we passed their families' scattered fields, women pointed out to me, "This is mine," “This is mine.” I knew that, despite changes in India’s laws, no woman in Gow had a property title in her name. Therefore, this my-ness spoke of a sense of belonging born of labor, affiliation and social practices. However, it also spoke of an underlying patriarchal logic and deeply held family distinctions.
that precluded forms of collaboration that crossed caste lines or undermined aspects of men’s power. It spoke of the way those forms of power has congealed to become truth.

Most of the fields had been planted. The wheat, like the mandua, was grown from farmer-saved seed, and it was a prized staple. Families that had left or that did not have enough working hands loaned their plots to others or hired the poorest in the village – like Geeta, a woman I had recently met – to work for 100 rupees ($1.50 US) a day. Most of those laborers came from “Scheduled Castes” (caste groups officially designated as historically disadvantaged) and lived in the tala (lower) side of the village. I remarked that no one from those roughly seventy-five families had come though they also grew wheat, albeit on smaller holdings. Two women next to me shrugged. “We don’t know why they don’t come,” one said. There were reasons for this lapse of solidarity, and it seemed to me, when it came to understanding the current decline and resilience of “traditional” pahari grains, those reasons mattered.

I didn’t realize there was another group until we saw lights and heard voices below. We hollered down and waved. They hollered up and waved. We all made more noise. Our two groups arrived at the grounds of the “intercollege,” the government high school, at precisely the same time. The singing, drumming, and chanting got louder. People yelled whatever came into their minds – like jokes, names or phrases from Kumaoni songs – and it was matched by a response. With the bodies, the voices, and the focused energy, the gathering felt distinctly political. However, if it was a protest, there was the question of audience. Towards whom was it directed? Suar? Each other? Those still in their homes? Those beyond the reach of voices?

As if on cue, things took a more obvious political turn. Nirmila Didi began with “Modi sarkar, Modi sarkar, ayeega. (Narendra Modi’s government – the Hindu Nationalist BJP party – will

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6 Both local wheat varieties and some Green Revolution wheat varieties have been and are grown in the hills; however even the latter are often (not always) used without chemical inputs and are saved and replanted by farmers. Though Uttarakhand was declared an “organic state” after it achieved statehood, many farmers still use chemicals and some government officials still promote it, especially in the plains. Shaila Seshia Galvin (2014) writes about organic agriculture in Uttarakhand.
“Out with the Hand!” yelled a few others, alluding to the symbol of the Congress Party. In the past few weeks despite all the talk about the impending national election, I had not heard either major party referred to by name – the former was associated with its charismatic and controversial male leader and the latter with its symbol, which had historical resonance and legibility. Both parties had supporters in both sections of the village, but there were more “Hand” supporters among the “Scheduled Castes” and more “Modi” supporters among the “Caste Hindus” and, it seemed to me, more Modi supporters overall. A forest activist based in the pahari city of Almora had told me that the support for Modi had nothing to do with his policies; it was about a “longing for change” and “a feeling.” It was true that, though some – particularly men who gathered at the shops that lined the motor road – gave me specific reasons for their affiliations, most people expressed something vaguer.

When I had commented that many people considered Modi’s party to be pro-corporate rather than pro-poor, Heemansee, whose family had lost its income when her husband returned home from Delhi with tuberculosis, said, “You have to vote for who you doubt will do anything for you versus who you know will do nothing.” It was a kind of hope. In local elections at least things were clearer: alliances determined outcomes and in very practical ways.

A male voice boomed from across the grounds. "Modi, kaun hai (who’s he, what's so big about him)? Why are you calling Modi’s name and making so much noise? Come here!"

Nirmila said, "What do you mean who is Modi sarkar? Are you telling us what to say?"

We stopped walking.

She and the man began yelling at each other. It became obvious soon enough that he was drunk.

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7 Nirmila’s “Modi Sarkar,” Hindu Nationalist BJP party would sweep the national elections (and win in Uttarakhand) a month later. Its rise, as scholars have argued, cannot merely be attributed to communal politics; those politics (and caste Hindu nationalism) have been tethered to middle and upper class projects as India has risen an “emerging national economy” in the transnational sphere, exerting increasing influence on international affairs as a member of BRICS (Brazil Russia India China South Africa) and the G-20.
Nirmila said, "We didn't get anything from the control (the government ration shop). What is Haath (the Hand) doing? Are they giving me rotee? Are they giving my family food to eat? What did I receive in the control? These are our fields, this is our land!"

Ironically, just a few months earlier Congress, had pushed through a National Food Security Act, which some saw as a dying political gesture. One of its aims was to reform India’s massive public distribution system (PDS), but nothing here, yet, had changed. The PDS distributed to consumers, at a nominal cost, wheat and rice grown in cash crop regions that had become pivotal to India during its “Green Revolution.” The ration shops, administrated through state governments and local contractors, were notoriously variable. The one here had not been open in two months, even as the one for another village just down the road was functioning without hitch. If paharis tended not to eat mandua in these hot months, many were now mixing their extra mandua flour with wheat to make it “stretch longer.” On top of that, storeowners told me that the prices of other foods were spiking because big market owners in cities were donating sums to political parties or stirring the pot of consumer anxiety to sway votes.

We heard a bang. The man ran out towards us with a flashlight and a stick.

Most of the women who had remained with us stepped back. Nirmila stepped forward. She said, "We are here because of suar. We [are the ones who] feed our families. What do you do? This is our land. Is the Hand giving me atta [wheat flour]?

He fell to his knees and grazed her feet with his fingertips – a sign of respect. "This is my job," he said. He was the watchman and lived on the premises, though no one knew him.

Nirmila, in a clear position of strength, did not let it go. We stood there for what felt like a long time. Every so often, she called out "Modi sarkar!" and a couple of the younger women who had stuck around beat their canisters and yelled, “Ooooooh!”

Eventually, people got restless and we moved on. We climbed up a narrow path and walked until we found the others. In addition to the initial group, another ten or fifteen women had joined; they were carrying huge lights and metal plates. Nirmila recounted the story of what had just
happened a few times, focusing on the way he had initially questioned her. One woman said we should have left. They argued, briefly.

We walked up a bit further and sat facing each other in a misshapen circle on some dirt and rocks. Someone lit a couple of small fires. Someone else ran into the center of the circle and danced; she got laughs. People started singing. Nirmila, who had stopped telling her tale and was sitting quietly, occasionally improvised a line to a Kumaoni tune. A few others did the same. The circle devolved into separate conversations. We kept talking until someone said, “Shhh! Be quiet!” She had spotted lights in the direction of the intercollege, and it looked like they were moving towards us.

We put out the fires, switched off our lights and became silent, waiting.

**BAHAR [Outside]**

Dr. Robert Turner surveyed the crowd beneath the podium and said, “I have had the honor to stand here on this occasion...” He paused for effect. “Every year for the past three years.” He smiled.

We were seated on padded chairs in a conference hall of the M.S. Swaminathan Research Foundation, a small campus nestled amidst the thick foliage and humidity of Chennai, Tamil Nadu, at India's southeastern coast. It was early August 2014. Roughly 150 of us had gathered to commemorate the “International Year of Family Farming” and the importance of small farms to “food security” in Asia. The four-day conference, held in English to accommodate various United Nations functionaries, representatives from Asian countries and nonprofit leaders and researchers from India's multi-lingual states, began punctually. If this was, as someone beside me observed, uncharacteristic for the subcontinent, the gathering was uncharacteristic of its setting in other ways; like the terminal of an airport, it had a placeless feel with small flourishes to intimate geography. Here those flourishes included the *chai* and biscuits served outside the meeting room at breaks and the spread of Indian curries, breads, and seasoned rice for the first day's lunch. These delicacies

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8 In November and December 2015, the city of Chennai – where much of my family resides – experienced extreme flooding due from one its most torrential monsoons; as of December 7, 2015 at least 272 people were reported dead and over 28,000 had to be rescued.
contrasted with the direness of the issues, also particular to this locale, about which the invited guests had come to speak.

Their words relayed a deeply conflicted image of human progress: The history of agriculture began in Asia 10,000 years ago, but two-thirds of those living in hunger today are from this continent. India is the world’s main producer of rice, yet two out of every five children in South Asia will grow up “stunted” because of malnutrition. Women farmers comprise the majority of rural producers in world and up to 80 percent of those in India, but less than 9 percent of women in this country owned land. Rural residents in developing countries who “make their livelihoods from farming directly or indirectly” comprise a large segment of those living in absolute poverty. In the era of human rights, these markers were bleak.

Turner, who was from the United States, had worked on issues related to food and agriculture in Asia for decades. A few months earlier in his Delhi office, he had told me that he was the only one in his cohort of plant biologists to move beyond the laboratory and “into the world.” He had had success in promoting organic rice production in Asia and, during our meeting, had given me books, including a pen drive with 5,000 pages of B.R. Ambedkhar’s collected writings, which revealed his concerns for on the ground issues of caste and rural hunger. He had also taken the time to lead me carefully through the historical events leading to India’s Green Revolution and M.S. Swaminathan’s role in it to make me see that “there was no other choice”: India had to follow a course of industrial agriculture in the way it did in after Independence, even if that decision meant overlooking certain regions and lives – like those of farmers in the hills. He was extremely convincing; he spoke with conviction and support his case with many facts, which centered on India’s precarious position at the end of British rule and the compromises those in power had to make.

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9 According to the Indian Representative of the Second Committee (Economic and Financial) of the United Nations in 2011, developing countries need to focus on agriculture and rural development to reduce the “absolute poverty” of the 1.5 billion people in the world, whose social conditions had worsened between 1990-2005 (Sixty-sixth General Assembly Second Committee of the United Nations, 2011).
However, in the days afterwards, I found something unsettling about his certainty. It was striking that, given his knowledge and interests, he could look back at a period of history before the globalization of industrial agriculture would generate its now widely acknowledged environmental and social crises and see no other possibility for a future. I knew from interviews with journalists and farmer-activists that there were strong contentions then; there were various movements for land reform; there were claims that the publicized information about low crop yields was not true. Now from the future of that past one could see some of the concerns of those skeptics had come to pass. It was as if in its many iterations of retelling, this (hi)story of contested human decisions had, for Turner and from his social position, become truth. It inhabited that realm of unquestionable faith, rather than a messy world of conflicting “right courses.” It suggested the present was similarly foreclosed.

As Turner stated, this was an annual event, which came like the seasons and in a broader cycle noted by the speakers: “Recommitting to Beijing” recalled the fourth United Nations Conference on Women twenty years earlier; “meeting the millennium goals” recalled the United Nations Summit of 2000 in which eradicating “extreme” poverty and hunger and achieving gender equity were two of eight transnational objectives that each had its own benchmarks and timeline. The speeches also cross-referenced each other; like the rhythm of a hoe hitting the earth each time in almost, but not quite, the same way. There was a Malthusian refrain and the recognition of impending food crises in observations like “food needs will rise by 60 percent” and “the world must meet the challenge of feeding an ever-growing population.” Combined with references to a “Zero Hunger Challenge” recently launched in 2012 by the United Nations, they gave a contradictory apocalyptic and idealistic vision of the future. Yet, no one questioned the goal; at issue was when and how humans would achieve it. At times one could sense contentions beneath the allied stance, contentions that suggested a variety of ways forward: One speaker said we must use “all technologies possible” – implying the benefits of transgenic (“GM”) crops – while another referred to the need for “more equity in world food system” because power in the hands of “a few countries and corporations” does not help family farms – implying that the solutions lay outside of new industrial technologies and might even involve reining them in.
Many speakers mentioned “climate change.” And this environment, too, had undergone climactic shifts. Funding flows, world events, technological breakthroughs, pressures from civil society and private interests and the swirling winds of environmental anxieties were propelling new entities into this social sphere. A discernible breed of phrases were broadcast from the stage: “family farming,” “technological inputs,” “market and credit access,” “rural transformation,” “stakeholders,” “value addition,” “sustainability,” “market volatility,” “secure and profitable,” “under-nutrition,” “ecosystem services,” “land rights,” and “women farmers.” One speaker said that if all we did was give women access to credit, technology and land, then the world’s food productivity would go up by 4 percent and its malnutrition would decrease by 17. Another speaker called family farmers the world’s “repositories of knowledge and biodiversity.” A third mentioned hill agriculture and referenced Uttarakhand’s Chipko forest movement of the 1970s and 1980s. The very topic about which people had gathered, and that there was an international year named in honor of it, reflected the entrance onto the stage of food security a kind of labor deemed marginal even twenty years back. The way in which it was entering reflected an evolving financialized sensibility that results are best measured in numbers.

Regions once cast as nonagricultural because they did not “produce value” now had space and time in the conference agenda. The panel on “hill agriculture” would be led by two people from Uttarakhand. One, a man I had interviewed a couple of years earlier, headed a well-respected NGO that promoted organic methods and trained farmers on how to make sweets out of mandua or pickles out of forest fruit to generate income. The other was a woman whose organization was located near the border of the state’s two parts, Garhwal and Kumaon. Among other things, it promoted sustainable entrepreneurship around biodiversity conservation. Learning of my interest in millets, her friend remarked that a few years earlier Japanese businesses wanted sorghum, a “millet” that does not grow in the hills, and 200,000 additional acres of it were planted in India. Something similar happened in in Uttarakhand, the woman said. The Japanese demand for ragi (an Indian name for “finger millet”) soared because they were using it in baby food, and suddenly farmers in Uttarakhand could sell their pahari species of mandua at a good price. Then other high protein grains like quinoa from South America and ragi growing in other, more central, regions of India seized the market and
the demand for *mandua* plummeted. I had heard similar rumors where I was staying in Kumaon; apparently, a few years ago a group of Japanese businesspeople bought a truckload of *mandua* through a local NGO; but no one could give me details or even confirm that this had transpired. *Mandua* in the hills was declining because of drudgery and exploitation, she said. When small farmers take their products to the market, intermediaries know there are no other options so they pay as low as seven or nine rupees (about one US cent) a kilo. Or they might say leave your *mandua* here and if we sell it then we'll pay you. “So why keep growing it?” She could not say.¹⁰

The morning worked towards its culminating moment: Dr. M.S. Swaminathan's speech and PowerPoint presentation. Turner's reference to the special occasion had to do with more than the official proceedings. Before the conference had commenced, a large chocolate cake was cut to commemorate M.S. Swaminathan's eighty-ninth birthday. That this annual event coincided with the celebration of his life was not a coincidence. He was still prolific, giving speeches and co-publishing articles in science journals and mainstream newspapers. If the topic forty years earlier had been the miracle of the Green Revolution, today it was the miracle of agroecology, or small, diversified seed systems. He had changed with the times or he had changed the times; most likely, it was some combination of the two. Regardless, in a country where *gurus* can be revered as divine, he had become a kind of mythological figure, the “Father” of “Mother” India's modern agriculture. While he had his share of skeptics, he had remained remarkably unscathed even as the Green Revolution’s veneer of perfection has splintered in the face of new criticism of its unsustainable dependence on chemicals and irrigation and its exacerbation of rural class divides. Like Turner, he stood by the position that these consequences to have been *inevitable* in a new world order, considering the poor condition in which the British had left Indian agriculture. Born as he was to an elite south Indian family when India was still a colony, you could look to his life and see the country's post-Independence agricultural trajectory, just as you could look to the country's history and see his professional and political rise.

¹⁰ Scott (2010).
While covering a range of topics, Swaminathan focused on what he called “cultural, culinary, and environmental diversity.” He described foods marked by their “geographic indicator” as having a particular flavor and appeal. “Millets” reflected an “enlargement of food basket” and exemplified the need to prioritize nutrition and diversified diets. It was a noticeable shift away from caloric-based measures that dominated India’s food security concerns when he had helped to set it on its course of stockpiling wheat and rice. He also called for a diverse set of “revolutions”: We needed a “protein revolution,” a “pulses revolution” (2016 would be the “International Year of Pulses”), and a “dairy revolution.” He explained, “A revolution was not an evolution” because it reflected “a quantum jump in yield.” So to create a hunger-free India we needed an “Evergreen Revolution,” an increase in productivity without damaging the country’s ecological diversity. He explained this meant agroecology, but it did not exclude industrially produced transgenic crops.

If he slipped in “Evergreen,” the term was slippery. Used by some to indicate “family farming” and “agroecology,” it was also the parlance of foundations and agribusiness in new ventures to promote “food security” in Sub-Saharan Africa and South Asia by giving small farmers who had been previously “neglected” access to high yield “climate resilient” transgenic or hybrid seeds as well as the corresponding chemicals, markets, and credit. With “New Plant Biotechnology Techniques,” a specific trait from one plant could be isolated and inserted into the genetic material of a different species with which it could not otherwise reproduce. This opened doors of possibility for the industrial production of new “pest-resistant” breeds of cassava and sorghum in parts of the African continent. Drought-resistant or nutritional traits of various species of finger millets, for example, could one day be implanted into the genetic material of other plants. Thus, crops that had survived at the margins of the Green Revolution, on rough terrain and without irrigation or chemical inputs, were giving industry the

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11 Hartung et al. (2014): “Transgenic plants may go beyond any natural crossing barrier, thereby increasing the available genetic variation, resulting in plants (or other organisms) that are not achievable by conventional breeding.” These methods have now extended even beyond “gene guns” and “genome-editing” tools (Liu et al. 2013).

12 New Plant Biotechnology Techniques are also being used now to produce pharmaceuticals.
chance at an “evergreen” future, one in which, paradoxically, industry would be called upon to save the very farmers who produced them.¹³

Opponents cited risks of the unintended and irreversible “genetic contamination” on existing life (thereby further endangering existing biological diversity) and biosafety hazards; for example, secondary genetic consequences of Monsanto’s “herbicide-tolerant” Roundup Ready crops were only detected years after the crops has been widely commercialized.¹⁴ Opponents also claimed that the problem was not yield but poverty, that these technologies would further privatize seeds and consolidate power in the hands of a few corporations, thereby pulling some of humanity’s poorest members – the very people living in hunger and poverty who those gathered here wanted to help – into new cycles of dependence and debt.

Swaminathan suggested these “different approaches” could and, in fact, should co-exist. He believed in participatory research, expanding non-farm employment, and assuring farmers of minimum support prices – a nod to India’s recent refusal in Bali to abide by WTO mandates limiting farmer subsidies. Technology and agroecology needed each other; both depended upon “diversity.”

A few months later, I would hear a similar refrain in in Rome, Italy, at the forty-first Conference on Food Security of the Food and Agricultural Organization of the United Nations. At a side event concerning “plant genetic resources,” a man representing the CGIAR discussed the relationship between farmers and plant gene banks, of which there were eleven major repositories around world; I had recently visited the one in Delhi to learn how millet seeds were collected and stored in vacuum-sealed bags at temperatures low enough to keep them dormant.¹⁵ These gene banks, he explained, now held over 750,000 species of seeds and other plant material that were “not just sitting there” but being distributed as samples for “public crop breeding.” He spoke about the importance of farmers’ rights to maintain their genetic resources and have access to what was

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¹³ Thereby giving a second wind to the “second Green Revolution” that the Gates and Rockefeller Foundations and the Monsanto Corporation envision for Africa.

¹⁴ See Holdrege and Talbott (2010) for more on Monsanto’s Roundup Ready. For more on genetic contamination, one can refer to the online Genetic Contamination Registrar.

¹⁵ Formerly the Consultive Group on International Agricultural Research.
available, and breeders' rights to protect their innovations through intellectual property and patent laws. By maintaining this balance, they were opening up to farmers “a range of diversity they haven’t had access to since the Neolithic.”

When it was opened up for questions, the hand of the man next to me shot up. He introduced himself as a south Indian farmer and member of La Via Campesina, a network of 200 million small farmers around the world that has come out unequivocally against transgenic seeds. Challenging the peaceful vision of co-existence, he said that industrial breeding was in fact making plant genetic diversity less, not more, accessible to farmers because it promoted monoculture fields. He talked about how the US-based Monsanto Corporation had joined with the Indian-based Mahyco, which was not good for farmers’ rights. He said that almost 20,000 local varieties of Indian rice had been stolen in the “great gene robbery” of the 1980s through precisely the kind of institutional circuits the facilitator was advocating. The allusion was to research documented in a well-known article by a journalist from Goa named Claude Alvarez. Alvarez claimed that in the 1980s when Swaminathan was the Director-General of the International Rice Research Institute in the Philippines – which was established by the Rockefeller and Ford Foundations as an extension of the Green Revolution – the yields of dwarf “miracle rice” had plateaued because of its high demands on irrigation and nitrogen; meanwhile, attempts to produce new pest-controlled varieties were going nowhere because there was not a diverse enough pool of “raw” germplasm available for experimentation. Against the will of his predecessor, Swaminathan provided this missing material, free of charge, in the form of seeds and plant material collected from farmers through Indian agricultural universities. The influx of industrial rice in India since then has coincided with the massive reduction of India's rice diversity (to seven predominant varieties), hence the present movement for their revival. He said, “My own university is having genetic resources. First the university appropriates seeds, then it is partnering with

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16 However, members of the KRRS, a Via Campesina affiliate in Karnataka, south India, plant “Bt” (transgenic) cotton. This highlights the regional variations, concerns and class dynamics of various groups within extensive farmer networks.
corporations.” When the session ended he turned to me and asked, “What did you think of my intervention?”

I noted that his intervention had been absent at the conference in Chennai, even though it was located in his home state. Also absent had been seed and farmer activists and the more radically inclined proponents of agroecology whom I had met in other venues and at similar events. Despite the many allusions to “women farmers” at Swaminathan's event, the majority of those present had been men and those women who had spoken had not been farmers. Most “family farmers” I had met could not leave their fields, homes, children, cows, goats, buffalo – all the things that “family farming” implied – unless there was someone else who could free them from that day’s obligations.

While Swaminathan delivered his speech people outside were arranging tents to sell local handicrafts and “value added” products made from hybrid and local varieties of rice and millets. Before lunch, Swaminathan would declare “the market place officially open.”

His closing statement seemed to exist in a different place and time than the one I encountered in the morning paper’s depiction of terrorism, arrests, rape and war and to stem from unrecognizable history. Like Turner’s assertion that “there was no other choice,” it presented a circumscribed view of the nation. "The future," he said, “belongs to nations with grains not guns.”

**CONTINGENCIES (one to four)**

I turn now to four “contingencies” – Pahar/Bahar, Mandua/Millet, Economy/Ecology and Food/Security(Sovereignty) – that shed light on the two events above and relate these (apparently) spatially and socially segregated realms. I will explain each in turn.

By “contingencies,” I mean those of food, farming, and biodiversity; of human and nonhuman relations; of “traditional” and “industrial” grains; of government, business, and civil society endeavors. I mean the way the two “worlds” that open this chapter inhere in each other, obviously and subtly. My concern is with how divisions are reproduced, reinforced, subverted and transgressed by (human and
other) bodies and ideas. Interpreting “contingency” in the dual sense of uncertainty and proximity, I evoke two irreconcilable meanings: adjacency (connoting relationality) on the one hand and chance/risk (connoting uncertainty) on the other. These are “irreconcilable” not because they are antagonistic but because they do not fit neatly together; they form no stable whole. The sections below highlight “uncertainties” that are shared among humans and by humans and other species. Moreover, they are shared unequally.

In the rest of this chapter, “contingency” also refers to how understandings of the past shape possibilities for the future. Conflicts over food and agriculture that undergird the events above and the analysis below reflect opposing perspectives and a variety of ways forward. They problematize entanglements between “inevitability” and democracy, the latter of which depends on not only diversity but also on the necessity of conflict itself.

**one. Pahar/Bahar**

- “*Pahar*” (Hills) and “*Bahar*” (Outside) are the titles and settings of this chapter’s two opening events. This section examines the relationship between Uttarakhand and the nation-state, and that between a hill region and processes of colonial and national development. Here, I show how “remote” places, which produce value that is not counted in the national GDP, are in fact central to India’s history.

I conducted much of my seventeen months of research at an altitude between 900 and 2500 meters in the Himalayan foothills of Kumaon and Garhwal, the two ethnolingistic parts of India’s small northern state of Uttarakhand, which is largely mountainous and forested. This region, and its broader setting, is known by its residents and most people in north India as “*pahar.*” I also conducted research at offices, conferences, seed banks, and research centers that were located in urban centers, in the plains, or abroad – in other words, in places that lie “*bahar,*” or outside, of the hills.

While *pahar* and *bahar* are not conventional geographic categories, they still encourage certain modes of thinking about space and steer the mind away from others. My intention is not to segregate the rural realm from the world at large, or to reify a romanticized and traditional “*Bharat,*”
On the contrary, I hope to further disrupt this binary. I do follow the paths of Edmund Leach and James Scott, who both theorized the particularities of hill regions and hill agriculture in South and Southeast Asia. More broadly, I recognize something unique to life that develops on the surface of tectonic convergence. The terrain of such places is often remote, rocky, and volatile; it is resistant to commonplace industrial technologies such as tractors and certain modes of space-time “convergence.” The soil in such places is often particular to crops that are rainfed and hearty, and holds startling variation, even in close proximity, due to the intricacies of microclimates, erosion, subtleties of sun and shade, shifts of altitude, patterns of forest growth, and the tendency of rivers that cannot easily be detoured or made to flow against a gravitational tug. Humans in such places require a heightened awareness of their interdependence. The land, prone to seismic activity, rock falls, and mudslides, bears persistent signs of change, an underlying instability, and a longer durée than that of human economy and history.

The pahar that opens this text is full of the daily concerns of contemporary life. However, if you can imagine, these very hills might have come into “existence” 50 million years ago when the “Indo-Australian” plate, already in motion for tens of millions of years, began to collide with the “Eurasian.” Measured in human years, the resulting mountains might seem ancient but in geological time, they are among this planet’s youngest. They are geologically fragile, as activists agitating against hydroelectric dams in the region often remind. The momentum of collision still propels the upper plateau up five millimeters a year, which is, if you stop to think about it, astonishingly fast. The glacial melt and precipitation from these mountains source some of the earth’s major rivers – the Indus, the Ganges, the Yamuna, and the Brahmaputra – that are imbued with thousands of years of human rituals, sacred and profane, and provide the major source of water for a country of 1.2 billion, plus

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17 Drawing from Vedic refrains, scholars and politicians sympathetic to Hindu nationalist and fundamentalist projects have promoted “Bharat,” a glorified vision of India’s Hindu past.
18 This is the current thinking among geologists, and is subject to change.
19 In 1991, an earthquake measuring 6.8 on the moment magnitude scale occurred in Garhwal and Uttarkashi. Almost 300 villages, upwards of 300,000 people and many nonhuman species were affected. In March 1999, another earthquake of the same magnitude occurred the Chamoli region killing approximately 103 people. In 1803, an earthquake of 7.5 magnitude also occurred the Garhwal region.
many of the over 156 million people in Bangladesh and far more (nonhuman) animal and plant lives. The wood from these forests, which still dominate the landscape, were built into the infrastructure of British Colonial railroads and ships, and therefore into the infrastructure of the wars, capital expansion, and systems of slavery that underpinned it. On a contemporary Government of India Map, you would see the pahar that is the present focus delineated from its broader terrain with lines that identify India's twenty-seventh state, Uttarakhand, through its simultaneous separation from and immediacy to Tibet (China) to the north, Nepal to the east, the state of Himachal Pradesh to the west/northwest, and the state of Utter Pradesh to the south/southwest – or, one might say, foreign countries, other Indian states, the pahar that this pahar is not, and the plains.

Some of what people understand of this pahar has been conveyed by scholars. Madhav Gadgil, Ramachandra Guha, Shubra Gururani, Haripriya Rangan, Ajay Rawat, and Vandana Shiva, among others, have narrated and disrupted stories of labor, protest and violence related to its forests and agriculture. Pahari historians like Shekhar Pathak and Ganga Datt Uperti have documented the relationship of its folklore with the land. Jim Corbett made Rudraprayag's “man-eating tigers” famous and Radhika Govindrajan has written about contemporary human-animal relations. Anthropologists Gerald Berreman and William Sax have analyzed its social systems, caste relations, and rituals. Badari Datta Pande painstakingly synthesized whatever documents he could find regarding its human history. S.D. Pant has written of its social economy, and more recently, Shaila Seshia Galvin has written about the turn to “organic agriculture.” Farmer-activist Vijay Jhardhari has described farming patterns in the hills with the intimacy that only a pahari farmer could possess, inspiring films and seed saving efforts as far as southern India.

Certainly, Gandhi's relationship with pahar – and specifically with this pahar – has shaped the character of these hills. He expressed a special fondness for the Himalayas, believing it to embody its unofficial name, Dev Bhoomi, or Dwelling of the Gods. As the names of villages and towns dotting the hills suggest, events from the Hindu epic Mahabharata are believed to have transpired here. This is where the five Pandava brothers spent part of their twelve years of exile before waging war with their cousins, the Kauravas, as well as their later renunciation when, having fulfilled the duty of rule,
they wandered through a landscape sparse with humans to understand something of life beyond war’s devastations and deceits and the hollowness of victory. In 1929, when he had already been jailed three times in India (and six in South Africa), Gandhi wrote the manuscript for *Anasakti Yog* over twelve days in Kausani – roughly seven hours by bus from the village where this text begins.

If Gandhi saw the future India as a “republic of villages,” *pahar* contributed to his vision, just as his vision gave *pahar* symbolic resonance in the formation of a new nation. As a person and an icon, Gandhi helped to ally peasants and the urban elite in *pahar* and more broadly, which enabled the Congress-led anti-colonial struggle to gain strength.\(^{20}\) After his assassination, his disciple Sarala Behn would follow his advice and return to Kausani to start a girls’ ashram and school to “educate rural activists,” and Gandhian-inspired anti-alcohol movements would spread throughout the hills.\(^ {21}\)

While communist sensibilities were certainly present before and after Independence, this *pahar*, unlike other places where the Indian government heavily extracts natural resources, has been dominated by “reformist” politics, which often incorporates Gandhian language.\(^ {22}\)

Scholars attuned to issues of caste and class have accused Vandana Shiva, most notably, of presenting an idealized image of *pahar* as an egalitarian society whose encounter with British colonialism marked the moment of violence and decline.\(^ {23}\) While egalitarian elements might have

\(^{20}\) There were also other “anti-colonial struggles” and “nationalisms.”

\(^{21}\) Gandhi was assassinated by a Hindu fundamentalist who did not like his vision of an India that was neither secular nor dominated by one faith. See Rebecca Klenk’s (2010) book *Educating Activists* for a vivid ethnographic account of the Lakshmi Ashram in Kumaon today. Shekhar Pathak (1985) describes the changing meaning of anti-alcohol movements in Uttarakhand, as they come to articulate systemic critiques.

\(^{22}\) During my fieldwork three alleged “Maoists” were arrested in a raid in the small *pahari* city of Almora. “Reformist” here connotes attempts to change society from within state and existing social structures. This is true of many Gandhian activists in India. However, as a few conversations at Lakshmi Ashram showed me – there are various Gandhian movements, and ones that appear “reformist” can be radical in their perception and approach to social life and selfhood. Similarly many radical movements in India in fact reproduce in their organization the ideological premises of dominant society. Nonetheless, many of the “Gandhian” leaders in Uttarakhand represent historically privileged castes and a wealthier more cosmopolitan segment of *paharis*; so they also have wealth and status to protect.

\(^{23}\) Vandana Shiva is a controversial figure. While popular among many activists and scholars in the Americas and Europe, many in India are critical of her and have noted that her organization Navdanya had a hierarchal structure with her at the apex and functions separately from a great deal of the grassroots networks. Her scholarly work has also been criticized for the oppositional manner in which it associates deforestation with masculine and colonial violence. Haripriya Rangan (2000, 2001)
existed (and in some ways, as I will show, still do), Badari Datta Pande draws prolifically from Edwin T Atkinson’s chronicles of British Indian Civil Service in the late 1800s to narrate a history of perpetual migrations, changing populations, social hierarchies (that sedimented into caste identities), and war in both Kumaon and Garhwal.24 The pinnacle was when the Nepali Gurkhas attacked and briefly conquered Kumaon (and parts of Garhwal), imposing high taxes, slavery that included the rape of women and girls, and a vastly arbitrary system of justice.25 They deforested trees to expand their kingdom and urban centers. Villagers were fined or beaten for climbing to their roofs where they dried beans and stalks of grain, which they nonetheless continued to do. This state of terror propelled differently situated Kumaonis to forge alliances with the British East India Company; hence, it made inroads and eventually established rule in 1815.26 Kumaoni sepoys (soldiers) participated in the Rebellion of 1857 that swept through north India and led to the downfall of the East India Company; however, the memory of violence preceding the British was fresh enough to deter their involvement.

It has been issues of local exploitation, rather than abstract or national causes, against which pahari peasants have historically protested. Consider for example, in the first event, Nirmila’s concern with the availability of grains at the government ration shop and Heemansee’s desire to vote in a way that might have practical effects rather than focusing on political platforms. When the British Crown took over rule after 1857 it did little to alleviate the plight of most paharis, even as it attempted to cast itself as the most civil of European colonizers. In its “Kumaon Province,” the British “Raj” established its own systems of slavery and forced labor (coolie begar), its own methods of census-taking and taxation, its own policies limiting local access to forests (while rampantly cutting trees for colonial expansion; by 1861 Britain was the global leader in deforestation); and alliances that encouraged local

shows through historical texts the kinds of violence and struggles over forests that existed before and are not only imposed by Europeans. Bina Agrawal (1999) critiques Shiva’s lack of caste analysis.


25 Based on Pande’s (1993) account, a pahari scholar I interviewed argues that that the Scheduled Castes in Uttarakhand were formerly conquered groups. I use the official term “Scheduled Caste(s)” or “SC” rather than the politicized “Dalit” often in this text – whenever it was the chosen term employed by the person or groups to whom I am referring.

26 thus joining Kumaon with the eastern parts of Garhwal; other sections of Garhwal remained a “princely kingdom” with increasingly strong alliances with the British East India Company.
officials to act with impunity. Meanwhile, it drew “valiant” men of Kumaon and Garhwal for its army, and set up sanitations spots, military bases, and exclusive “hills stations” for Europeans to retreat in the summer months, tried to establish tea estates (these largely failed), and tried to create incentives for European settlements (these also largely failed).

Tensions flared throughout the early 1900s, with peasants periodically setting fire to forests to protest restrictions on their customary rights. The Kumaoni arm of the National Congress Party (led by Jawarhalal Nehru and with the critical help of Gandhi) harnessed this discontent towards its anti-colonial struggle; yet, ultimately the post-Independence Indian government would adopt the British forest policy almost verbatim into its new constitution and set on a path of infrastructure building in which pahari resources (like water) but not its residents were deemed crucial. At that moment of Independence in 1947, British Kumaon (followed a year later by the princely kingdom of Garhwal) and its Hindu majority would be sealed into the northern frontier of a new India just as East and West Pakistan would be sealed out; as the arbitrary lines were drawn in blood, thousands of Garhwali and Kumaoni soldiers would die in a display of a kind of patriotism.

If this brief account conjures a pahar whose history is intertwined, indelibly, with that of India and modern empires, then the opening events might conjure a pahar where food and agriculture are intertwined, indelibly, with national and transnational undertakings. In other words, pahar and bahar are, fundamentally, interrelated; and their inability to elude this relation is why I employ these terms (though not exclusively). I do not mean that pahar is located within bahar – as the “local” is sometimes perceived to exist within the “global,” or the “particular” within the “objective.” Nor do I mean that pahar and bahar are two spatial entities separated by some measurable distance. Rather, I

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27 At the UN Framework Convention on Climate Change (COP21) in December 2015, Prince Charles of England spoke of the need to save forests, but did not mention Great Britain’s major historical role in their destruction or the colonial wealth accrued from it. Presently, corporations (often through private-public partnerships) comprise the principle drivers of deforestation (including through land dispossession) and consumers of unrenewable energy.

28 The Hindu majority in Kumaon and Garhwal is due in part to conversions of Buddhists from the 8th century AD onwards. In 1947, Sir Cyril Radcliffe, Chairman of the British Border Commissions, was charged with drawing the boundary between Pakistan and India; before his appointment he has never even been to the subcontinent.
mean that their relatedness infuses and produces the very character of their “beings.” They are subjective, in that people might conceptualize their meanings differently; but, as Marx contended, even these subjective dimensions “flow from [their] social relations.”29 “Kumaon” and “Chennai,” names that present an alternate classification for the places that open this chapter, are also relational terms. However, aspects of their relation are masked by the way they intimate exterior, presumably objective, criteria by which to measure it. They appear as fixed “points” (among an assumed multitude of others) whose distance can be attributed primarily to geographic space (and the time necessary to travel it), and secondarily to their remoteness (in the case of Kumaon) or centrality (in the case of Chennai) to vortices of official political and capital processes (which then gives them a certain character). In this line of thinking, “Kumaon: Chennai” would be a kind of reverse image of “Chennai: Kumaon,” and the order of the two opening events matters in the way they “flip” the view.

*Pahar* and *bahar* cannot be viewed in this way. First, they must be located. One cannot simply locate *pahar* or, for that matter, its contingent *bahar*. Take the history of *pahar* recounted cursorily above. At times when I say “*pahar,*** I am clearly describing a specific place (what is now called “Uttarakhand” or, within that, “Kumaon”) and not all the Himalayan hills or even India's portion of it. For example, the Tibetan Buddhist settlements of Himachal Pradesh, or the tea estates of West Bengal, are quite different from the social life in the places I depict. At the same time, people from these regions are described and call themselves “*paharis,*” as they too are “hill people” and share with other *paharis* aspects of identity and social organization.

“*Pahar,*” I contend, can function in this way. It can retain its specificity even as it implies a broader place. This is the perception of *pahar* expressed by the majority of farmers in Kumaon and Garhwal with whom I interacted (indeed, hardly ever did I hear a *pahari* farmer use “Uttarakhand” in everyday speech, a fact that might relate in part to the newness of the state). In the same breath, someone might use “*pahar*” to identify a most intimate ecological and social terrain as well as to connote an unknown place that has the potential for familiarity based on the quality of its terrain. This

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29Marx was speaking specifically about class; I am viewing social relations more broadly.
fits with South Asian philosophies and religions, such as Hinduism and Buddhism, that perceive the ultimate encounter with the “self” as a moment in which the unity of the body disintegrates and its distinction from what is perceived to be “outside” disappears. It is not that the self is lost or relinquished to an abstraction; rather it is apprehended differently, as flow or change (thereby signifying a spiritual-material transformation).

“Kumaon: Chennai” presents an equal and independent ontological association (in that the disappearance of one would not necessitate the disappearance of the other), while “pahar: bahar” presents one that is unequal and inter-relational. Pahar exists without bahar, even as its character is shaped to the core by that relation. Pahar is a place most paharis do not define by boundaries, but through sensory attributes, forms of familiarity, crops, forests, foods, languages and terrain, among other aspects. Most paharis with whom I spoke – whether in cities, towns, villages, or places in between – defined “pahar” with terms including “safe,” “clean water,” “fresh air,” “good milk,” and “good food.” To be pahari, one man explained, means “you can’t take heat.” Similarly, paharis often defined “bahar” through sensory or relational criteria like “hot,” “dirty water/air,” “good schools,” or “more jobs” but rarely with reference to political boundaries or measures of geographic distance or even altitude. In both Garhwal and Kumaon, I often heard pahar described with the words “mera desh” (my country), reflecting a wholeness that was nonetheless not entire (people, for example, “needed to go bahar for work”). This desh both co-existed with Indian nationalism (reflected in proud pahari soldiers, negative perceptions of China, or the cricket games of children being played between “India” and “Pakistan”) and also conflicted with it (as this work will show).

Contentions over the capital of Uttarakhand can tell us something about the meaning of “pahar.” In the early 1990s, a renewed movement for state sovereignty emerged out of widespread resistance to the news that a significant number of additional seats would be reserved in government positions for “Other Backward Castes” (in addition to existing reservations for historically subjugated “Scheduled Castes”). In the hills of Kumaon and Garhwal, there were far fewer people identifying as

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30 despite widely acknowledged incidents of domestic violence in pahar; here “safety” includes familiar forms of violence and indignity.
these caste groups, unlike in the larger (then home) state of Uttar Pradesh; therefore, many *paharis* felt this would mean further loss of representation and control over local resources.\(^{31}\) The protests that ensued were overwhelmingly represented by women and peasants, whose rallying refrain of “*jal, jangal, zameen* [Water, Forest, Land]” recalled earlier historical iterations: when women of Renu village in Garhwal stopped loggers from felling trees the Indian government had auctioned to a private company in 1974, launching what would be famously called the “*Chipko*” movement; when, over a decade later, environmentalists and residents stalled the construction of India's tallest hydro-electric dam in a geological fault zone in Tehri, Garhwal; and, in the countless village- and district-based anti-alcohol, forest access, forest conservation, and anti-dam protests launched throughout the hills since the eve of Indian Independence.\(^{32}\)

The movement for statehood was a movement about the identity and ownership of *pahar*; for this reason *paharis* agitated for Garsain, a small town at 2000 meters just inside the Garhwal side of the Garhwal-Kumaon border, to be the state capital. It embodied *pahar* and therefore was deemed “close” by *paharis*, even if poor mountain roads made it logistically hard to access. However, the eventual win for state independence required alliances among peasants, urban students and politicians. In 2000, when “Uttaranchal” became a state, the (then small) city of Dehradun, at a moderate altitude and easily reachable from Delhi by train and motor road, was declared the capital.\(^{33}\) Now fifteen years later, Uttarakhand can claim to be the second fastest growing state economy in India with its wheels spinning on industry, tourism, and land investment. A farmer-NGO fieldworker and mother of four, who makes 5000 *rupees* (less than $100 US) a month, voiced a dissenting

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\(^{31}\)In addition, there were likely caste prejudices at play; certainly the small but significant population of *pahari* Scheduled Castes groups might have felt conflicted about this cause.

\(^{32}\) The image of *pahari* women “hugging trees” in the Chipko Movement was appropriated by environmentalists throughout the world; scholars and activists argued that *paharis* were making claims to forest access rather than attempting to protest “deforestation” (Gadgil and Guha 1995, Guha 1989, Jain 1984, Kedzior 2006, Rangan 2000). The Tehri Dam in Garhwal, Uttarakhand is among the largest in the world. It was completed in 2006 after over thirty years in construction: over 100,000 people were relocated; towns and villages, and large swaths of forest were submerged. Some *paharis* argue that because it has been constructed on a fault line, it could have catastrophic effects on the over half-million people who live downstream.

\(^{33}\) Two other new states (Chhattisgarh and Jharkhand) were created at the same time.
sentiment: “That is only on paper. If you come into these hills, then you see. They say there’s no hunger, but if your contractor won’t pay you, how do you feed your children? All this is not for us.”

Unlike pahar, bahar cannot exist without its reference point. It is, in this sense, utterly dependent. To be “outside” means to be outside of (something/someplace). Though people participating in the conference in the second event speak of need and poverty in places like pahar, and though the statistics suggest the dependence of such places on the humanitarianism and foresight of national and transnational agents, one might note the opposite at play. For example, agribusinesses, foundations and national governments need the plant biodiversity in places like pahar in order to innovate. Promoting and maintaining national, continental and global food security similarly requires places and populations to save. Pahar is implicated, transformed and affected in subtle and obvious ways by bahar, but its existence (as perceived by many paharis) is not hinged upon it. Conversely, bahar appears unfazed by pahar (or equally fazed by all places and therefore neutral, “placeless,” unifying) but in fact cannot survive without the latter. In pahar – through the night patrol to ward off suar, the silent anticipation of danger, the various protests for access to and control over jal, jangal, zameen (water, forest, land) – human power appears constrained in its reach and its effects; in other words, necessarily relational and harnessed around immediate or practical needs. Conversely, in bahar – through the repetition of words like “zero” and “evergreen,” the setting of goals for all of humanity, the discrepancy between the identification of food insecurities and rural poverty as major problems and the abundance of food and wealth in that same setting – human power appears limitless in its reach and its effects; in other words, potentially reaching all places including every valley of pahar and harnessed for the future and the sake of the world and all humanity.

If the words “pahar” and “bahar” themselves share their intermediary “aha,” paharis and North Indians located “outside” the hills also share understandings of place, understandings that are themselves contradictory. “Pahar” intimates purity, filth, backwardness, divinity, masculinity, feminization, unpredictability, superstition, myth, poverty, and wealth. It alludes to place that belongs to particular people; they are “paharis.” It alludes to a place that belongs to Indians, to pilgrims, to all people. I do not attribute these shared understandings to essence, but rather to the movements of
bodies, goods, “natural resources” and ideas, shaped fundamentally but not completely, in conformity and resistance to political economic trends and the changing patterns of social “needs.” These include flows between pahari places (such as when a girl marries and moves to a different and sometimes far away home, when a family shifts from a pahari village to a pahari town/city for their children’s education or when a barrel of mandua is transported to the local market), flows from pahar to places bahar (such as when a Kumaoni soldier is stationed in the plains, when a Garhwali man spends two years working in Abu Dhabi as cook or when a river is dammed to produce electricity that can flow to Delhi) and flows from bahar to pahar (such as when a German entrepreneur moves to the hills, when wheat and rice from the public distribution system arrives from Punjab, when NGOs distribute literacy materials that have been produced elsewhere or when a shipment of flat screen TVs arrives at a village store during wedding season).

These shared (and contradictory) understandings of pahar shift perpetually and relationally.34 For example, as pahari men join the military or leave the hills in search of wages, the rural pahari population becomes comprised of women and children; conversely, the association of pahari agrarian life – such as forest harvesting, sowing seeds, harvesting, threshing, seed selecting, taking grains to the mill, cooking, cleaning, milking cows and buffalos and caring for animals – with femininity propels men bahar because “there is nothing here.”35 These patterns themselves intersect with emerging conflicts about femininity (as meaning hard work, strength, and time in the sun; as meaning leisure, thinness, and whiteness) and emerging conflicts about masculinity (as performed through migration out of pahar for work; as performed through migration into pahar for leisure or capital investment).

Pahar – here signifying the particular regions of Kumaon and Garhwal – has long been a place for religious pilgrimage, honeymoons, tourism, and elite boarding school education. Upon Indian Independence, British hill stations and British army bases transformed into Indian hill stations

34 The “r” of “pahar” is not the same as the “r” of “bahar.” In Hindi they are written with different letters.
35 Pahari men still largely plow the land.
and Indian army bases. However, over the past twenty or so years as segments of India’s middle and upper classes have become significantly wealthier, and especially after Uttarakhand became a state, pahar has also transformed into a place where people from north Indian cities and abroad are constructing houses, mansions and hotels for holiday excursions. I witnessed a great deal of such construction throughout Kumaon. While the desired ends are idyllic, the means discernibly are not. I need only mention that the manager of an eco-tourist lodge located about an hour’s walk from the village in this chapter’s opening event has been physically threatened numerous times by “land mafia” to sell property. Understandings of and material changes within pahar, in other words, are tethered to metaphorical “bahars” – imagined spaces beyond comprised of idealized places symbolizing hope, survival, status or class mobility.

These contradictions, movements, understandings and idealizations entangled in “pahar/bahar” come to bear on the aspects of agricultural biodiversity, food production/consumption and taste broached later in this work. They manifest in performances of modern consumption that include elite customers selecting Himalayan Finger Millet off the shelf and pahari youth disliking mandua’s taste. They manifest in the belief, as articulated by M.S. Swaminathan in this chapter’s second event, that “millets broaden the food basket” of modern India and in the ghost towns throughout the hills of modern India where millets no longer grow. They manifest in the tourist places with a Himalayan view where you can find “value added” finger or barnyard millet for sale in “organic” stores and in the valleys where pahari land costs far less, and so do pahari grains.

two. MANDUA/MILLETS
- “Mandua” and “Millets” are two ways people in the opening events refer to finger millet. This section examines the relationship between symbolic forms of producing, classifying and understanding marginalized seeds/crops/foods/grains and political economic projects. Through the less acknowledged human “interventions” of language and political struggle, the identity of grains themselves become open to forms of social transformation.36

36 My lexical analysis of these local food crops has some synergy with Harold Conklin’s (1968) analysis of folk taxonomies.
The first crops/grains/seeds one encounters in this work is *mandua*. In “PAHAR,” Kashtee looks over the village fields where *mandua* has been sown with nitrogen-fixing *dhals* (pulses and lentils) and *madhira*, another food grain, after the wheat was harvested in April. This mixed crop system that the fields display is called “*barah anaaj*” (twelve grains). The term, like “*pahar,*” claims a loose definition; neither of its components is “accurate,” and these inaccuracies are essential to its meaning. In fact, I never encountered “twelve” different kinds of crops in a *pahari* field (most often it was little as two and as many as eight). In fact, the crops that comprise the system are not all “grains” (in addition to lentils and pulses, one might also find oilseeds and vegetables). As Vijay Jhardhari has explained in conversation (and as he also writes), “*barah* (twelve)” is not an ideal for which to strive, but a possibility, an inclusive gesture, a metaphor for a crop not grown in isolation (a form, one might say, of nonhuman sociality). A few weeks after my conversation with Kashtee and Neema, these crops would be harvested, along with *madhira* planted on the other side of the village, and *dhan* (rice), sown at the bottom of the hill near the river.

*Mandua* can grow as tall as wheat and, like wheat, can vary greatly in height. Its stalks generally sell for more money than its grains because they provide nourishment deemed vital to the cows, buffalo, and goats that abound in the hills. Rarely, however, have I met farmers with much, or any, “extra” to sell. The *baal* of the *mandua* plant looks less like a “head” than like a small human hand. *Pahari* seed activists/farmers I interviewed have recently identified as many as twenty-six local varieties, though one could argue that there are more (which they have not yet come across) or less (if species perceived as different are genetically “same”). However, in the villages I visited both in Kumaon and Garhwal, farmers generally distinguished between only two: “open” – those whose “fingers” stretched long as if grasping for something just beyond their reach; and “closed” – those whose “fists” were tightly clenched as if trying to hold onto something that would be taken away. Mixed together, the seeds/grains of these two kinds are indistinguishable to the human eye: small; brown, beige, or maroon; and perfectly round; farmers I met stored them together, whether as seeds to be planted the following year or as grains to be consumed. Whether there are two, twenty-six, a number in between or a great deal many more varieties, this would not change: *mandua* is annual.
This means it has evolved in the way it has, with its variation from village to village and plot to plot, because humans have planted, harvested, and shared seeds year after year in these hills for many centuries. *Mandua* is considered “traditional” because it is produced and consumed through practices that have been passed on from generation to generation; however, these traditions necessitate change (in meaning and materiality) to live and they require the interplay of human and nonhuman labor *in place and time*. Like the most *paharis*, *mandua* cannot claim “indigeneity;” at some point it was a migrant, likely from the Ethiopian highlands where finger millet was grown as far back as 4000 years.37

At the conference in “*BAHAR*,” two *paharis* use the word “*mandua*.” However, others use different names: “*ragi,*” as this food grain is called in much of India; and “*millets,*” which encompasses a variety of crops/seeds/grains (in which *madhira* also falls). *Mandua* is also called other things: “finger millet” (and *madhira*: “barnyard millet”), “Himalayan Finger Millet” (and *madhira*: “Himalayan Barnyard Millet”), “*eleusine coracana*” (its binomial name; *madhira*'s is “*echinochloa frumentacea*”), “underutilized crop,” “traditional seed,” “coarse grain,” “miracle grain,” “black,” “poor person's,” “illiterate person's,” “nutritious,” “tasty,” “disliked,” “abandoned,” “old,” “warm,” “strength giving,” “resilient,” “disappearing,” “drought-resistant,” “vital plant genetic material,” and “orphan crop.” This almost inconceivably broad range of identities and affiliations serves as a reminder that humans are not the only species that can claim a complex social life.

I did not come to *pahar* in 2011 with a special interest in “*millets.*” I had heard about the seed activism here and I was drawn to hill agriculture, having previously spent a year in Peru. I met a farmer in the Nagni region of Garhwal and an activist based in Dehradun who, twenty years ago, had helped form a network called *Beej Bachao Andolaan* (Save the Seeds Movement). Now they were concerned about millets – not just *mandua*, but also *madhira/janghora, koni* (foxtail millet) and a broader scope of “traditional” locally produced *pahari* foods – because in some areas “free” packets of

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37 Ghosal and Krishnan’s (1995) publication on Millets through Vandana Shiva’s organization Navdanya is an excellent basic resource on millets in the region. The Millet Network of India (MINI) provides a great deal of national data on millets online.
hybrid and “improved” millet seeds, produced in Indian agricultural universities, were being
distributed to farmers with pesticides. When I started inquiring about “millets” or “mandua” in
_pahar_, the varied reactions intrigued me. For example, a Hindi tutor in Mussoorie filled the hour with
talk on this subject and then scoured his library to find an ethnography written by U.S. anthropologist
Charlotte Wiser in 1937 because “millets” appeared in her charts. He was not a farmer or an activist,
but expressed so much pride in _pahari_ grains (including local _pahari_ rice and wheat varieties) that he
refused to eat food made from wheat and rice grown in cash crop regions; in his opinion, they had “no
nutritional value.” But the following July and August, at the height of the monsoon, when I visited
various organizations that were in fact connected to _Beej Bachao Andolaan_, I found that the fate of
_pahari_ grains was less a topic of conversation; it took a backseat to issues like fighting the
construction of nearby dams or having a motor roads built or repaired to connect villages to each
other. When I returned to New York between visits to India, I noticed some organic stores had started
selling “millet,” usually mixed in “organic” cereals, or baked into biscuits or breads.

Like many activists and older farmers I have met, a Kumaoni farmer who is affiliated with _Beej
Bachao Andolaan_ and active in a National Seed Network, dates the beginning of a slow
marginalization of _mandua, madhira, koni_ and other “traditional” _pahari_ foods to the 1960s, followed
by a sharp decline from the mid-1990s.38 Over the past twenty years, he attended three events in
which _pahari_ farmers displayed samples of different seeds; each time, he said, the diversity had
plummeted drastically and some varieties had disappeared. He attributed this to the inundation of
limited varieties of industrially produced wheat and rice – both as seeds through Green and post-
Green Revolution government “extension” efforts and as food through the Public Distribution System,
(what Nirmila called “control” in the first event). Uttarakhand presents particular case, the Director of
an Indian NGO that does work on plant genetic diversity in Kumaon told me. It is distinct from the
plains of Andhra Pradesh, where the Millet Network of India and the Deccan Development Society

38 This National Seed Network was publicly and symbolically inaugurated in March 2014 in the same
week the Indian government announced it would begin trials on transgenic crops after a civil society-
initiated moratorium. I discuss this in Chapter Three.
have done a lot to revive these crops over the past fifteen years, launching a successful campaign to include local millet varieties in school lunches.\textsuperscript{39} It is distinct from Karnataka, and to a lesser extent Tamil Nadu, where, despite decline, you never stopped finding \textit{ragi} dishes proudly listed on some restaurant menus. It is distinct from Uttar Pradesh, to which it once “belonged,” where millets have almost disappeared from the land and social memory.

“Orphan crop” is the last in that long list of names people give for \textit{mandua}. It was relayed to me on more than one occasion in a way that suggested a study of millets in the hills would be naïve and anachronistic – like rooting for a team that was not losing but had already lost the game. As Daniel Janzen wrote in E.O. Wilson’s 1988 volume on \textit{Biodiversity}:

\begin{quote}
Agroscapes, seemingly still supporting long lists of widespread species, are primed for massive extinction as individuals of these species senesce or are killed through intensification of contemporary agriculture. If all these species were to be physically removed as soon as they have no future, the catastrophe would be much more noticeable and would therefore arouse the sentiments normally associated with massive extinction.\textsuperscript{40}
\end{quote}

However, It is too simplistic (and arguably untrue) to define \textit{mandua} as an “orphan.” This term connotes an identity (a state of being), not a process (a condition of becoming). It implies something irretrievable, a transformation of state that requires new agency and new agents. However, \textit{mandua} has not been abandoned or irretrievably cast out. The fields below Kashtee’s home appear as they do in late August because \textit{mandua} had actively been saved, stored, sown, and weeded. A week after that opening conversation, she and others would once again forgo sleep to perform nightly patrols to safeguard these “orphans.”

Rather, \textit{mandua} survives despite and because of a trifecta or “hat trick” of marginalization – that of \textit{pahar} (place), women and small farmers (people), and “millets” (grains). This intersection contributes to producing the terrain on which \textit{mandua} still grows \textit{and} has stopped growing. The marginalization of \textit{pahar}, for example, contributes to and detracts from the marginalization of

\textsuperscript{39} In Andhra Pradesh also resides a major research center that produces industrial millet seeds. This region is the national base of ICRISAT (International Crops Research for Semi-Arid Tropics).
\textsuperscript{40} Janzen (1988).
mandua. The government has not invested in agricultural infrastructure here because pahar has “low productivity” (crops take more work to grow at a slower place with less yield; agricultural land comprises only 13 percent of Uttarakhand’s ecology; and family plots are unirrigated, small, and scattered). To some extent, pahar is marginalized in recent national efforts to revive millets and traditional seeds because of the difficulty and expense of getting in and out of the hills, the challenge of internet connections, long power cuts, and the obligations on pahari women that make it challenging to leave home. Conversely, remoteness and lack of infrastructure is also why a large majority in this region depend to some extent on food grown locally, and why agricultural extension agents have not been successful in promoting industrial seeds (the more remote, the less successful).

The vast forest cover, which leaves little room for agriculture, also contributes to methods of food production that sustain mandua. Most paharis feel mandua only tastes good only if cooked with wood-fire; and because mandua is considered more sustaining than wheat, women and girls might consume it before going to harvest in the forest. In the opening event, people used mandua to make wheat “stretch longer,” counted on it to grow regardless of rain patterns, and relied on it when the market was volatile. It provided a form of security (a word I will later discuss) through its versatility (quality) rather than its yield (quantity). Mandua’s concomitant turn towards life and towards death, its coinciding survival and precarity – its condition of marginality – makes no sound in the global market; yet its production sustains and cushions capitalist relations in a variety of ways.

“Mandua,” not “Millet,” comes first in the title of this section because the vast majority of rural paharis I met – except for the most mobile, cosmopolitan or environmentally politicized (who were generally male, relatively wealthier and from historically privileged castes) – did not use, or even recognize, the latter term. Certainly, there were times “mandua” and “madhira” were understood together as part of a group of foods that people “used to eat” or as “monsoon crops” that needed weeding. However, paharis generally referred to them as distinct, as distinctions are widely made

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41 The difficulty of establishing phone lines has been surmounted by the ubiquity of cell phones.
42 An estimated 75% of the population of Uttarakhand.
43 The primary kinds of wood used in Gow were oak (banj) and pine (chir), the latter of which I discuss later in this chapter.
between “wheat” and “rice.” Mandua and madhira require different threshing. They have divergent consumption patterns, are cooked differently, associated with particular dishes; madhira might be mixed with curd or eaten as rice, while mandua ground into rotees (flat breads) or ladoos (sweets). In many places I visited, mandua was still eaten by some, if not many, people, while madhira had largely been given up as a human food but was still grown and fed to milk-producing animals.

So how, then, did mandua, madhira, and other food grains come to be “millets?” The primary words in eleusine coracana and echinochloa frumentacea do not indicate a shared family or genus. We could look etymologically to the French “milet,” the Latin “milium,” or the proto Indo-European “melh,” which meant “to grind or to crush” (the root of the English “mill” and “to mill”). It defined any grain or grass that could be consumed as food, in other words, all edible cereals. In Europe, the “common millet” was panicum miliaceum, otherwise known as broomcorn or proso millet, which also grows in Uttarakhand and other regions of India and now is predominantly commercialized for birdseed; though its origins are still uncertain, there is evidence this “millet” appeared as a domesticated crop 7000 years back in China.

Similarly, the “Corn Laws” enacted in the United Kingdom between 1815 and 1846 to restrict and impose tariffs on imported grains reflected a comparably loose classification for “corn” in Europe. These laws included any grain that required grinding. As Arturo Warman writes in Corn and Capitalism, the “debate over corn’s origin” since the sixteenth century was ideologically rooted in colonialism, racism and capitalism and “revolved around what was believed to be an inherent inferiority of American nature and American civilization compared to the Old World.”

In the Americas, now recognized to have been the home for initial (now extinct) varieties of ancestral wild corn, “corn had a name all its own, and in many languages even the individual parts had names that were not shared by other plants.” On the other hand, historically in most European languages the word for “corn” “was not unique to the plant...

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44 There is also regional variation in threshing methods.
45 The “Corn Laws,” which were designed to favor domestic producers, raised food prices for the urban wage laborers at a time of heavy industrialization and met with urban resistance.
as in the case with the adoption of the term *maíz* – originally from Taino – in the Spanish language. In others the name of another plant or plant product familiar to the Old World was used to refer to corn. Christopher Columbus called corn *miño* in Spanish or “millet” in English, after the Old World cereal. This was the case for the Portuguese as well, who also referred to corn as *milho*, or “millet.” In British English, the world “corn” became a generic term used to refer to grain in general but especially to wheat.47

From this era, competition in the global market of exchange and the commodification of food grains launched certain crops into a “place” all their own.

Perhaps this explains why, during the course of research, I found that many people included a variety of crops and grains in their conception of “millets” and that there was no clear answer to “How many millets exist?” If certain cereals – take wheat – are no longer “millets,” it is because they have been “promoted” to distinction, whether in the later European colonial era, through capital expansion, through U.S. “Food Aid” policies of the 1950s, and/or through the Green Revolution. Meanwhile, “millets” have remained the category of default for the broad swath of “other food grains,” not distinguished (or deemed important enough to distinguish) from each other but very much distinguished (and racialized, or marked with “essential” difference through which other grains claim social value) from those that had specific names and entered the realm of measurable (and global) “value.”

Arturo Warman’s exegesis on the political economy of corn, like Antonio Gramsci’s or Raymond Williams’ analyses of the political economy of language, reveals the changing categories for food crops to be far more than superficial description. A small slippage or shift of words can perform a great deal of work and can condition the mind to practice certain ways of thinking. Categories function to suture as well as to delineate, enabling people to take cognitive leaps and make sense out of what might seem otherwise illogical. For example, the heading “Contingencies: one two four” would sound “right” but read “wrong.” In this work, using “millets” self-evidently would presuppose an ont-epistemology of particular grains/crops/seeds that does not resonate with their conditions of

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47 Warman (34) also writes, “Reclaiming in-depth knowledge about the process of the domestication of corn and corn’s forerunners remains crucial in order to reclaim a rich legacy of botanical knowledge and genetic engineering. The knowledge also must work towards changing the dominant perception of peasants and indigenous peoples who still practice the tradition and transform it in the course of living their daily lives.”
production. It would be to assume their “commodity nature” — something against which Marilyn Strathern cautioned in *The Gender and the Gift*. Strathern observed that even in analyses of “gift economies” perceived in opposition to capitalism, anthropologists still apprehended an exchange of things, rather than circuits of relations.

I found that “millets” moves in company with other words and categories that are not commonly evoked among *pahari* farmers, such as “agroecology” and “woman farmers.” Concerning the former: corresponding with Akhil Gupta’s research among male cash crop farmers after the Green Revolution, *pahari* (mostly women) farmers I met did not identify separate modes of agriculture (beyond “plains” and “*pahar*”) though they certainly distinguished between agricultural methods. For example, farmers noted the difference between applying cow’s manure and chemical fertilizers, but generally called both “*kaam* (work).” Concerning the latter: I was corrected numerous times by married “women” as young as eighteen when I called myself a “woman” because I was unmarried and therefore was a “girl.” Again — heeding Strathern — “woman” connoted a relation and not an experience- or age-related identity. Furthermore, in the opening event, perceived caste distinctions often permeate everyday life and mark the patterns of people's movements, even among the young (though to a lesser extent). Thus, many *pahari* women I met did not recognize a generalized category of “women,” and even if that category was used it was, inevitably, conflicted. For example, it might be understood to apply to certain circumstances (when one is having lunch with fellow NGO fieldworkers at the canteen) but not in others (when one is back home under the eyes of one's neighbors). As for “farmers,” Nirmila in the first event undeniably claimed this identity, yet she (like all the women in her village) does not possess a land title in her name and is not recognized as having “farmer status” in India.

I encountered “millets” in circuits of NGOs, funding agencies, government, industry, entrepreneurs, transnational institutions, and environmental activists (some of whom were also

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48 As Shubra Gururani’s (2000) work shows, the embodiment of “woman” and “forest labor” in Kumaon, Uttarakhand are shaped in fundamental ways by caste.
49 The organization Arpan in Pittoragarh district of Kumaon link land titles as necessary to intervene in domestic violence.
pahari farmers). While it clearly did not hold the same meaning or import for everyone who used it, it reflected the embodied work of mediation, reinforced through usage. However, if “millets” has been produced through political economic currents, it has also cut against them. If the broadness of this category has resulted from racialization and neglect, it has also emerged as one through which groups in various parts India and the world are forging solidarities born of a shared situatedness. The soft boundaries of its definition, the haziness of its lines of delineation, summon a kind of inclusivity – for grains and therefore people who produce them. “Millets” therein becomes a site of political, ideological, economic, environmental and lexical struggle.

Like pahar and bahar, “mandua” and “millets” are not oppositional. Each bears traces of the other. By “trace” here, I do not mean a fragment, a broken bit, a small piece of a thing – as in a pebble chipped from a boulder, as in something derivative. It is more like the imprints made by/on a boulder and a river as both move, collide, and interface in a process that transforms their matter and relation. I mean the violence and subtleties of impact and proximity. I am thinking of Jacques Derrida’s theorization of writing under erasure (sous rature) and his work Of Grammatology, as well as Gayatri Spivak’s introduction to and English translation of this work. Derrida’s “being” is an unsettling, contingent ontological proposition. At once naming a state of thingness or existence and undoing it (it is sliced through, not whole, questionable). “Being” here is tentative, humbled, undone the moment it is formed or apprehended. I see this line as a line of relation that drags in the possibility of other ways of “being” and perceiving, disrupting what is taken for granted and calling attention to the relational and the unseen. “Millets” throughout this work could be read as “millets.” It/they exist in real material and ideological ways, but do not constitute an a priori category. This metaphorical line drags in mandua and other contradictory meanings and ways of knowing/being.

three. ECONOMY/ECOLOGY

• “Economy” and “Ecology” are two major underlying concerns and motivations for the protagonists of both opening events. Through an examination of how processes of seed commodification, national development and globalized agriculture have affected paharis and pahari

crops, this section demonstrates that economic and ecological concerns are ultimately indistinguishable.

Earlier, I mentioned a Kumaoni farmer who dated the slow marginalization of *mandua* back roughly fifty or sixty years. This dovetails with the era following India’s 1962 war with China at its Kumaoni border and widespread road construction for military use.\(^5\) In other words, it was a time when, to use Swaminathan’s metaphor, “guns” were directly affecting the future of grains in India’s northern hills. In addition, during that decade, the national government expanded efforts to develop India’s industrialization through extracting resources from this region, and it invested in plans for the construction of massive hydroelectric dams. As Gadgil and Guha argue, “the demands of the commercial-industrial sector [replaced] strategic imperial needs as the cornerstone of forest policy and management.”\(^5\) The national government began to wrest control over forests from states and forests policies restricted local use while commercializing forest wood.\(^5\) This Kumaoni farmer felt these development plans – and the heightened uncertainty and hardship they brought to people’s lives – led to the decline of *pahari* grains more than the then newly introduced high-yield varieties of wheat and rice of the Green Revolution.

Before long, however, industrialized agriculture would also make its mark on the landscape of the region. In the mid-1980s, certain parts of Garhwal and Kumaon had turned to contract farming and industrial varieties of seeds and food made their way up into the hills, particularly the parts that were now accessible through motor roads. By then, India was beginning to steer towards a path of economic liberalization and militarization, and grains were forging a path for guns. The Green Revolution enabled India to become nationally “self-sufficient” in grain production. High yield

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\(^5\) and the beginning of sealing the once porous Indo-Tibet border, which closed the “Silk Road” and centuries old unregulated trade. For forty-four years because of geopolitical conflicts with China, this route was officially closed and much of it became unused; meanwhile for military reasons, various footpaths were turned into motor roads. In 2006, the Indian government opened up one of these paths again for trade but with restrictions. [http://www.independent.co.uk/news/world/asia/crossing-the-himalayas-china-reopens-a-passage-to-india-5329459.html](http://www.independent.co.uk/news/world/asia/crossing-the-himalayas-china-reopens-a-passage-to-india-5329459.html)

\(^5\) Gadgil and Guha (1992).

\(^5\) In 2006 the Scheduled Tribes and Other Traditional Forest-Dwellers (Recognition of Forest Rights) Act, also called the Forest Rights Act, was passed. Despite seeing this as a victory, some forest activists I spoke with in Uttarakhand do not speak well of its implementation.
varieties provided additional revenue sources: meant more land could be used for nonagricultural exports like cotton and more people could be shifted into wage labor. Thus, more resources could be invested in India’s geopolitical might. By 1974 India had already conducted its first nuclear bomb test and in 1998 launched a series of five others.54

On the global stage from the mid-1980s, the Global Agreement on Tariffs and Trade, or GATT, also played a pivotal role in the decline of mandua in the hills. Broadly speaking, the process of forming GATT began at the 1944 Bretton Woods Conference, though it was officially negotiated through the then newly formed United Nations.55 Countering notions of historical inevitability, its contentious beginnings never smoothed out: at every stage, opposing visions of the present, future and past were at play. While the forty-four countries that met at Bretton Woods agreed to institute the International Monetary Fund and what is now the World Bank, they were not able to agree on the issue of tariffs in global trade.56 GATT, launched three years later in 1947, signified a “new” era in the global political economy.57 However, it bore historical markers of a rigged game. GATT, in combination with the World Bank and IMF, facilitated the transfer of power and wealth from what were formerly “European Empires” to the United States and its allied European or settler colonial nation-states. Through a multilateral nexus of diplomacy and economic regulation, the national governments of newly (or soon to be) liberated nation-states entered into relationships of debt and obligation to banks and countries that had accrued wealth and geopolitical power through centuries of colonial or settler colonial relations.

54 The first test was ironically called “Smiling Buddha.” Rupal Oza (2006) writes about the second, Pokhran-II, as related to globalization, nationalism and gender.
55 The Bretton Woods Conference, formally known as the United Nations Monetary and Financial Conference, was the gathering of 730 delegates from all 44 Allied nations in Bretton Woods, New Hampshire, United States, to regulate the international monetary and financial order after the conclusion of World War II. The conference was held in July 1944, and agreements later established the International Bank for Reconstruction and Development (IBRD), and the International Monetary Fund (IMF).
56 The countries instrumental at Bretton Woods were the United States, the United Kingdom, Canada, Australia, France, Belgium, the Netherlands, and Luxembourg. The World Bank was then called the International Bank for Reconstruction and Development (IBRD).
57 GATT was negotiated during the United Nations Conference on Trade and Employment and was the outcome of the failure of negotiating governments to create the International Trade Organization (ITO). https://history.state.gov/milestones/1937-1945/bretton-woods
Each of GATT’s completed eight rounds has taken increasingly longer to settle, reflecting new transnational contentions, new accumulation strategies and emerging forms of civil society protest as problems of “global trade” become compacted in certain regions, populations and realms of life. The “Uruguay Round,” which began in 1987, took eighty-seven months and was profoundly contentious precisely because it significantly reduced tariffs and introduced agriculture into global trade. The arduousness of the process reflects multiple points of resistance and the percolating efforts by thickening transnational rural networks to collectively forge and carve imaginative space out for alternative global futures.

However, the period marking the end of the Uruguay Round of GATT in 1995 was a consolidating moment for corporate power. By this time, national seed certification laws, invented in the early 1900s in the US to protect farmers by guaranteeing them quality seed, had been reinvented as transnational “plant protection” mandates, patents and breeders’ rights that protected the “intellectual property” of industrial breeders. The International Union for the Protection of New Varieties of Plants (UPOV) required member nations to pass seed certification legislation restricting what farmers could plant and sell. Between the launch and conclusion of the Uruguay Round, these became far more repressive. In 1991, the UPOV redrafted its 1978 rules in order to “encourage the development of new varieties of plants, for the benefit of society.”

Farmers throughout the world have protested the implementation of UPOV ’91 because national governments have used it to fine, jail and criminalize farmers for the customary practice of saving seeds, which has been a fundamental aspect of farming since agriculture was first domesticated.58 Moreover, customary practices of seed saving are crucial to agricultural biodiversity; thus to endanger them would mean threatening the existence of biological diversity as well. In India, civil society organizations collectively filed a public interest lawsuit against the national government’s efforts to adopt the more restrictive agreement and have, thus far, managed to stay the process.59

58 Protests have been particularly vehement in Latin American, African and western European countries (BEDE 2011). Also GRAIN has chronicled these events in their online publications.
59 Shashikant and Meienberg (2015).
Importantly, the same laws cannot protect the seeds farmers breed through their methods of harvesting, selecting, storing, and replanting local varieties because these forms of intellectual property do not — indeed, cannot due to their conditions of production — fit the criterion of “stability” and consistent reproducibility. In other words, intellectual property is only recognized as such if it can be “scaled up;” if it is an innovation whose “distinctness” can be bleached of markers of place, labor, and heterogeneity; if it represents a predictable life trajectory whose purpose is to be legible in and amenable to the realm of global exchange.

Easing the trade “barriers” between nation-states set industry, labor and commodities “in motion” and paved the way for corporate domination of the global food system. Not coincidentally, in the mid-1990s, India continued on a more deliberate path of economic liberalization, which it initiated a few years earlier after the collapse of the USSR (and the dissolution of the various kinds of aid it had provided). For, the World Trade Organization (WTO) formed then out of GATT with a goal of reducing market “distortions” and impediments to trade. The WTO reinforced the UPOV by requiring member countries to comply with plant patents or develop *sui generis* laws in order to participate in global trade. Also around that time, transgenic (GM) crops were first successfully commercialized and, along with new institutional mechanisms, industry was able to break through a major technological barrier. The speed and breadth of industrial seed production leapt forward so as to make all “raw” “plant genetic material” newly relevant. Isolated genes from one plant could now be identified, catalogued, digitized, extracted and injected into the genetic material of another species; industry could now pick and choose specific traits (like finger millet’s drought resistance), develop plants that grow only with particular chemical “inputs” and produce seeds whose progeny will not reproduce (and

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60 Since the mid-1980s there have been new tensions among transnational governance bodies, nation-states, and civil society (with civil society detaching its interests from that of nation-states). This is reflected in the expansion of new rural social movements; the rising debt of individuals, families, and governments; increased investment by corporations, nation-states, and wealthy individuals in militarization, agriculture and pharmaceuticals (in contradiction to Swaminathan’s final statement); convergence of humanitarian aid and war; and, new forms of privatization of natural resources.

61 Initially transgenic technologies were applied to food and nonfood cash crops of soybean and cotton.
therefore cannot be farmer-saved). In other words, industry could now create plant and seed varieties whose futures could be both designed and foreclosed.

Wealth accrued by corporations, governments, foundations and individuals through public-private partnerships during the Green Revolution is now being directed into agricultural research and development because this is “the future” of food, bio-fuels, pharmaceuticals and chemicals. Agricultural corporations are now “life science” conglomerates; allied with foundations like Bill and Melinda Gates and Rockefeller and with intergovernmental research institutes like ICRISAT, they have invested in innovations that can literally alter life – social and biological. Corporations that were already powerful have consolidated into an oligarchy of six that now produce the vast majority of the world’s industrial seeds and wield considerable power over transnational food and agricultural negotiations.\(^6^2\) It is hard to believe that Monsanto, now the world’s biggest seed company, hardly produced seeds in the mid-1980s. Its domain was chemicals. It has recreated itself largely through acquisitions and, more recently, by licensing its patented seed traits to other companies.\(^6^3\) Seeds matter to Monsanto for some similar reasons they might matter to a farmer of La Via Campesina or a farmer in the opening event of this chapter – they suture the end and beginning in the cycle of plant life.

To control this critical moment of the cycle gives one control over the methods by which that life comes into being (production) and the human/nonhuman relation (“means of production”) that underscore it. As Jack Kloppenburg puts it: whoever controls the seed controls the food system.\(^6^4\)

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\(^6^2\) Gradually since the mid-1980s and far more rapidly since the mid-1990s, a small percentage of corporations, foundations, and individuals have been able to accumulate a massive amount of wealth and power while making the lives of the majority of the world’s human population more precarious (to varying degrees). See Howard (2009) for an illuminating visual on the consolidation of the seed industry over the past twenty years.

\(^6^3\) The expansion of agribusiness over the past twenty-five years has moved in fits and starts, reflecting economic relations and crises as well as technological or institutional hurdles to accumulation.

\(^6^4\) Kloppenburg (2004). La Via Campesina (2013) similarly states, “Whoever controls seeds controls the right to food, food sovereignty, and the political sovereignty of the people. Seeds hold a special place in the struggle for food sovereignty. These small grains are the basis for the future. They shape, at each life cycle, the type of food people eat, how it is grown, and who grows it. Seeds are also a vessel that carries the past, the accumulated vision, and knowledge and practices of peasant and farming communities worldwide that over thousands of years created the basis of all that sustains us today.”
Farmers who harvest seeds and then sow them, like those in “PAHAR,” do so “freely” outside the “free market.” This is not only because they do not have to purchase seeds, but also because their encounter with “nature” is not mediated through an equivalent or abstraction. While the seed industry has boomed, local varieties – produced by small-scale farmers, like those who grow mandua – still account for the majority of food grown in the world. La Via Campesina and many civil society groups throughout the world (and strongly in India) have come out staunchly against transgenic seeds, claiming that they drift and “pollute” the fields of farmers who do not use them, thereby stripping farmers completely of “choice” and further endangering farmer-saved varieties and making it harder for them to sell in organic niche markets. This argument, like that of the La Via Campesina farmer in “BAHAR,” makes a critique of power more than technology, and this is something that the widespread preoccupation with “genetic modification” often hides.

Paradoxically, during this same period the Indian government has passed important legislation asserting the rights of citizens; for example, the 2002 Freedom of Information Act (now the Right to Information Act) and the Protection of Plant Varieties and Farmers' Rights Act 2001. The latter is India's WTO sui generis legislation; it acknowledges and protects farmers' rights more than almost any other in the world. However, in the early 1990s as a response to economic crisis, the Indian government (led by Manmohan Singh of the Congress Party) simultaneously set on a course of opening India to cheap imports (including in agriculture), privatizing natural resources and reducing social supports for small-scale rural producers. One could argue this was akin to breaking someone's legs while offering them a state of the art cane. In 2000, various states, including the newly formed

65 Ronald Herring (2009) argues that farmers have also advocated for GM (transgenic) cotton. However, there have been many reports of rising farmer suicides in the Indian cotton belt due to the high cost of chemicals and the reality of debt (CHRGJ 2011). There are also numerous consumer-based arguments against transgenic foods, such as the lack of comprehensive biosafety testing. In India, civil society groups were successful in achieving a moratorium on transgenic food crops largely for this reason (Roy 2014). However, in 2014 with some administrative finagling, which I describe in Chapter Three, the Indian government launched “GM field trials” for twenty food crops.

66 Just three years later, the Indian Parliament passed a 2004 Seeds Bill that virtually undid the farmer benefits of the previous legislation. Karine Peschard (2014) argues that Indian government plays an intentionally ambivalent role as it mediates between civil society, business, and transnational institutions. I analyze this more in Chapter Three.

67 I use “them” as the object for “someone” to avoid the binary him/her.
Uttarakhand (then “Uttaranchal”), established “hassle free” and duty-free “Special Economic Zones” to “enhance” foreign investment. India's capital New Delhi proudly bears new markers of modernity and wealth, like Terminal 3 of the Indira Gandhi International Airport, its Airport Express and a newly designed Jawaharlal Nehru Stadium (for the 2010 Commonwealth Games). In just thirty years, the once dusty village of Gurgaon, Haryana, southwest of Delhi, has become home to offices of half the world’s Fortune 500 companies; in its sprawl of massive malls, commercial buildings, and high rises, many new buildings sit empty as sites for laundering money. Much of the wood, water and electricity for these ventures come from pahar, expediting the 500 dam projects that have long been in planning stages.68

There have undeniably been new economic opportunities for those who already possessed a certain level of financial and/or cultural capital – as well as for those industrious individuals and groups who found themselves at the right place at the right time. Uttarakhand’s new and rapidly expanding state government, urban centers, and tourist routes have opened up jobs and possibilities for investment and entrepreneurship for those (predominantly men) with political alliances and/or wealth, particularly if they are eager to make below the radar deals. Also undeniably, there has been profound stagnation for the majority of India’s polity and in pahar. A laborer who works every day in someone else's store in a pahari city or town (one that sees tourists and has money flowing in) might make 3000 rupees ($50) a month, and for much of the year cannot afford to eat vegetables besides potatoes.69 In rural Kumaon or Garhwal – as one man succinctly put it – there are only two jobs (for men): drive a car or own a store. In fact, these too require a base level of wealth.

I observed a few other options: work as an NGO fieldworker (for a small percentage, more women than men, generally for 4000 to 6000 rupees, or under $100 US, a month for 6 days/week), do construction or stone breaking for government (less money) or private constructors (a bit more

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68 The Indian government began planning dams in Uttarakhand in 1961; the design for the massive hydro-electric Tehri Dam was completed in 1974.
69 This is often true even when pooling money with other relatives, and by no means represents the state’s poorest people. Often NGO wages do not match what they are formally documented to be for international funding agencies.
money) for a daily rate that sometimes would not be paid, engage in the illicit felling of trees at night, or – for a few – work for a Business Process Outsourcing company doing web research, data mining, or data scrubbing for “good” pay (roughly 16,000 rupees, or $260 US a month for 6 days/week) but under unreliable and often untenable working conditions. 

Pahar has been called a “mail order economy” since the British colonial era when Garhwali and Kumaoni sepoys were stationed away and sent money home; between 2011 and 2015, almost every family I encountered relied upon wages of a male family member who worked elsewhere – whether as a cook, a cleaner, a factory laborer, a soldier, in government (if lucky) or doing something unspecified (often described with the English word “duty”) – and returns home once or twice a year. When Uttarakhand became a state in 2000, its first (BJP) government opened the doors to transnational corporations in order to “create jobs” by guaranteeing ten years of tax-free status, among other perks. Both of Nirmila’s (from the opening event) sons work in Rudrapur – a village turned industrial zone about a seven-hour hour bus journey from where she lives; their wives and young children usually reside with Nirmila, sustained in part by food that does not “exist” in the market.

In the opening ethnographic events, one can plainly observe “environmental” concerns descending onto realms of “agriculture.” Less obvious, but very much present, is the way these worries are intensified and bound by the specter of environmental disaster. In June of 2013, a “cloud burst” in parts of Garhwal and Kumaon during the height of the Hindu “Char Dam” pilgrimage season. 5700 people (of whom 934 were paharis) were officially “presumed dead” and over 100,000 people were stranded. In October of that year, I visited disaster sites with functionaries of transnational NGOs who

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70 A few people confirmed that at least five men in Nirmila’s village felled trees at night in surrounding forests but I was told not inquire. A forest watchman here a decade ago was found murdered in the woods. Ajay Rawat (1999) has conducted incredibly brave and thorough research on Kumaon’s “forest mafia.” By 2014, the market for Business Process Outsourcing (BPO) moved to Philippines. These companies in India grew too quickly and then imploded. During my time in Kumaon I found various people had been suddenly transferred or let go (for young women being transferred often means having to quit because it was not deemed safe to live alone or far from family; furthermore the “good” wage became mediocre once rent and transport was factored in). Also a school principal discussed issues her teachers were having because of “cultural changes” due to the sudden influx of money among some twenty-somethings who were working for Delhi-based BPO.

71 As one Garhwali told me, “It was “like a lake falling down from the sky.”
were making funding recommendations; among the prevailing concerns expressed by them and paharis was not only how to “revive” agriculture, but if it was worth it. The disaster made “Uttarakhand” visible in a new way. Anxiety about accelerated biodiversity loss propels the national government, NGOs and industry to collect plant genetic material before it disappears. In addition, the mission to save pahari grains recalls widely circulating photos of uniformed members of the Indian army saving human lives; and the space made for “hill agriculture” and Uttarakhand in the family farming conference in “BAHAR” subtly evokes state-centered nationalism.

Concurrently, “agricultural” concerns are descending onto transnational environmental debates. In September 2014, agriculture was identified as one of twelve “focus areas” in the United Nations Climate Summit. At this point, groups ranging from industry leaders to staunch anti-industry activists recognize agriculture as a “major driver and victim” of “global warming” (the rising of the earth’s overall surface temperature widely attributed to human impact) and “climate change.” However, if this awareness has become “common sense,” the way forward is still highly contested. Even “agroecology” and “family farming,” which appear to be points of consensus, pose conflicts; wealthier more heavily industrialized countries like the U.S. envision it as a means of “carbon trading,” thereby (as opponents accuse) transferring the burden of reducing carbon offsets onto small farmers of the Global South so they can continue with their current course. Industry is currently

72 Local organizations dropped everything to address the environmental emergency. “Online disaster volunteers” did mapping and outreach from their living rooms. Hindu fundamentalist groups sent cadres of volunteers. Contractors vied for construction jobs. Humanitarian organizations sent large sums, a bulk of which – people tell me – fattened pockets of politicians and middlemen. Tourists cancelled tickets, and many people lost their livelihoods. Three owners of collapsed stores whom we met in Garhwal said the banks had deducted a significant portion of their promised government compensation for previous loans. In villages outside the “disaster” zones, many irrigation canals and fields were ruined.

73 Industrial agriculture has “driven” climate change through methane emissions flooded rice paddies, chemical inputs, deforestation for agricultural lands, production of animal feed and bio-fuels, irrigation demands, reduced plant diversity through widespread production through monocropping and consumption of processed foods, its reliance on petrol for transport (UNCTAD 2014). Meanwhile, farmers encounter greater need for irrigation, land is drier and more drought and erosion prone, many yields of cash crops have plateaued, the abandonment of small seed systems.

74 At both the 2014 Climate Summit and the Conference on Food Security 41, debates raged over the “Global Alliance on Climate Smart Agriculture” (GACSA), as many countries are being pressured to sign despite vociferous protest by civil society groups (Chandrasekaran 2015). The aim of reducing the
promoting the “solution” of transgenic crops that are designed to need less pesticides and water; various civil society groups claim this will only produce new social and environmental problems down the line.

Every economic trend, project or contention previously mentioned is fundamentally ecological. This is no wonder: if “Pahar” and “bahar” share their “brea(d)th” – both in terms of the letters that span their “distance” and the sounds they elicit – “economy” and “ecology” share their beginning. They both have etymological roots in the ancient Greek word “oikos,” which indicated a household unit including land and production. “Oikos” incorporated gendered divisions of work as well as relations of slavery; like the social life that preceded British colonial rule in pahar, it was not a harmonious pre-capitalist ideal. As Gadgil and Guha proposed, what is construed as “nature,” “environment” or “ecology” comprises the basis of all human sustenance and human work/labor and is therefore economic (and “materialist”).75 Responding to Gadgil and Guha, Agrawal and Sivaramakrishnan demonstrated how looking closely at the ethnographic and historical particularities that inhabit the intersection of “agrarian environments” – where I locate mandua and “the subaltern production of biodiversity” – exposes the dialectic between “the labor of nature and the nature of labor.”76 Positioned “from the margins,” this study recognizes capital relations as a crucial economic/ecological process, but not entire or a point of origin.

four. FOOD/SECURITY(SOVEREIGNTY)

• Collocated, the words “Food” and “Security(Sovereignty)” evoke legislation mentioned in both of this chapter’s opening events. This section gives a brief overview of the national and colonial history leading to India’s 2013 National Food Security Act to illuminate aspects of the relationship between pahari food production/consumption and national development. This law crystallized conflicting visions and needs, and is riven with victories and losses. Particularly important here is India’s Green Revolution and its aftermath, as well as way in which narratives of inevitability work to produce new narratives of inevitability.

“average” of the earth’s temperature could also be used to exacerbate sacrifices by poorer people, countries, and regions for the benefit of wealthier corporations, individuals, and countries.

75 Gadgil and Guha (1995) and Smith (1990 [1984]).
In September 2013, India's passed the National Food Security Act after intense debates in parliament, media and among civil society constituents that revealed conflicting visions for India's future and conflicting beliefs about the role and responsibilities of the state. The law outlines civil society “entitlements” for the country's populace. These include five kilograms of food grains – comprised of heavily subsidized wheat, rice and, for the first time, “coarse millets” – every month for up to 75 percent of India's rural population and 50 percent of India's urban population, while (as before) those identified as “Below Poverty Line” will receive thirty-five kilograms per month per “household.” A few months after the Congress Party pushed this legislation through, the Hindu Nationalist BJP won the national elections by what was called “a landslide.” Within its first trimester, this new government, in what some considered antithetical to its pro-industry alliances, refused to ratify the 2014 World Trade Organization trade facilitation agreement in Bali. Specifically, it was challenging a mandate aimed at preventing “market distortions” of agricultural subsidies by limiting the extent to which a country can stockpile grains and provide minimum support prices to farmers. Complying with the new Food Security Act would eventually push India's agricultural subsidies beyond the WTO limits.

These two, intricately bound, legal moves reveal the changing terms of transnational and national negotiations. The National Food Security Act emerged out of a campaign across India launched in 2001 for the “Right to Food.” The campaign is part of a transnational movement, whose claims are grounded in Article 25 of the UN’s Universal Declaration of Human Rights. The passage of India's new National Food Security Act reveals the strengthening ability of civil society organizations within India to draw on transnational discourses and alliances to assert sustained demands on the nation-state. Concurrently, India's noncompliance at the WTO emerged out of India's its new position in the global market as a member of the G20. It reveals the strengthening ability of “emerging

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77 The 2013 National Food Security Act was retroactive to July of that year.
78 At the WTO meeting in Bali, India was backed by South Africa, another “emerging economy” and fellow member of BRICS.
79 “…in April 2001, the People's Union for Civil Liberties, Rajasthan submitted a petition to the Indian Supreme Court. According to India’s Right to Food Campaign, The petition demands that the country’s gigantic food stocks should be used without delay to protect people from hunger and starvation” (Right to Food India Campaign 2015).
“economies” to assert demands in the transnational sphere. As a twist to the pressure on national governments to create legislation that complies with WTO patent or sui generis requirements on intellectual property and UPOV seed certification mandates, in this instance civil society pressure on domestic law is propelling change in multilateral agreements that have previously benefited wealthy countries.

One of India's main arguments at the WTO meeting in Bali was that the existing limits no longer make sense because they are based on calculations set almost two decades back, and domestic populations have obviously grown tremendously since then, India's by over 300 million people. However, there is another population statistic that the Indian government has touted less: the plummeting number of farmers. By 2011, there were 9 million fewer farmers in India than a decade before, and it is continuing to fall. Many of those I interviewed throughout Uttarakhand live on the precipice of this trend, in the realm of what Marx called “primitive accumulation.” They have sold or migrated from their land, and therefore lost their means of livelihood; and they have turned to selling more of their labor on the market, often as precarious contact workers.

In “PAHAR,” many families from that village have not sold their land, and land titles remain predominantly in the names of male family members though it is women who largely perform the work upon it. Women like Nirmila, Kashtee and Heera still farm while their husbands or sons work in cities and send money home in what has been the “mail order economy” of the hills since the British colonial era. However, problems like wild boar and monkeys, changing rain patterns and new social desires for the younger generations, combined with the region's rise in tourism, strongly suggest that this might soon change. Their families now rely on the market for more of their daily sustenance than even a few years back. Furthermore, since agriculture has been included in multilateral trade

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80 Shrinivasan (2013). Here, India is not alone. Throughout the world, farming has become a less viable or desirable profession in the face of global market competition, seed commodification, the need for more cash to live and neoliberal trends that have propelled new desires and social needs. But at the same time, precisely because of financial precarity, “new peasantry” are forming and being rejuvenated (Da Via 2012, Van der Ploeg 2008).
81 The unemployed keep the price of labor down, help to discipline laborers who know they can be replaced and add to an underlying anxiety that feeds the system. Contrary to popular belief, everyone cannot just “get a job.”
agreements through GATT (and later the WTO), the food items they buy might come from anywhere in the world. The prices of these items fluctuate immensely and unpredictably based on a vast spectrum of factors out of their control including the cost of fuel, wars in other parts of the world, grain hoarding and market speculation, volatile futures markets, sudden gluts and scarcities in production and the interests of all the entrepreneurs, businesses and organizations whose income and revenue come from some intermediary process. In 2007-2008, erratic spikes in food prices led to crises and “food riots” throughout the world.

That speakers in “BAHAR” make so many references to the dire situation of hunger and malnutrition only three years after the UN launched its “Zero Hunger” campaign calls into question the idealized and future oriented vision of this important campaign. Using Prema Devi’s theory depicted in the Opening, one might could argue that – in addition to the sheer power corporations have accrued to shape multilateral agreements – the disjuncture between humanitarian goals and on the ground realities emerges out of the kinds of “common sense knowledge” or shared understandings that circulate within segregated spheres.82

Food security and food sovereignty projects – whether by large-scale farmers, agribusiness, transnational corporations and national governments (as in the former) or by seed activists, farmers and civil society organizations (as with the latter) – in some way seek to mediate, contain, control or contend with social contingencies around food production and consumption. These are measures to protect “fictitious commodities,” whose market value must be produced through by a combination of myth, coercion and socially produced need as the “free” market expands.83 Food itself is not a “fictitious” commodity. However, a majority of food is still produced through the direct relationship of work/labor on land, in other words, at the interface of two of the market’s most uncontainable, most “insecure,” elements. Furthermore, like seeds, food inhabits a dual place in the circuit of production and consumption. It is not only the product of focused human energy but also the source of human

82 These ideological disjunctures mirror those related to forms of seed production I analyze in Chapter Three.
83 Polanyi (2001[1944]).
energy (and that of other species that sustain humankind). There is a level beneath which the human demand for food cannot drop. As such, food has played a historically critical role in governance and rule. If money is “social power” as David Harvey contends, food very much is too.

As a bureaucratic mechanism, food security legislation makes “visible” previously invisible bodies, labor and sources of sustenance that support market relations in India. Food produced for sustenance that appeared not to exist and now really does not exist reveals itself as need, as a claim on the state. For example, Nirmila’s two daughters-in-law and two grandchildren live with her for much of the year and eat food grown on her family’s land, thereby reducing the family’s dependence on her sons' wages. It is not just that her sons' incomes supplement their families’ livelihoods, but that her sustenance, or small-scale, agriculture supplements her sons’ incomes and helps to keep the price of labor down. In effect, it subsidizes industry. As Nirmila and others in her village plant and grow less food, the demand for food on the market rises, as does the demand for wages to pay for it. State subsidized food grains buffer industry from having to contend with the brunt of these demands.

At the same time, as evidenced in the confrontation that ends the first event, as farming in the hills requires more effort and has fewer hands, many families have already come to rely on the public distribution system's supply of cheap grains and, over the past generation, have reduced their production accordingly. However, this is a dependent form of security. When that system is volatile or unreliable as is often the case (currently, there is a 40 percent reported “leakage” in the public distribution system), it creates panic and political upheaval. Nirmila’s support for Modi expressed frustration that she could not access wheat or rice from “the control” (government ration shop) in the lean season before the harvest because of implied failures in governance and administration.

Defining “national food security” as an uncomplicated social good belies the conflicting priorities of the nation-state that situates its own geopolitical security and advancement at odds with

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84 One could argue that it takes labor to consume food; hunger strikes, which Gandhi used to great political effect, are the refusal to perform that labor.
85 UN agencies, such as the Food and Agriculture Organization, link food insecurity reciprocally to political instability; in other words, each causes and derives from the other; and recently India was named on a list of countries at risk of political instability because of high “nutritional insecurity” (FAO 2015).
that of the security and welfare of the majority of the populace. Lived food insecurities are born out of these tensions, and therefore, paradoxically, mark the success as much as the failure of such projects. India's move to change the terms of WTO mandates, largely construed as an act of defiance against the US and WTO, is not an indictment of neoliberal trends that have enabled corporations to consolidate at a rapid pace over the past twenty years and wield considerable power over the global food system. It is a strategic move to advance geopolitically by assuring a base level of domestic appeasement. It reflects a political moment in which “emerging economies,” whose rising GDPs are the outcome of private-public partnerships and the wealthiest strata of their populace consolidating wealth and power to invest in research and development (thereby exacerbating wealth disparities), face critical decisions about how to exert their new power while mitigating the “collateral damage” of trade liberalization. It signifies a necessary promise of entitlements as well as a relinquishment of responsibility.

During the weeks surrounding its passage, the 2013 Food Security Act was debated in the media as if it were an unprecedented landmark. While it reflects new regimes of food production and corresponding national, transnational and civil society tensions, these tensions – and the manner in which they have crystallized into law – draw lines of historical continuity. The national Public Distribution System goes back to 1960, though its stipulations have changed at various historical junctures; and some aspects of the new law, such as the amount of food grains allotted families identified as “below poverty line,” reiterate already existing legislation. “Food security” in India emerged out of and still reflects and struggles against elements of colonial enterprise. Indeed, since 1947 (as well as in the final decades of British colonial rule), the shifts in instituting, changing, rescinding and re-instituting bureaucratic means of food rationing or food security have marked moments of heightening or lessening precarity for India’s populace – each due to the way a particular geopolitical, economic, national and ecological constellation of events articulated with unreconciled issues of power, wealth and national belonging. This has been woven into the fabric of Indian democracy since its Independence.

87 Escobar (2012[1994]).
Contrary to M.S. Swaminathan’s claim that “the future belongs to countries with grains not guns,” “food security” reflects a remarkable convergence of grains, guns, colonial relations, capital expansion and humanitarian intervention that has positioned the security of nation or empire (and elite interests therein) at odds with that of the majority populous. Indeed, in the high mountains of Uttarakhand today, you find encampments of the Indo-Tibetan police amidst rainfed crops, “state” forests and fallow plots of abandoned land. You find roads, stores and local economies that support the military and, in turn, draw people, natural resources and infrastructural investment away from rural farmers. Moreover, India’s different phases of “food security” underscore the fact that grains are only part of the story. In the post-Independence decade, for example, India heavily imported food aid, half of which were wheat products, through the US’s Public Law 480 or “Food for Peace” program. The flood of imported grains enabled the Indian government to set on path of rapid industrialization while superficially ameliorating the way British colonial rule has decimated the agricultural infrastructure to the detriment of the rural poor. Such programs reproduced dependence in many developing countries even as the US was investing in rebuilding the infrastructure of European agriculture through the Marshall Plan.

During the same decade when the Indian government – with Prime Minister Nehru at the helm until his death in 1964 – launched its “Green Revolution” as a new phase of food security, its military fought three wars at India’s northern borders (one with China, two with Pakistan) to define its territory or protect its national security. It was this moment that India turned from importing US grains to importing “hybrid” technologies that were developed largely through investments by the US-based Rockefeller and Ford Foundations in order to develop and disseminate high-yield plant varieties. The goal was “self-reliance.” Moreover, the nation-state, riven as it was with social disparities and conflicting class interests was the “unit” or the “self.” To resolve a “national” problem,

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88 See Mike Davis’s (2002) *Late Victorian Holocausts* for an in depth and powerful look at the production of famines in the colonial era, and how those in India related to those in other regions of the world. A great deal of evidence now suggests that the British underestimated the number of famine deaths in India by tens of millions of people. This reveals how quantitative assessments can also mask and reinforce biases in real and brutal ways.
the Green Revolution displaced aspects of India’s debt and dependence onto its farming populace who
now had to buy seed and corresponding “inputs” like fertilizers.

In other words, the story of how India became a country that stockpiled grains, enjoyed
decades of rising yields, avoided widespread famines and transformed into the biggest rice exporter in
the world – attributes for which it was lauded in “BAHAR” – underwrites the hardships in “PAHAR.”
The perceived marginality of rainfed grains grown in diversified seed systems compounds
Uttarakhand’s perceived marginality to “national food security.” At the same time, the acknowledged
centrality of water from this Himalayan region for far away cities, industrial centers and cash crop
states has transformed village, town and forest life – a contributory factor, many farmers have told
me, to the exacerbating problem of wild boar coming into the fields.

India’s phases of “food security” since Independence parallel larger political economic and
ideological shifts in the transnational sphere, from an emphasis on rights of nations (to import
sufficient staple grains, at a time when US was inundating the global market with cheap exports in the
form of food aid) to the responsibility of nations (to feed their populations by producing their own
cash crop staple grains, at a time when the US government and investors had developed the ability to
produce and commercialize high-yield seeds on a mass scale) to universal human rights (for people to
have access to nutritious food over and above a nation's sovereignty, at a time when agri-business “life
science” conglomerates dominate global food production and a growing network of civil society
groups, activists and farmers are resisting it).89

In this final phase, struggles for the “right to food” – as a legal claim on the state – and “food
sovereignty” – as an assertion of farmers' customary rights to seeds, land and water – converge and

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89 Though “food security” was incorporated as an official term in the policies of the Food and
Agriculture Organization (FAO) of the United Nations’ World Food Conference of 1974 in Rome, it
was widely used much earlier (Edelman, 2014: pp. 965-966). In 1996, after the formation of the WTO,
the commercialization of transgenic seeds and the significant expansion of transnational social
movements, the FAO defined it as “when all people, at all times, have physical, [social] and economic
access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for
an active and healthy life.” In 2002, the organization added the word “social.” The World Food
Program (2009: 170) calls it “a condition that exists when all people, at all times, are free from
hunger.”
This contradiction inheres in Nirmila’s words to the school watchman. Her belief that the government “control” should be open exhibits the first (a claim on the state, a legal right). Her declaration that “this is our land” because of the work performed on it rather than what is written on land titles exhibits the second (a claim that surpasses the state, a customary right). Many farmers in Uttarakhand are caught in this place of ambiguity and precarity, which, in combination with other factors like time-line driven and task-oriented funding projects, spatial segregation, daily stresses on women and women and small farmers’ disconnect from the decision-making processes that shape their lives, makes solidarities across caste and class lines difficult.

Tensions inherent the “right to food” as a claim on the state and food “sovereignty” as a customary right are also seared into the 2013 National Food Security Act. The eventual outcome of the law reveals the manner in which new “food sovereignty” discourses articulate with a dominant legal- and rights-based approach in a country where government bureaucracy, regional identities, NGO presence and electoral politics converge. The initial demands of activists included locally sourcing each region’s grain procurement, among other decentralized, small farmer and production (as opposed to merely consumer) oriented changes, which is why “coarse millets” were included in the legislation. Nevertheless, the final win, as Harsh Mender lays out in Ash in the Belly, was in some ways pyrrhic; a series of necessary compromises resulted in omitting most of these stipulations, and those that were included are dependent on individual states for interpretation and implementation. Furthermore, this legal instrument diverges from a more holistic “food sovereignty” vision in that it delineates a set of programs to be administered separately – such as for schoolchildren, “below poverty line” households, pensions for elderly, and nutritional supplements for pregnant women.

90 Farmers are also claiming the right to local autonomy, strong local markets, local production-consumption cycles, skill-building, gender equity and horizontal farmer-to-farmer networks (La Via Campesina 2013). In 2001, the transnational platform for “food sovereignty” was formed and the meaning of the term was better defined at the Nyéléni conference of 2007. The former UN Special Rapporteur on the Right to Food Olivier De Schutter (2009, 2014) also asserts the interdependence of the right to food, farmer access to seeds and “agroecological” production. Also see Beuchelt and Virchow (2012) and Edelman et al. (2014).
91 Mender (2013).
92 While in Latin America, one can observe the influence of Paolo Freire on farmer-to-farmer networks, in north India his influence is more evident in pedagogy or participatory research employed by
the one hand, these social supports are essential; on the other hand, their compartmentalization, separate administration and requirements of proof (like the legislative and administrative segregation of forest and field) means that food insecurities at the boundaries of identity and classification (like wild animals coming into fields) are not really addressed.

What transpired at the WTO meeting is also a conflicted “win;” powerful member nations agreed to a “peace clause” on India's and other “developing countries” food security demands for a period of four years. During this time, they cannot take India to the WTO for breach, which might have resulted in heavy penalties. Furthermore, a few months later, President Obama and Prime Minister Modi agreed that India's food security programs would not be challenged under WTO rules "until a permanent solution regarding this issue has been agreed and adopted." However, at the same time, the WTO is considering changing the terms of negotiation to control India's, and other “emerging economies” like South Africa’s, power to shape the field.

As a developing country whose economic debt and food dependence after Independence strongly influenced its domestic policy, India's ability to assert demands and articulate power as a nation-state in the transnational sphere is important to the wellbeing of its populace. In addition, India's new Food Security Act ameliorates some of the immediate, life and death, needs and food insecurities that have derived from India opening its doors to neoliberal global trade over the past twenty-five years. However, within its first year of governance, Prime Minister Modi's government has already been criticized for using eminent domain to dispossess farmers of land to turn over to business. This suggests “food security” for the new administration might serve a different purpose. Modi won, after all, by articulating a populist platform. Supporting – or at least not challenging – the new legislation guarantees that a large population of Indians who do not benefit from pro-industry policies will be dependent on the state for basic survival and therefore less likely to protest. The law also guarantees a market for industrial seeds and inputs just when India has approved field trials on hierarchically-structured NGOs or research centers like Swaminathan’s. As Holt-Gimenez (2001) notes, the line between the two is not firm.

93 HT Correspondent (2014).
transgenic food crops and when the Rockefeller Foundation, Gates Foundation, Monsanto Corporation and US government are setting the course for a “Second Green Revolution in Africa.” It also guarantees government subsidies to rural elite in cash crop farming regions, and it keeps the cost of labor down for corporations that the national or state governments want to attract to India’s shores.

“Food security” envisioned this way is unsustainable in the long-term. It reproduces the conditions that create its need. As a temporary safeguard, while infrastructures that prioritize local production and safeguard the commons are being strengthened, it makes a great deal of sense. At present “food sovereignty” has not really taken off in Uttarakhand or many other parts of north India; the movement is strongest in south India and among groups of rural elites who claim caste privilege. In Uttarakhand the concept is expressed most by NGO leaders and workers, upper caste and landed farmers, (often male) activists living towns or cities or wealthy outsiders who have moved to the hills. However, it arguably holds more promise to give India’s majority “food security” in the long term. To create conditions for food sovereignty in Uttarakhand would mean addressing social inequalities pertaining to patterns of rapid urbanization, national development, land rights, caste and gendered exploitation, forest policy and migration among other things. In other words, it would understand “food security” to be not the aim, but a secondary outcome of a more representative democracy. The former, the aim of preventing starvation, suggests a future of extreme precarity and dependence. Furthermore, it cannot guarantee an endurable present for many. The latter, in contrast, is about creating social infrastructures now that would acknowledge an undetermined future and allow for life's unavoidable contingencies.

\[95\text{ This includes the aforementioned La Via Campesina affiliate KRRS in Karnataka, India. Similar disconnections between elites or NGOS and poor peasants on the ground exist in other regions as well. For an example in Honduras, see: Boyer (2010).}\]
8. Farmers in the Kumaoni village of Gow deter monkeys and wild boar (“suar”) from the fields in April 2014.
10. As described in Chapter One, many roads are being built to sites of new hydroelectric dams, ravaging the region’s habitats (photo taken in northern Garhwal in 2013).

Common names for finger millet

- Arabic: tailabon
- Chinese: 綠子 (Traditional), 綠子 (Simplified), cǎnzi (pinyin); also 龍爪稷 and 鳴腳粟 (Traditional)
- Danish: Fingerhirse
- Dhivehi: ബീണി Binbi
- English: Finger millet, African millet, Koracan, Natcheny, Ragi
- Ethiopia: dagussa (Amharic), tokuso (Soddo), barankiya (Oromo)
- French: eleusine cultivatee, coracan, koracan
- German: Fingerhirse
- India:
  - Assamese: ყვავილობი maruba dhan
  - Gujarati: બાવાતો bavato; નાચીની nachni; નાગાળી nagali
  - Hindi: मढुआ madua/marua; मढुਆ mandua; मढुवा maruwa/maduwa; मंडवा mandwa; रागी ragi
  - Kannada: ಕುಂಬಿಯಾ kumbiya
  - Kumaon: maduwa
  - Garhwali: कौड़ा kouda; चूना "choona"
  - Konkani: तांबे धन nanchani; नाशण/nasne/nachne
  - Maithili, (Bihar, especially in Mithila region): madua
  - Malayalam: മധുളിക മധുളിക rajamuthary/kuvaraku/kurumbullu/panjipul
  - Marathi: तांबे nanchani; नागाळी nagali
  - Odia: ମବାଳ mandia
  - Pahari, Himachal Pradesh: कोड़ कोड़ kodra
  - Punjabi: ਮੰਡਬਾ manda/mandhull/mandal
  - Rajasthani: नाच्छी nanchhi; रागी ragi
  - Sanskrit: मधुलिका madhulika; मठुक मत्रक amtrak; नृत्यकुण्डल nrityakundala
  - Tamil: சோநி aariyam; சோநிக்கொட்டை kezhivaragu; கோணிக்கொட்டை keappai, மூரி raagi
  - Telugu: తాంబి ragai; కఃచీ tamidalu
  - Urdu: ماروwa گے raagi, mandwa
- Japan: 四国種 シコクビエ shikoku hie shikokubie
- Kenya: wimbi (Swahili), kal (Dholuo), ugimbi (Kikuyu and Meru), obori (Kisii)
- Korea: 수수 susu
- Nepal: कोडो kodo; मढुवा maruwa
- Nigeria: tamba (Hausa)
- Rwanda: uburo
- Sri Lanka: හරුවකරක kurakkan (Sinhala)
- Sudan: tailabon (Arabic), ceyut (Bari)
- Tanzania: Mbege, Mwimbi, Wimbi, Ulezi (Swahili)
- Tibetan: bras ma du lun ga
- Uganda: Bulo
- Vietnam: Hong mi, Chi ke
- Zambia: Kambale, lupoko, mawele, majolothi, amaie, bule
- Zimbabwe: Rapoko, zviyo, njera, rukweza, mazhovole, uphoko, poho

12. Wikipedia page on eleusine coracana
subaltern PRACTICE of biodiversity

This chapter examines the social terrain in which farmers in Uttarakhand, India sow seeds of mandua, madhira and koni (pahari “millets”) at a time of year that brings weddings and the shift from heat to rain.¹ I aim to show how deeply the practice of biodiversity in Uttarakhand is intertwined with patrilineal and patriarchal relations, broader social life, religious beliefs and cultural rituals – such that pahari grains embody what is material, ideological, practical and spiritual. In this chapter, I depict how the practice of biodiversity is changing in the face of national and capitalist development and globalized agriculture.

“Jan Gyan”

“People Knowledge” calls attention to the living labor, knowledge and social life that produces pahari grains. It calls attention to the human life that grows with plant and animal life in the hills. It calls attention to the educational aspects of that life – in the kitchen, field, forest and courtyard – and their historical, gendered, classed and caste dimensions. In this title, no hyphen, comma or slash exists between “people” (human life) and “knowledge” (human ways of understanding the world and one’s place in it).

In the Frame

In this chapter, the threshold of marriage surfaces as a moment of transformation in which “girls” become “women” and shift households and locales. Rather than focus on the “social drama” of weddings, the narrative explores relational trajectories around these events,

¹ The pahari (hill) millets examined here are: mandua/koda – finger millet (ragi in other parts of India); madhira/janghora – barnyard millet; and koni – foxtail millet. Their scientific names appear in Chapter One.
understanding them to be both iterative and transgressive. I analyze how learning to produce and consume particular foods in particular fields, forests and homes comes with learning what it means to be a person of a certain place and status. It also means learning the social value and social cost of sustenance work and small-scale agriculture in a country whose project of modernity depends upon and denies its worth. “Traditions” portrayed in this text are not lost, pre-colonial or timeless; rather, differently situated people value, devalue, reject, dismiss, hail, appropriate and re-invent practices associated with the past in ways that contribute to the survival and decline of foods, customs, and ways of life. They reflect the manner in which India’s path to modernity and its more recent turn to a free market economy have relied upon and compounded, rather than resolved, existing social inequities.

Specifically, the following four sections demonstrate how:

(a) (agri)cultural trends paradoxically and simultaneously endanger and necessitate small-scale agriculture and rainfed crops;
(b) pahari practices and ways of knowing are both devalued and reinforced in a context of “feminized” rural distress;
(c) competing pressures on women to perform class through whiteness, leisure, and consumerism, on the one hand, and physical strength and hard work, on the other, have material effects; and,
(d) NGO fieldworkers detach from “tradition” in their work to revive “traditional” crops.

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2 This project is very much influenced by social anthropologists of the Manchester School and their mid-twentieth century work in British Central Africa – particularly by their close attention to the relationship between symbolism, political economy and social change and the ways in which they revealed ritual enactments to be saturated with meanings that mediate social tensions produced by capital expansion, colonial rule and local politics. I draw from Victor Turner’s analysis of how conflicting social pressures manifest through rituals at a particular moment and place, among people who understand themselves to comprise an obligation-bound collectivity; for Turner, the social enactment of conflicts through rituals diffused tensions in ways that enabled groups to remain (tentatively) coherent or caused them to rupture and structurally transform. Though they did not quite succeed in their attempts to disrupt prevailing functionalist theories of the social, the Manchester School certainly took on social change and conflict. Here I am also drawing from Judith Butler’s prolific work on subject formation. See Butler (1990, 2000, 2004, 2015).

3 For more on the “feminization” of poverty and agriculture see Moghamdam (2005) and Razavi (2002).
On Form

This chapter moves ethnographically through moments in different, yet connected, lives. The narrative is “thickly” descriptive so as to bring out the dense relations and everyday life that comprises the practice of biodiversity; I understand this practice as far beyond what happens in the field and as not easily amenable to linear or compartmentalized frames. The “messiness” and dense weave of socio-ecological life depicted here underpins the survival of people, animals and plants in a region that is experiencing a great deal of migration, environmental change and socio-economic upheaval. The text also evokes subaltern (marginalized) sensibilities, notions of self and ways of knowing. One afternoon in May 2015, I was sitting in the canteen of a local NGO with a critical human geographer from the U.S. who has been living and working in Kumaon for years. “You're interested in the exception,” he said. “By exception I mean what's left out of the story.” Here, the dramas of everyday life, which are generally “left out of the story” of biodiversity – comprise the narrative. The text’s refusal to cling narrowly to its “subject matter” gestures towards the fullness of the lives and socio-ecological relations embedded in pahari grains. To accommodate this style, I incorporate many theoretical and historical expositions into footnotes.

Additional Note

Most people introduced in the following pages do not spend the majority of their time in fields, and why they do or do not perform agricultural work is an important part of the story.

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4 See Crapanzano (1991): “We certainly have to acknowledge that the structure of our discipline, its push toward consistency, toward what Bakhtin might call a dominating monological voice-one, in the case of anthropology, at least, that struggles to subdue (by declaring them subject matter) the many voices that insist on dialoguing with it – is very much a product of our social and cultural arrangements and cannot without foolish arrogance be universalized.” In conversation he said, “Without messiness, you would not have social life.” I am also drawing here from Polanyi’s analysis of social embeddedness (2001 [1944].
Livelihoods in the hills, as with many of the world’s small farmers, are diversified. Even before the British annexation of Kumaon in 1815, pahari men joined regiments of the British East India Company. After Indian Independence, this trend continued as paharis joined the Indian army or left to work in cities. Since India embarked on a path of economic liberalization in the late 1980s, and increasingly after 2000 when Uttarakhand became a state and new economic and governmental opportunities developed, this migratory flow intensified (particularly for women). A high percentage of those remaining in rural pahar are poorer families, women, elderly and children.

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5 See Van der Ploeg (2008). Diversification had been woven into the fabric of “new peasantries” and plays a role in sustaining communities.

6 The Nepali Gurkhas ruled Kumaon without external opposition from 1803 to 1814. After this period, they encroached into territory claimed by the British East India Company. This led to the Anglo-Nepalese War in 1814. In 1815, the British established their rule over the eastern half of Garhwal (east of Alaknanda and Mandakini river) and Kumaon (the latter as a result of the Treaty of Sugauli). See Pande (1993).
PEOPLE

RUKMINI Devi
Rukmini is a married Scheduled (historically oppressed) Caste woman, roughly 50 years old. Her husband (below) lives at home. Her family owns about 2 nali (about 130 square meters) land in the agricultural village of Gow in Kumaon where local pahari crop varieties are grown. She lives in the caste-segregated Tala (lower) Gow. She has 3 grown children: a married daughter, a son working in Delhi, and a son at home who requires care. She performs agricultural labor and can’t read or write Hindi. Her family has no Below Poverty Line card (for government rations given to households).

BHAVAN
Rukmini’s husband is a trained carpenter who no longer performs this work. He performs some agricultural labor, and can read and write Hindi.

PREMA Devi
(see below)

MANJU
Manju is an unmarried 19 year old girl. Caste Hindu (Rajput). The pahari family that adopted her owns a lot of land in an agricultural village in Garhwal and run an NGO. She performs agricultural labor. She is about to start in a Bachelor’s program of a pahari university. Her family does not have a BPL card.

CHAUMA
Chauma is an unmarried Scheduled Caste girl, 18 years old. She is a relative and neighbor of Rukmini and Bhavan in Tala Gow. Her family owns 10 nali (660 square meters) land, but has little income. Her father lives at home and performs occasional contract labor through the National Rural Employment Guarantee Act or private contractors. Chauma is the eldest of 3 siblings. She performs agricultural labor and just finished high school. Her family doesn’t have a BPL card.

CHANDRA Devi
Chandra, Chauma’s mother, is a married Scheduled Caste woman, 36 years old. She performs agricultural labor. She has very basic skills in reading and writing Hindi. See above.

DEEPA
Deepa is an unmarried 25 year old “girl” who is Caste Hindu (Rajput). Her family owns roughly 10 nali (660 square meters) land in an agricultural village near Gow where labor is more diversified. She works fulltime for a local NGO and is getting her Masters from pahari university. Her father, who works in Delhi, comes home for a day or two every couple of months. Deepa is the eldest of 3 siblings. She performs little agricultural labor.

PREMA Devi
Prema is a married Caste Hindu (Rajput) woman, 43 years old. She is the mother of Deepa (above), Neetu (below) and a son who attends school in a pahari city. She works on a contract basis for a government health program, and sometimes rents a room to guests. She performs agricultural labor and can read and write Hindi. Though wealthier than Rukmini or Chandra, she has a BPL card. It is Prema who posted the theory of socio-spatial islands that informs this work.

PRABHA Devi
Prabha is a married 27 year old Caste Hindu (Rajput) woman whose family owns roughly 12 nali (800 square meters) land in a rice and wheat growing village in Garhwal. Her husband works on and off for an NGO that does research on environmental issues. She has 2 young children, and lives with her sister-in-law, mother-in-law and father-in-law, who owns a village store and is ill from alcoholism. She performs agricultural labor, and can read and write Hindi. Her family doesn’t have a BPL card.

NEETU
Neetu is Deepa’s younger sister and Prema’s daughter. She does not perform agricultural labor and is getting a Bachelors degree from pahari university.

POOJA
Pooja is Deepa’s friend’s younger sister from same village. Her Caste Hindu (Rajput) family owns roughly 12 nali (800 square meters) land. She is getting a Bachelors degree from a pahari university.

HEERA Devi
Heera is a married 44 year old woman who lives in an agricultural village in Kumaon. Her family owns roughly 10 nali (660 square meters) land. She works full time for a national NGO that focuses on agricultural biodiversity. Her husband is a seed activist. She has 4 unmarried children – one working in Haldwani, the others at home. She performs agricultural labor, and can read and write Hindi. Her family has no BPL card.

VARSHA
Varsha is an unmarried 40 year old woman who lives in an agricultural village in Garhwal. She works full time for a national NGO that focuses on agricultural biodiversity. She has largely stopped performing agricultural labor. She can read and write Hindi. She has no BPL card.
In her Kumaoni village, “millets” still blanket fields during the *kharif*; both Indian and foreign entrepreneurs have recently begun to buy *mandua* through a local NGO. Yet, Rukmini Devi expressed little hope for the seeds she was sowing. Last year, in October 2013, her production of *mandua*, like her *rabi* harvest of wheat, had been low, feeding her family for roughly two months. Now in April everything they ate came from the store, which made money all the more critical.

Under a blazing midmorning sky, her face bore no sign of the week’s festivity. Yesterday had been a religious festival that marked the beginning of the wedding season that would subside when the rains stopped and start again after the Hindu holiday of Dewali. Like others, she had stayed away from the fields and spent the day exchanging fried *pooris* and *aloo pakode* and washing laundry that dried quickly in the sun. Early in the morning, she had visited a small temple beside her home in the Scheduled Caste section of the village Gow; some caste Hindus, who lived on the other side, had made the pilgrimage to the base of the hill on which the village was perched, past the homes whose stone roofs were now soft and draped in amber wheat and across the river to an ancient Shiv temple where, after praying inside the cool sanctorum, women waited on line to crawl inside a tiny room, make offerings of incense, rice and vermillion and ask something of God. This year, the holiday had particular resonance for Rukmini and her husband; their younger son was getting married in a week. And their daily lives would change.

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7 The *kharif* is the rainy/summer season in which *mandua* and *madhira* are sown in April and harvested in September/October. The *rabi* is the winter season in which *gehu* (wheat) is sown in November and harvested in April.

8 Dewali is the Hindu New Year (various regional stories explain its meaning). It is also the turn of India’s fiscal year.

9 “Scheduled Castes” is a legislative term for historically oppressed castes in India. It came out of “Depressed Classes” in the British 1935 Government of India Act. In 1936, The Government of India Order listed a schedule of these groups and the term was changed to “Scheduled Castes.” These were adopted into the Indian Constitution in 1950, and various related laws were subsequently passed including: 1955 Untouchability Practices Act, 1989 Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1993 Employment of Manual Scavengers and
“Hat hat!” Her husband Bhawan directed their two bulls on the other side of the small oblong field.

“Who knows if the seeds will come up?” Rukmini said. “Some people’s do and some people’s don’t. It’s like that.” While she appeared resigned to circumstance, in fact Rukmini had, over almost three decades of working in these fields, developed a theory of why things unfolded in such a way. She was reluctant to voice it for shame about what she had not done, even as she understood this lack was largely a product of circumstance.

She believed that human actions and their effects were profoundly shaped by social and environmental factors, and that conditions of favorability or hardship accrued through repetition. For instance, the “same” labor could grow excellent crops in one spot and reap hardly anything in another. Especially now, the soil quality and the location of a field were important because of environmental changes, like volatile rain. A good harvest fed humans, goats, chickens, cows and buffalo; good food made for stronger and more resilient workers; good fodder meant better dung; dung fertilized the soil for the next round of crops. Each good cycle strengthened the next.

For Rukmini, the cycles had moved in the opposite direction. The work for someone of her age and social position had become almost untenable. She was not in good health, fatigued from responsibilities that fell fully on her shoulders since her daughter married. She could no longer walk distances carrying heavy loads, which meant that she could not fertilize their

Construction of Dry Latrines (Prohibition) Act, as well as affirmative action or “reservations” mandates. In 1990, 1992 and 2003 laws were amended to create and change the governance of National Commissions for Scheduled Castes and Scheduled Tribes – creating a great deal of social unrest in what is now Uttarakhand and throughout India. For the 2011 Census, Scheduled Castes comprised roughly 16.6 percent of the national population, and Scheduled Tribes roughly 8.6 percent. According to the 2008 Planning Commission’s Uttarakhand Development Report, Scheduled Castes comprise 17.76 and Scheduled Tribes 3.02 percent of the total population in Uttarakhand. This is higher in cities and towns and lower in rural areas.

“Gow” means “village” in Hindi. While all events and quotations are true, I have changed the names of people and places. I use “Gow” here like pahar – it is not meant to represent all villages in the hills, just as “pahar” in my text does not speak for all India’s hill regions. Rather, these connote a village and a hill region (connected to others).
Anyway, her harvest was minimal, so the cows had less dung to give. She observed the way other life forms bound to her in production still experienced beneficial rest between periods of intense labor: land rested fallow for six months in each two-year rotation; seeds rested between the harvest and sowing; bulls rested between the plowing seasons; harvested wheat “rested” for at least a month before being eaten so its energy would not upset the stomach.

When she first married, physical respite was incorporated into field labor. And, rest was something women anticipated as they aged and spent more of the day at home. Now the financialization of everyday life and the need for more money was transforming the pace and organization of sustenance agriculture. Because sustenance agriculture accommodates to nonhuman life cycles while the demands of daily life increasingly do not, human bodies like hers bear the stress of mediating competing temporalities and social demands. Rukmini contended with this conflict practically but did not articulate as a broader economic critique. “In the summer we plow and sow mandua, in the rainy season we weed. Then we cut the plants, we save seeds, we clean the grain, we store fodder for the animals, we carry the grain to the mill. Then we put more dung in the fields. [Regardless of season or circumstance,] the work must get done.”

She climbed the hill to another field and began broadcasting madhira with lobiya, a popular dhal in this village. She was planting a version of the pahari mixed crop system known as barah anaaj. Unlike mandua, which her family still ate, the madhira would go entirely to their animals in the form of fodder and porridge. Scientists now promoted these foods as high in proteins, iron and nutrients. Rukmini, like other farmers I met, explained it in terms of lived

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10 Researchers and farmer groups are advocating against the pahari practice of putting manure directly in the fields and trying to expand other organic methods like composting. However, according to Rukmini’s experience, straight application of manure is far preferable to nothing at all.

11 See Haiven (2014), Martin (2002) and Frederici (2014). Furthermore, while microcredit has not yet taken off in this region of India a bank branch was being built in this and other villages in 2015, making such shifts more likely.
effects: *mandua* made people strong; *madhira* helped cows and buffalo to produce milk of better quality, quantity and taste. One reason that methods like “zero tillage” does not work in this region is because farmers in Uttarakhand raise animals and need fodder for animal feed and therefore cannot use the straw for mulch. Similarly, high yield industrial varieties of “dwarf rice” popularized during India’s Green Revolution do not supply enough fodder for animals. She removed a handful of seeds from a plastic bag and, with a bent arm over her head, gently tossed them so they fell like rain. She moved with a rhythm she had acquired from a young age. According to a farmer-activist I interviewed a few months earlier, some *pahari* farmers are resistant to new methods of organic crop intensification that have found success elsewhere not because these are *more* work, as some claim, but because these require exacting measurements and timing that do not conform well to the *manner* of work. 

On this morning, I asked for and offered Rukmini seeds. Small farmers, throughout India and globally, have long practiced seed reciprocity. It is a tradition that “lives” through partial deaths – or transformations of meaning, manner and purpose – that produce the semblance and effect of coherence. In *pahar* as in various parts of India, certain acts of giving, such as feeding others, signify social power and were historically denied those marked as “lower”

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12 Here, “yield” refers to grain only, and does not address other food security and agricultural concerns – such as a cow or buffalo’s milk production. Masanobu Fukuoka’s (2009) writes in depth about his success with “no till” farming in Japan.

13 For example, in 2011, the Nalanda District of Bihar, India reported record high yields in the kharif season using intensive organic methods. This made world news (Diwakar et al, 2011).

14 Asad (2015): “In any living tradition there are arguments about whether exegetical texts, or texts belonging to other traditions, have any value for one’s own tradition, and if so why. Disagreements therefore arise not only about the substance of interpretation but also over where exactly the limits of a tradition lie. These arguments and exchanges suggest that founding narratives are moments in ongoing conversations: so in principle tradition can accommodate rupture, recuperation, reorientation, and splitting—as well as continuity. Tradition is singular as well as plural. For subjects there are not only continuities but also exits and entries. Tradition accommodates mistakes as well as betrayal; it is not by accident that ‘tradition’ and ‘treason’ have a common etymology.” This coherence might be thought of as *maya* in the Hindu religion – the illusion of the phenomenal world.
caste. Seeds, however, traverse these boundaries; in so doing, they momentarily animate a collective identity and transcend lines of social distinction.\textsuperscript{15}

The seeds I requested were for Prema, the farmer from whom I was renting a room in a neighboring village. Wild \textit{suar} (boar) had torn up the fields in which she planted \textit{mandua} and \textit{madhira} the year before. Her neighbors had also lost much of their harvest. Without the need for explanation, Rukmini scooped generous handfuls of \textit{mandua} and \textit{madhira} into two plastic bags. Prema anticipated such a response because “they’re not worth any money.” In other words, their market exclusion – rather than their recent accrual of value as climate resilient crops and specialty grains in the national and global spheres – would return them this year to Prema’s fields. Similarly, an NGO fieldworker told me that farmers in Gow continue to grow \textit{mandua} and \textit{madhira} because the land here is still “cheap” and rainfed. He felt that if it were ten kilometers to the south where families can sell plots to buyers who desire glacial views and better roads or ten kilometers to the west where they can irrigate cash crop vegetables that grow in warming temperatures the story would be different.\textsuperscript{16}

The seeds I gave Rukmini were from a farmer-activist from Garhwal, the other ethno-lingual side of the state, where he lives at roughly the same altitude of 2000 meters. He has dedicated the past two decades of his life to saving hundreds of \textit{pahari} varieties of grains, beans, lentils and vegetables and exchanging seeds with farmers in the hills and throughout India. An advocate of strengthening existing modes of farmer exchange rather than centralized seed banks, he performs his activism in correspondingly informal ways. Respected as he is, however, he is having trouble scaling up; even his own children are pursuing other careers. “Distribute these,” he told me. “This millet has disappeared in places, but it is such a good one.” Whether or

\textsuperscript{15} A great deal of anthropological work concerns the meaning of giving or the “gift” – such as the potlatch traditions of the Pacific Northwest. For foundational texts refer to Malinowski (1922) and Mauss (1925).

\textsuperscript{16} The village architecture of Gow likely also has to do with its lack of appeal to urban or foreign buyers. Homes are close together, as are fields. Thus, the built environment offers scant opportunity for individualistic living, separate from village life, in “nature.”
not the seeds continued to be reproduced, their sowing might germinate ideas and a sense of pahari identity. The packet of seeds that passed from his hands to mine to Rukmini's to Bhawan's met with blank stare that eventually dawned into recognition. “It's koni,” Bhawan said. “We grew it...pehele.”

The refrain of “before” was voiced most often by those over forty who had lived through what was collectively considered a divide between “now” and “before.” While “pehele” signified a deep chasm in experience, it often harkened back to an epoch as recent as ten to twenty years ago. As a temporal construct, it combined materiality and myth; it resonated with climatic and social impressions; it embodied an ethos. Pehele, adults ate well and did not need sweaters in winter; men defended themselves against wild animals with their hands; men trained in the religious role of jaagars played instrument in the fields as women sang and worked; mothers made sweet kheer (a pudding made of milk) with madhira instead of store purchased semya (thin rice noodles); the fields produced more than enough to feed “everyone.” At the same time, young people were married without consent; brides did not know the age of their husbands until their wedding day; daughters-in-law put up with family abuses or eating leftover scraps; a married daughter did not have a way to tell her parents she was visiting a nearby temple. These aspects of life were so entrenched, people could not say simply whether changes had been “good” or “bad.”

According to Rukmini's niece, pehele life was “simple” compared to today's “fashion,” an English word that found a home in her Hindi vernacular. “Fashion,” she explained, meant dying hair, wanting more clothes and mimicking styles on TV. Now, people owned “more things” but were less satisfied with what they had and more stressed (tanov). Older people described the current “fashion” as a feeling of dissatisfaction and a simultaneous dearth in crops.

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17 This practice still happens in some rice growing regions, but has largely stopped here. For more on rituals related to jaagars, see work of anthropologist John Leavitt.
18 This recalls Marshall Sahlins’ (1974) critique of developing infinite needs in Stone Age Economics.
The previous October nineteen-year old Manju gave me insight into pehele. Her love of farming and mandua was no doubt informed by the unexpected trajectory of her young life; after she was orphaned, a well-off family that moved back to Garhwal from Delhi adopted her because they only had sons. The husband launched an NGO that focused on livelihoods and the wife took care of their animals and largely worked in the fields. Now Manju spent evenings studying towards a university degree and days helping her mother. I joined her during mandua harvest. Her family had kept the rain-moistened heads of the plants under a cloth on the roof. When they were pacca (ripe), Manju showed me how to knead them with the soles of my feet.

“Should I wash my feet first?” I asked. “No!” she laughed, “This washes your feet!” Indeed, when we finished our feet were soft and clean, and the red and brown beads were dislodged from their stalks.

While we worked, Manju recited jokes that made her laugh aloud. Almost all ridiculed attempts to impose the knowledge and customs of pehele to contemporary life: an old man thought the characters on TV were real and ended up punching the screen; a villager took off his shoes before he boarded a bus because “that is what we do in Garhwal,” and when he arrived at his destination he searched for his shoes outside. Tellingly, men – generally older men – were consistently the naïve protagonists. The stress women bore, however exploitative, gave them importance in rapidly changing times whereas a man who did not relinquish ways of being that previously served him, a man who did not have broader mobility, no longer had a place in the world. She acknowledged that things had changed so much and so rapidly even the jokes felt dated. Hardly anyone “didn’t watch TV.”

Manju's quips corroborated my observation that references to tradition tended to fall into two camps: that which, like the production of koni, fell over the precipice of desire or relevance into the purview of pehele; and that which, like eating rice midday in the summer, remained or became “what we do” because it lent coherence to present life. The two were not distinguished by any measure of time but by the power of certain practices to negotiate tensions.
of practicality, faith, social differentiation and social cohesiveness. Traditions reproduced by those who curried social power in the form of land, wealth and status in ways evident in daily life were less likely to “disappear.” Thus the farmer-activist who had given me koni seeds, and Manju’s father, whose NGO collaborated with him, had a difficult task: to activate an allegiance to sustenance foods and rainfed crops that for generations have not been highly esteemed. For them, pehele was a terrain of struggle: it marked a crucial cultural moment in which a practice had fallen or was falling away from living tradition but still lived vibrantly in social memory – susceptible to being reclaimed.

But Rukmini and Bhawan saw little point in such struggle. For those with neither caste nor class privilege the connective social tissue had become threadbare. How does one understand their sense of alienation against the claim, “Here, we all work together. We don’t say, ‘You will work there, I will work here,’” made by a farmer in a Garhwali village as she pointed to a line of relatives collectively harvesting rice? Some NGOs made similar claims that the region had an egalitarian and communal history. One could interpret the discrepancy through a paradigm of loss – a loss that correlates with India’s post-Independence infrastructural and economic development and post-1990 move towards a free market economy, as well as with increasing environmental disasters. The country’s economic and service sector growth has paralleled an undeniable brain drain out of rural areas: by 2014, the number of farmers had fallen in absolute numbers despite India’s exponential population growth. Some pahari villages are virtually boarded up. In other words, there are not people left to farm.

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19 Mandua in pahar has held a different status from “ragi” in other parts of India like Karnataka, where it has emblematized a stronger part of the regional identity. It also differs from corn in Mexico, where strong indigenous identity and history gives that grain social power and from Peruvian quinoa, which was integral to the pre-Spanish colonizing Incan empire.

20 At the same time job growth has stagnated and child malnutrition has remained remarkably high (Chatterjee 2007).

21 This phenomenon aligns with what Marx (1977: Part VIII) called “primitive accumulation” because it sets peasants “free” to sell their labor on the market (at the same time, the land can become a commodity). There has been a widespread exodus of small farmers from rural areas throughout India and many parts of the Global South.
But the issue is not as simple as the loss of populations or traditions. It is as much about the resilience of ways life and forms of knowledge as about their abandonment. As circumstances change, the very practices that maintain cycles of production also undermine them. Along these lines, three aspects of social organization here are most relevant because of how they both unify and demarcate groups, or represent traditions of joint labor that simultaneously foreclose kinds of collaboration. Foundationally interlinked, their schematic distinction serves only as analytical scaffold. Each of the three is, on the one hand, grounded in supernatural and ethical belief that undercuts causal determinacy (“We don't know why.”); and each is, on the other hand, fundamentally implicates private property relations and social labor. In practice, they mediate India’s unresolved “peasant question” in this region as it relates to household relations (in particular, patrilineality) and the lack of meaningful land reform. They are products of rather than precursors to modernity and capitalism, understanding the latter pair to be dialectic and historical processes that were propelled by European colonialism as a relation not a starting point. They reveal the site of “tradition” to be one of resistance and assimilation to emerging forms of social power.

First: caste.

When I asked the farmer who pointed to her relatives if “we all work together” included “Scheduled Caste” families, she said no. This means that as people migrate, existing forms of social exclusion foreclose the possibility for collective field labor among those who remain.

The tala or lower side of Gow where Rukmini Devi lives is home to historically subjugated groups whose labor sustained village life yet whose personhood was excluded from the categorical purview of the Hindu caste system. Unlike many nearby villages, Gow had a substantial number of “Scheduled Caste” families. They comprised one-third of roughly 175 families. While bodies move fluidly between the two parts of the village – whether to fill vessels with spring water (located on the tala side) or to attend the high school (on the mala side) – and while the terraced fields are completely intermixed, homes are distinctly separated and the
organization of daily life draws bold lines of segregation. People continue to reproduce deeply set prejudices and social shaming that through practices such as refusing to take food from the hands of someone deemed “lower.” Many adults from tala Gow agree that things are “much better than before.” For example, residents of tala Gow gave examples of being able to drink in chai stalls and hotels, move more freely, enter homes in mala Gow and, occasionally, serve food to someone perceived as “upper caste.” In other words, they had broken through forms of rural “untouchability.”

However, in line with now widely circulating values of consumerism and individuality, these gains largely reflect consumption-based rights and matters of individual dignity and social standing rather than shifts in production or property relations. For example, of the over twenty stores that line the road above Gow, only one was owned by someone of a Scheduled Caste. A detailed survey performed by a local NGO in 2014 revealed families in mala Gow own significantly more land than those in tala Gow. Rukmini’s family, for instance, claim only a few unirrigated plots; this meant she has little to gain from giving her labor to others because she needed less help in return. It is telling that those still residing in tala Gow publicly use the governmentally framed “Scheduled Caste” or “SC,” rather than “Dalit,” a political identity associated with a national movement launched by B.R. Ambedkhar. As Dinesh, a Dalit scholar

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22 Uttarakhand is a state with fewer reported instances of caste violence than many others (Shah et al. 2006). However, Dinesh, a pahari Dalit journalist and scholar living in Delhi (with whom I spoke a few times) challenged this. “People still treat you like shit,” he said. He described indignities he continues to experience when he returns home to Kumaon, such as a child with caste privilege refusing to take water from his hand. People are standing up to these kinds of indignities in many ways. For example, an employee at a locally based NGO in Kumoan informed me that her organization held a meeting in which a group of Scheduled Caste women refused to take food prepared by women who had refused to eat their food the previous time. Furthermore, many acts of violence, in particular sexual violence, go unreported.

23 A recent survey by a locally based NGO found that most families that live in mala Gow own roughly 1 bigha or 12 nalis of land (roughly 800 meters squared) compared to the 2–4 nalis owned by families in tala Gow.

24 This accounts for one reason why women from tala Gow did not join in efforts to deter the suar in Chapter One.

25 “Dalit” is the politicized identity (Kumar 2014). In this work, I used “Scheduled Caste” or “SC” because that is what I heard used. For anyone who called themselves “Dalit,” such as Dinesh, I
and journalist who left Uttarakhand for Delhi, explained, those paharis denied caste status had been on the losing side of history: whether in centuries old wars in which conquered groups were stripped of social privileges; projects to subdue revolution, for example Hindu campaigns that uplifted oppressed groups just enough to prevent them from converting; or forms of political and land patronage, like those forged during British colonial era.26

Moreover, India’s approach to the free market eliminated forms of rural security even as it provided opportunities to consume, study and work elsewhere. Carpentry, Bhawan’s expertise, was previously associated with Scheduled Castes. Yet he does not benefit from the massive construction of second homes and government buildings because those jobs are filled by labor that came from other places, such as Bihar, and caste Hindus who have diversified into “skilled” labor that made money. Though he could earn roughly 300 rupees ($5 US) a half day during this time of year by plowing other’s fields as marginal landowners often did, he said it was difficult for an “old man” to do such physical labor in fields dispersed “here and there.”27 Besides, people chose to leave land fallow rather than “pay so much for so little [money and production]” because government subsidized rice and wheat are cheaply available and they need money to

employ the politicized term. Many of the identified “positive” changes in caste relations emerged out of Dalit political movements throughout the country, for which Ambedkhar is a profoundly important figure. Again, refer to Kumar (2014), as well as Rao (2009).

26 After studying historical works, including those of Badari Datta Pande, Dinesh concluded that in his pilgrimage from south India to what is now Uttarakhand at the beginning of the 9th Century AD, the guru Adi Shankara (Adi Shankaracharya), who consolidated and spread what became the Hindu doctrine of Advaita Vedanta, “Hinduized” the region. Dinish argues that in this period many subjugated groups were brought into the auspice of Hindu social life, though still highly subjugated. This might have prevented revolution and mass conversion. Dinish felt this could explain why there were twenty-two jatis (named subcastes) in mala Gow and only one (of the “highest” possible subjugated position) in tala Gow.

27 The going rate for plowing varies greatly depending on the village and region. I have been to places in Garhwal where it is as high as 600 rupees (about $10), twice the amount as in Gow. In Garhwal I have met farmers attempting to get people to swap plots, so family plots would be close together and nearer to homes. This could reduce drudgery. When I mentioned this to various people in Gow and neighboring villages I often heard the response, “People won’t do that here.”
buy vegetables whose prices, as agricultural commodities on the global market, have been volatile.\textsuperscript{28}

Second: household.

While the relatives at whom the farmer pointed were working together, they were rotating labor on land on that belonged to one household. Thus, as people migrate, the quantity of land a family needs to work or can work shifts significantly, as does its labor force.\textsuperscript{29} The unevenness of this process, and the demands that fall on those who remain, propels households to function separately.

At present, Rukmini Devi had no other women in her household. Their daughter had married and left, and their younger son was not yet married.\textsuperscript{30} Their elder son, born with “a problem with his \textit{dimag} (mind),” was a bachelor, who relied on his parents’ care.\textsuperscript{31} This was her husband’s birthplace and many of their neighbors are relatives; but families are as distinct as they were joined. For example, many families still share \textit{pahari}-style homes called \textit{bakhalays}.\textsuperscript{32} They work side by side in the courtyard or keep their cows together in the lower section of their homes that was built for animals. Nonetheless, they cook and eat separately and are very clear

\textsuperscript{28} Food prices have experienced numerous peaks since 2007-2008 and have at moments been higher than they have ever been (McKeon 2009a, 2009b, 2011).

\textsuperscript{29} Farmer groups in other regions are challenging this by collectivizing land across lines of caste and family and directly taking on women’s land rights. Bina Agarwal (2003) writes of Deccan Development Society farmers doing so to grow millets in Andhra Pradesh. Arguably, the geography of the mountains (and related social life) and disconnections between \textit{pahar} and the market or what have been construed as “real” agricultural zones (like Andhra Pradesh) poses particular challenges to such projects.

\textsuperscript{30} A daughter’s, then a daughter-in-law’s, contribution of labor to her family is instrumental. I found most families in rural areas desired both female and male children. Nonetheless, according to the 2008 Uttarakhand Development Report by the Planning Commission of India, the male-female ratio in Uttarakhand was 1000 males: 1001 females in rural areas and 1000 males: 845 females in rural areas.

\textsuperscript{31} During the course of research I met quite a few families that were contending with loved ones who had problems with their “\textit{dimag}” (mind), which I understand to be social, not merely individual, issues. This phrase was used to describe cognitive issues and mental illness that ranged from depression (that in some cases were related to experiences of sexual violence) to, like Rukmini’s son, forms of communication and intelligence that manifested at birth.

\textsuperscript{32} \textit{Pahari} homes made of wood, stone and mud that are painted white with intricately carved wooden doors and brightly colored trim.
about whose animals, grains, seeds, milk and fodder belong to whom. Sons divided land over
generations. Many times I had been in the field with a farmer who stopped weeding, sowing or
plowing at a seemingly arbitrary place in the middle of a small plot because “this belongs to
someone else.” Rukmini’s sister-in-law, a member of the village *panchayat*, proudly showed me
pictures of her daughter’s wedding that was held at considerable expense in a hotel in the city.
She would lend Rukmini and her husband money without interest but with expectations of
return. Similarly, farmers from different households help each other in numerous ways, for
example by putting dung in the fields of an ill woman; but out of pride and practicality one does
not ask for favors that cannot be reciprocated. More and more rested on each woman’s
shoulders, and her labor belongs to a family.

Third: gender.

All the relatives the farmer pointed to were women. Unlike cash crop regions where men
performed much of the agricultural labor bestowed with economic value, sustenance in these
hills is primarily women’s work. As families migrate, men who remain, even those who cannot
find work due to the region’s “underdevelopment,” are reluctant to lend a hand in many
activities. And many fields remain unsown because most women, reciprocally, do not take over
men’s responsibilities or claim property as theirs.

Rukmini’s husband, for instance, adhered closely to his prescribed role of plowing the
fields, so weeding, reaping, saving seeds, cooking and collecting firewood were her
responsibilities. “A woman can plow,” a Garhwali man told me, “But to this day I have never
seen it.” A *pahari* director of a small NGO near the Nepal border is trying to change this. She
feels this is an effect of patriarchy, a way men retain symbolic ownership over land whose titles

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33 Regardless, even in India’s crop regions, women tend to perform certain kinds of agricultural
work/labor – such as seed saving and harvesting. This is also true in other regions of the world.
An ecofeminist argument might be that these moments of production are those most obviously
entangled with fertility (seeds) and social reproduction (harvest). While somewhat essentialist,
one could also argue that these have been the role women in various places have historically, but
not necessarily, performed.
also belong to them. Thus women who experience domestic violence had little recourse and often no place to go. When crops have economic value, she explained, men play a role at the beginning (plowing) and end (market transactions) of the cycle – those points where property and money most materialized, those points of connectivity to the larger economy. Such inequities dovetail with the way women who filled the mandated positions in the Gram panchayat (local self-government) were still referred to by their husbands’ names and expected to defer to their husbands’ decisions.34 I also heard other theories: A Kumaoni man said that men plow because women shoulder enough work. A Kumaoni woman told me that bulls, like men, are male and thus work together; if women plowed, it would not rain.

Woven together, these perspectives speak to two phenomena. First, how agricultural labor for family consumption in which pahari women were already instrumental now falls almost entirely under their domain; the value it produces is both necessary to and rendered invisible in a market economy. So while before women performed this labor, now the labor itself possesses a gender identity from which the national economy and allied corporate interests benefit. The “feminization” of rural poverty here results not only from migration of men into urban spheres but also from how devalued labor gets infused with certain notions of “femininity.” Second, a great deal of social, mystical, practical and ideological work goes into reproducing men’s social power and concurrently into establishing their basic relevance as trends in national development, culture and economy make it difficult to be “men” in this sustenance-based rural sphere.

Likewise, men continue to play an instrumental role during the twenty-two days of the monsoon when paharis honor their village deity. During this period in Gow, some men with

34 A Gram panchayat, headed by a Sarpanch, is the local self-government in villages as well as small towns. Each elected member, like Rukmini’s relative, holds the position for five years. The panchayat system weakened a great deal upon Independence, but then was reinvigorated in 1992, with spots reserved for women, Scheduled Castes and Scheduled Tribes. Shubra Gururani (2000) also writes about women’s decision-making power in Kumaon.
caste privilege follow strict rules of conduct and reside in the duni (a temple site). In the evenings when families gather around the fire and the jaagar (a man trained in percussion for religious rituals) plays, these men become possessed by Devki’s (the local goddess's) spirit and dance, convulse and spray water and sweat onto the collective – emerging as protagonists in a context that does not distinguish stage from audience, actor from environment, performer from spectator or divine from human. Some of those who are seated also become possessed. Finally, when the men press the fire’s holy ash, the embodiment of Devki, into the skin of others uttering prayers, some recipients cry as a release from social tension and stress. During such festivals and at key times in the agricultural season, relatives still return from far away; the threads of disintegrating rural sociality thicken and tighten and, in so doing, materialize the sutured social net that lays beneath national economic growth – a net of support, survival and necessity.

Why did Rukmini still grow mandua when her fields produced so little? “Because it is here,” she said, gesturing vaguely around her. “It” was land, seeds, people, animals, social expectations. It was a way of life. She added, “We have to eat.” Beyond any material contribution to sustenance, her intimate connection to the labor of production signified the potential of provision and security. It kept certain kinds of power in her grasp.35

If the horizon of possibility for Rukmini and Bhawan did not appear vast, it held a future daughter-in-law. Rukmini expressed this with excitement and restraint. For, there was still the sangeeth (when women gather for religious and social rituals the day before a wedding) and bhaarat (the groom’s wedding party) to plan and money to borrow from relatives.36 In addition,

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35 This is what Van der Ploeg (2008) calls “the struggle to retain autonomy.”
36 Though a bride’s (dulhan) family generally pays for the wedding in this region, the groom’s (dulha) family still has considerable expenses for the sangeeth (a gathering of women on each side the day before the wedding) and the bhaarat (the groom’s party that sends him off or accompanies him to the bride’s home and then welcomes the pair home with festivities). Rukmini had to pay for gifts, food, priest’s fees (Scheduled Caste groups in Gow have their own priests), a band and a DJ. In Gow, people borrowed from relatives (often interest free) rather than banks or third parties. However, a State Bank of India branch was being constructed on the main road here and in other places throughout the hills in 2015; this might significantly alter certain forms of reciprocity and indebtedness.
similar to small producers elsewhere, people here rarely make declarations about the future.\textsuperscript{37} If uncertainty is a generalizable fact of life, its deflection or denial in certain realms has intensified it in others. Like farmers in mountain environments throughout the world, \textit{paharis} experience intense socio-ecological instability exacerbated by globalization and global warming. In Gow, “Do you think it will rain?” meets often with a response like: “Who knows what the weather will do? I only know the monkeys will give trouble.”

Just two days before their son’s wedding, the body of a thirty-five-year old man came home from Bangalore in a box. If the cause of his death was vague, so was the work he had been doing; many men did not share details that might damper the pride with which they could assert they worked in a big city. The wages he sent home covered expenses that had become social necessities; reciprocally and less evidently, his parents’ and wife’s efforts to raise two young children, run a household, grow food and maintain a network of rural ties offset the financial and social costs of production for some distant company. His body was flown to Delhi and driven to the village. It arrived after dark and was kept on ice overnight. At dawn, his male relatives carried him down the hill for his last rights (\textit{anthim sanskar}) and cremation at the same Shiv temple where women prayed at the beginning of the wedding season. One man said, “Here in \textit{pahar}, ‘kal’ [tomorrow] means ‘sometime’ and ‘parson’ [the day after tomorrow] means ‘maybe or never.’”

\textbf{b. “Anything You Can Learn”: (De)Valuing Forms of Knowledge}

A week later, Bollywood and Kumaoni tunes pounded throughout the hills of Tala Gow from Rukmini Devi and her husband’s brightly decorated home. Wedding festivities had begun; it was the evening of the \textit{sangeeth}. Tomorrow their son and the \textit{bharaat} would go to the bride’s village for the wedding and return with a new member of the household. Rukmini Devi wore a gold

\textsuperscript{37} For example, in the Cuzco valley of Peru where I stayed in 2007, I often heard “Si dios quiere” (God willing).
brocade sari and an expression of relief. She offered visitors sweets and a place to sit on a woven mat inside. Outside, people gathered; unmarried teenage girls in pressed salwars (long tunics), married women in sarees and accessorized with gold, and younger girls, like most of the men and boys, in tops and jeans. A small crowd clapped as a man joined a boy in the center of the circle; he tucked a ten-rupee note into the young dancer’s belt, a ritual that folded exchange value into a different social meaning. Nearby, a woman laughed as she wrested her arm out of a man’s inebriated grip.  

Beyond the circle, one of Rukmini’s relatives stood facing the other way. She was looking out past the schoolyard towards a hilly expanse of fields whose apparent fallowness would mask to strangers that mandua, madhira, and dhals (lentils) had just been sown. Everyone called her Chauma because she had been born at the height of the monsoon. She was eighteen.  

Like the kharif crops in the fields she overlooked, Chauma’s future did not hold certainties. But certain things were likely to happen, and a great deal of work had gone into creating those conditions. She was looking at an impending transformation. If she scored high enough on her school exams “maybe [she] would go to study” and get her BA. If not, the next phase of life would entail being the protagonist in an event imbued with profound social and economic significance in the rural hills: a wedding. Although the latter option was virtually predictable, Chauma said, "Let’s see what happens.” Her statement apprehended the considerable power others wielded over the course of her life as well as the limitations of the social to determine exactly how things would go.  

This kind of outlook circulates widely in the hills, a place of bodies and identities in motion. Mixed crops rotate among fields from year to year. Men leave for cities and return

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38 Alcoholism among men is a major social issue in the hills, and one I discuss briefly in the concluding chapter.  
39 “Chaumasā” (here “Chauma” for short) means “four months” and signifies the monsoon period. While I have changed all names, including this one, I met many paharis women whose calling names signified ecological phenomena.  
40 Crapanzano (2014).
seasonally. Girls marry and relocate. Plant names vary according to attributes — subverting efforts at genetic identification and classification. People call each other by nickname or relation — so the subject of the hail consistently changes. These foothills are not the high Himalayas where nomadic shepherds still live. But as recently as thirty years ago, before Haldwani sprawled and the land was built up, most villagers packed up their things and took to the plains for months every year; they set up tents on free plots and worked as agricultural laborers. Chauma’s great aunt Coshilia, whose relatives would “not let [her] rest [die]” when he fell into her protracted bedridden spells, told me, “you saw everyone out on the road.”

The vast majority of girls here study humanities. Chauma was no different. Science and math are dominated by boys who “could read all day” or live in town. Disciplinary divisions of formal education follow a different epistemic than that which inhabits sustenance practices of farming, cooking and forestry. Daily life here counters in fundamental ways the assumption that human interactions and aesthetics can be distinct from environmental concerns. Pahari girls and women become experts on recognizing plants and animals and understanding their relations to other life forms. This expertise is practical because it looks to effects. It is receptive, emerging out of a sensory and intellectual attunement to the temporalities of multiple species and stages – from the six-month growth span of a mandua plant to the two-year shelf life of its seed. It is alert, attending to diverse effects and time frames that exist in biological variation. This diverges from how formal education has developed in India’s government schools and colleges, which adhere to the British colonial model. Yet, the pahari method of observation bears similarities to that employed by predominantly male scientists in laboratories of US-backed agricultural universities where “innovations” in plant breeding happen.42

41 I thank Rachel Daniell for this insight.
42 US-backed agricultural universities have expanded throughout India from 1960 (as the Indian government under Nehru began implementing the Green Revolution), beginning with G.B. Pant University, located in Pantnagar of what now Uttarakhand.
Informal education in the sustenance and “domestic” sphere and that of formal schooling also pose temporal conflicts. They make competing demands on the lives of girls who, in Chauma’s words, “only read for an hour at night after the work is done.” Administrators of all levels of public schooling here understand this; Chauma was not expected to attend class, only to appear at the right time and place for the exam. Crises flare when the few degree requirements, like examinations, coincide with, for example, a monsoon rain that washes out the village’s only motor road. Then, groups leave at dawn to make a dangerous twelve-kilometer trek, or a student might pay a chartered taxi driver 250 rupees (roughly $4 US) – a sum that barely covers a mug of coffee at a “modern” café in Delhi but is more than what someone here earns for a day of breaking stones in the national employment scheme. In such ways, temporal and spatial disjunctures in a rupee’s worth bind distant places and lives, contributing social reproduction to urban and industrial zones even as it makes necessary the migratory trends that sustain them.

Actually, no one from the intercollege in Chauma’s village had ever earned a Division 1 score, which might mean a scholarship. As in the US, the Indian educational system is riven with class disparities. I heard “The schools here are not good” repeated like a pahari mantra. In Gow, as throughout much of the rural hills, families with resources – for example, those that own stores – send their sons (and increasingly their daughters) to schools bahar (outside), whether to the nearest town or to Dehradun, Haldwani, Rishikesh or Delhi. “The wealthier you are the farther you go.”43 To go “farther” is not only an indication of physical distance but also one of proximity to central nodes of the government or the market. As if to underscore this unequal reciprocity, elite Indians and foreigners send their children to acclaimed boarding schools in

43 A storeowner on the main road between Gow and the neighboring village said this to me during an interview in May 2014.
pahar, in former hill stations where British officials once retreated during the summer months.

Chauma might also have wanted to defer thinking about the fact that soon she would be leaving what she knew as home. Marriages here are still largely arranged and understood to be between families, not individuals. In many ways, the relationship between women who share a household or live as neighbors matters more in daily life than that between a wife and husband who might spend most of the year apart. Like the regional dialects and birdcalls, agricultural and social practices of patrilineality in the hills vary considerably. In this part of Kumaon women carry loads on their heads, while near Rudraprayag in Garhwal women bear the weight on their backs. In Gow, most farmers use a paddle to beat grains of wheat off the stalks, while in the neighboring village most farmers hold the stalks like a bat that they slap against a vertical wood slab. Similarly, in Gow married women wear sarees all the time, whereas in places nearby they work in salwars (long tunics).

Regardless, however, couples from the same village generally do not marry. In addition to other effects, this keeps a woman’s families separate and prevents competing loyalties and conflicts. It also works to monopolize her labor. Thus, the agricultural biodiversity of the hills is, and has long been, a shifting enterprise with labor perpetually changing hands. There is little to mark the history of this motion or, conversely, to note this motion as part of “history.” Despite the Hindu Succession Act of 2005, which mandates gender equality in land inheritance, no woman in Gow has a land title in her name. Someone like Chauma who spends her formative years intimately learning a place understands that someday she will live elsewhere. More

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44 I met a Panjabi “farmer” (actually a land owner who employed others to do almost all the farm labor) who had attended an elite boarding school in the hills in the 19980s and who was now sending his son to the same school. His family fared very well with India’s agricultural policies of the past fifty years.

45 Love marriages” are not at all as common here as in India’s metropolises or even Uttarakhand’s expanding cities.

46 In some families, bulls performed this work with their hooves.

47 As amended from 1956. “…the daughter is allotted the same share as is allotted to a son.”
important than any skill, the practical education she receives teaches her to accommodate to new places, people, plants, animals, and practices. It also teaches her that a strong attachment to something does not assure its persistence in one’s life.

This might partially account for why sometimes outsiders appear to care more about the future of pahari crops than the people who grow them. I frequently heard farmers utter: “You can learn.” One woman said, “If you practice enough, anything you can learn.” Knowledge, in other words, is not exclusive. It is shared and transferable as long as one’s mind and body practice it with receptivity. The predominant pedagogy employed when paharis taught me farming and forestry did not emphasize precision of technique; tasks were not broken down into discreet components to be mastered as Foucault described of a shift in French education during the seventeenth century.\(^{48}\) Rather, it required submitting to the rhythm of labor alongside others until that movement became intuitive and refined. In other words, senses have intelligence and people learn through absorption in a place – to develop forms of ecological attention and socio-ecological “habitus.”\(^{49}\)

Chauma’s leap in formal education from her mother Chandra Devi, who was married at thirteen, was common – primarily the product of government and NGO female literacy campaigns that came out of India’s post-Independence feminist movements.\(^{50}\) These have many social benefits: helping women access a world where titles, contracts and social media predominate; reducing domestic violence; alleviating food insecurities; and expanding rights-based advocacy, to name a few. They have also opened up avenues for social connection as networks of extended family splinter. Nonetheless, the preoccupation with reading and writing

\(^{48}\) Foucault (1991). Refer to the section on “Discipline.”
\(^{49}\) Bourdieu’s (1992) “habitus” includes a person’s sensibilities, tastes, values, and behavior cultivated in particular social “field” in which power is always at play. Furthermore, Bourdieu also saw “habitus” as the absorption of these preferences, tastes and behaviors into the body itself and its physical movements.
\(^{50}\) According to the 2001 census as cited by the Indian National Literacy Mission, female literacy in Uttarakhand was roughly 60 percent. It would certainly be higher now.
also serves to devalue the forms of practical education that shaped Chandra’s life, and it contributes to the swiftly moving current of class aspirations that is propelling farmers out of the rural sphere.\(^5^1\)

It was not difficult to discern the social nature of Chandra’s conspicuous shame when she remarked, "I can’t read or write [Hindi]." Or when she told me that Chauma’s father “couldn’t do skilled labor” such as laying stones.\(^5^2\) A secondary definition of the rainfed “koda” (mandua) crop in a copy of an old Oxford Dictionary I found in Mussoorie read, “an illiterate person, a poor person who trades grain for education.” While such transactions now hardly transpire, the stigma linking poor farmers to “coarse grains,” and both to tropes of “backwardness” and primitiveness, continue to be re-inscribed. Farmers who were not destitute once enjoyed the status of annadata, or givers of food; the “anna” came from the Hindu Deity of Food Annapurna, also a massif comprised of some of the world’s highest peaks.\(^5^3\) “Annadata” merged femininity, domestic labor, mountain landscapes, divinity and food production. The idea

\(^{5^1}\) In fact, many women’s “self-help groups” proliferate throughout pahar and rural India more broadly draw from the same horizontally structured pedagogies advocated by Paulo Freire (1970) that have inspired farmer-to-farmer networks in Latin America (Rosset et al. 2011). However, in north India these groups are largely confined within more hierarchal NGO or government networks. Some researchers argue that they can contribute to neoliberal trends by focusing on individual “upliftment” rather than social or economic injustices (Sharma 2008).

\(^{5^2}\) The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005 was advocated for and introduced to address intensifying problems of rural distress and migration by guaranteeing the “right to work” in rural areas. It provides at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do “unskilled manual” work. In pahar, most people could earn twice as much working for private contractors and felt shame about the low value and low esteem of government work. The MGNREGA is also administrated through states, which employ contractors. Hence, possibilities for corruption are high, and I heard of various instances in which contractors withheld or denied payment. Like other men, Chauma’s father “sometimes drank” with his day’s earnings, so the money did not always contribute to family income. While many see drinking as a vice, it also serves a social function. Alcohol sold at the government shops comprises a major source of revenue for Uttarakhand’s state government. In other words, money paid to workers through the government employment scheme often returns – sometimes that same day – to the government. An elderly pahari man with whom I spoke at length while traveling by shared jeep told me this is why he told his sons to leave for work. “There is nothing for them here,” he said, “besides drink.”

\(^{5^3}\) The Annapurna peaks are in Nepal and range up to 6000 meters high.
elevated the field labor of *pahari* farmers to a social height. As one seed activist explained, “It was a divine status because not everyone can farm but everyone must eat.” In the country’s once significantly (and still) majority rural population, this broader social function was obvious and embedded in family life.

However, during the British colonial era, the perception of farming labor in *general* began to fall to a debased rank relegated previously to the rural poor. The speed of the fall accelerated upon Indian Independence, through India’s Green Revolution, and again from the mid-1990s when – after contentious debate between those from formerly colonized nations and those from former colonial empires and their settler colonies – agricultural subsidies were significantly reduced to facilitate global trade. Many factors contributed to the debasement of farm labor: colonial cash crop farming accumulated wealth for Britain and the Indian elite; national projects of modernization during the 1950s invested heavily in industrialization and minimally in agricultural infrastructure; the Indian government turned to industrial agriculture in the 1960s to wrangle free from the geopolitical food dependency that beset many of the “darker nations;” contract farming in India accelerated from the 1980s as policies encouraged links between agribusiness and government; India disinvested from rural social supports and opened its doors to foreign corporations in the 1990s to resolve its financial crisis. The latter

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54 This was said to me by Heera’s husband, who appears in section (d) of this chapter. I stayed with their family occasionally throughout my time in Gow; their village is located roughly two and a half hours away (one to two hours by bus, depending on weather, and one hour walking in from the main road).

55 British rule was also not homogenous and took on a different character in various places and through different periods in Uttarakhand (Rangan 2000). Broadly “British Rule” in India began in the early 1600s with the expansion of the East India Company, through a period in the mid-1700s to mid-1800s when parliamentary control expanded and then from 1857 to 1947 when the British Crown (Raj) administered rule. Though much of this earlier period the British and French Empires were at war in the subcontinent and elsewhere, as well as vying for economic supremacy (Marshall 2009[2005]).

56 In the hills of Uttarakhand, the British set up tea estates, many of which failed and a few of which still operate. As farmers with less or no access to capital became landless laborers, in essence, diversifying for survival; wealthier land-owning families decreased their work in the fields, in essence, diversifying for accumulation. The wealthy, professional and rising classes — particularly those who would not benefit from affirmative action (reservations) legislation —
few dovetailed with rapid urbanization and profound cultural shifts; for example, media syndicates began promoting a brand of “Hindu nationalism” that re-drafted the androgyny and femininity inherent in Hindu myths into militaristic and masculinist tropes. Thus, the performances of reverence for deities like Annapurna fell; meanwhile farm mechanization and the expansion of non-food crops like cotton altered the meaning of farming and farm labor.

All this comprised the social surround when, a few days after Rukmini’s son’s wedding, a seasonal hailstorm broke a stone terrace that had been previously weakened by rain. Overnight, potatoes Chauma and her mother had planted near their house were buried under a half-meter of rock and dirt. Chauma took it hard. Potato was the most common – and for some the only – vegetable purchased in Gow. It was relatively cheap. Hardly anyone grew it, even in their kitchen gardens. On an impulse, Chandra Devi had brought the seeds back from her mika (her parent’s village) where warming temperatures, good irrigation, and links to the market had completely transformed agriculture into cash crop vegetable farming. Chauma had watched them sprout and grow. They were specimens of healthiness. They were market items brought into the integrative fold of sustenance, irrigated crops that had managed to survive on just rain. They embodied an element of her mother’s whimsy. At the same time, they emblazoned the possibility that Chauma’s family had a chance at belonging in the broader world.

have also pursued university education and work abroad in countries (like the United States) that have advantages and status in the global economy.

57 Connections between Islamaphobic and “Hindu fundamentalist” groups of the Sangh Parivar, including the RSS and VHP, and India’s current Prime Minister Narendra Modi’s BJP party are well documented; Christophe Jaffrelot writes about this. Modi won the national election in 2014 during my fieldwork, and also won Uttarakhand. I put “Hindu nationalism” and “Hindu fundamentalism” in quotations to call attention to the fact that many Hindus feel religious nationalism or fundamentalism is antithetical to the tenets of their faith.

58 Cast as “primitive”, small farmers’ place-based work, loss of autonomy and subjection to debt in the “treadmill” of industrial production hold particular shame and anxiety as choice, mobility and money gain social value. Furthermore, the growing middle classes and upper class perform social power by distancing themselves from physical labor. The widening spatial and social gap between producers and consumers devalues field work/labor and serves to dehumanize the bodies that perform it.

59 I borrow “social surround” from Vincent Crapanzano.
I spent an afternoon trying, unsuccessfully, to help her excavate them. Her efforts belied the claims of many elders that Chauma’s generation “doesn’t want to do mehenet kaam.” More precisely, the definition of “hard work” has changed. Whereas before “mehenet” had been a mode of comparing oneself to others engaged in similar work (which came with its own forms of exploitation), now it signifies a kind of work set against those that appear to be worth more. It also indicates a shift from that which was demanding yet shared to that which is almost impossible and increasingly individualized. As agriculture gets more thickly interwoven with the market, mountain lives are caught in a double bind: Many of the benefits of cash crop farming continue to be consolidated in a few key regions or among corporations or landowners who already had capital to invest or the geographic compatibility with modes of industrial agriculture; and mountains are cut off from the market due to challenges of transport and scale. Also, early adopters in cash crop systems frequently accrue the advantages and squeeze others out of competition. At the same time, the environmental and economic consequences of this entanglement have become generalized and, in fact, are felt more profoundly in the mountains, which are highly susceptible to changing wind patterns and experience floods and soil erosion, among other hardships.

“What’s the point?” Chauma lamented days later. “So good they were. So good.”

We were walking through the forest back to her home. Naming the edible trees and bushes around us eventually did the trick of distracting her. These provided pleasure and nourishment without making demands; they affirmed intimate knowledge she shared with

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60 Certainly the prevention of famine in Independent India is an important generalized benefit. I discuss the complications of this in Chapter One. Many mountain and forested environments (Uttarakhand is both) do not lend themselves easily to “space-time compression” (Harvey 1990).

61 Forests, which comprised a majority of the region, are realms of intense labor and struggle over property and the commons, as well as refuges where women go to rest, talk, sing and dance while they collect pine needles for cow bedding or wood for cooking and harvest its edible produce. While not the focus of this work, I discuss this more in my concluding chapter.
others. When we emerged out of the forest she pointed to a *kafal* tree, a species that has inspired some of the more widely known Kumaoni folksongs.  

“The berries aren’t ripe,” she announced. Nonetheless, she cautiously scaled the tree and dropped berries into a fold in her *salwar* (tunic). 63 She offered me one, pinched between fingers whose nails were pockmarked with crimson polish. As its twin landed in her mouth, her face registered none of the sourness I tasted. We sat silently, eating berries.

Suddenly she said, “Maybe I’ll get married.”

A family friend knew someone.

Three weeks later, he arrived with his friend and older brother. On a Saturday that brought a welcome pre-monsoon shower to end a week that was “hot like the plains.” 64 Chauma had just finished pressing one of her *salwars*. Her father led them to the downstairs room of their new house, which was still unfinished because the money had run out.

The family friend came upstairs and tasted the dhal for spices, prodding Chauma, “Don’t be shy. Go down.” She did — to offer water — then quickly came back. He returned and said more forcefully, “Come now.” She looked out the window and burst into tears. When her younger brother tried to photograph her crying, she slapped the phone out of his hand and went, pulling me along.

The “boy,” who was sitting on the cot, gestured to the space beside him. She shook her head and sat across the room in a plastic chair.

He wore dark slacks and a white button-down shirt that clung to his thick torso. He told her he lived in a village at lower altitude and closer to Bhowali, one of the Kumaoni hubs, in a

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62 Historian Shekhar Pathak has written widely on folk songs in Uttarakhand.  
63 During my fieldwork in Uttarakhand, I encountered many women who had broken limbs, broken ribs, sprained shoulders or gotten large bruises from falling out of trees (often to lob wood). I also encountered women, as in other places, who had the same injuries from their husbands.  
64 These are phenomenological observations of global warming/climate change by those who reside in habitats where the effects are acutely felt.
house that was “convenient” and visible from the main road. Hers required a steep twenty-minute walk. He proudly stated that he was a manager for “a multinational” factory. His elder brother, married, had a job in a government hospital and his younger brother attended a “good school.” They had found a good match for his younger sister, but she could not marry yet because there would be “no one at home to do the cooking.” Their mother was deceased. He said, "Only if I get married she can get married." His questions for Chauma focused on her ability and willingness to do housework. His friend added that food had to be ready before the bus passed at seven.

She said, “I have no problem with work.”

He said, “We have fields but they are empty now.”

She said, “I can’t do much in the fields alone.”

He identified, like her, as Scheduled Caste. However, his family had been better positioned socially, geographically and economically to make the most of the processes of urbanization, development, border militarization, tourism and government expansion that had shaped the course of pahari lives and places for post-Independence generations, especially in recent years. They had been able to benefit from government quotas that came out of national Dalit struggles. His philosophy of life emerged from this situatedness. He staunchly stated the credo that “if you work hard you succeed.” He elaborated that he believed in the need to “advance, develop, [and] educate children.” While advocating a capitalist vision of modernity and progress, he also displayed a conservative view of a wife’s role and a woman’s labor. He felt this is what enabled men to advance and, therefore, families to succeed. It is what made his life possible in a competitive world. Similarly, he took his own duties to family seriously.

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65 I am drawing here from Gramsci’s (1978 [1926]) dialectical understanding of “philosophy” as the experiential (practical) truth of history that emerges out of a person’s position (and in turns comes to bear on history in the making).
His friend said to Chauma, “Speak your mind. Don’t be embarrassed. Don’t compromise, it’s your happiness.” However, he interrupted a few times when she began to speak.

She eventually asked a few questions. They revealed the limits and extent of what she understood to be her agency. They intimated her vulnerabilities in the marriage contract, as well as, perhaps, her vision of how a man with a “good job” should be.

“Do you drink or smoke?”

“No. None of that.”

What about others in the household?

He hesitated before answering, “No.”

She asked about his height. The friend suggested they both stand up. He was only slightly taller than her.

“Okay?” he said.

“I don’t know,” she said.

She asked his age.

“Twenty-eight.”

He asked hers.

“Not twenty.”

“So we are eight years apart, that’s no problem for me.”

Noting her obvious disappointment, he said, “I can show you a birth certificate.”

She responded, “I don’t need to see a certificate.”

“After all, I could be lying,” he said. “Many people lie to get married. I could say I have a good private (company) job but really just be breaking stones.”

Chauma turned silent. This was the work her father did for money.

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66 One effect of the government expansion in the hills was that courts and bureaucratic offices proliferated. Families often solved disputes in court even though it was widely believed that justice there was determined by social alliances and bribes.
After she served them lunch, he suggested they exchange numbers in case either “had questions.” She said, “If I have questions I will ask others.”

At the end of May, women throughout the village could be seen and heard in the mornings and late afternoons in the fields weeding mandua. I bumped into Chauma on the path that cut through Gow’s two sides. She seemed preoccupied. She had not made a decision. Her family was inquiring about him and his family.

Within the week, they agreed. She informed me as she watched her brother play jacks in the courtyard using stones. She, her sister and mother were enjoying restful days now that the weeding was done. Their seasonal kitchen garden had sprouted chili, pumpkin and cucumber plants; their apricot tree was ripening. Chauma’s beloved kafal fruit was dark and sweet, and they were enjoying a bowl of it mixed with the pahari namak (seasoned salt, pahari spices and oil) while sipping black chai. She seemed relieved.

Did his height bother her? “No.”

Did she like him? “Yes, he is okay.”

In mid-July, the engagement ceremony came, accompanied again with a welcome rain. The tepid start to the monsoon revealed the resilience of mandua and madhira, which remained green and continued to grow, albeit slowly, even as people’s kitchen gardens were becoming limp and brown. Male relatives served food in the courtyard as they do in weddings. Female relatives rolled and fried poories (flat breads made of wheat) in the kitchen, while the eldest of them looked on, smoking beadies. Chandra Devi came in to show off the gold earrings and silver toe rings his family had given.

Chauma looked striking in a red tikka (a red mark of vermillion) on the forehead that people wear in Hindu religious functions) and bright orange sari. At the sight of her, her best friend and neighbor with whom she often collected wood in the forest began to cry. The two embraced. Her friend adjusted the safety pins that were barely holding Chauma’s sari in place over a tee shirt. "She knows to do everything," Chauma said.
Now the engagement was *pacca* (fixed/ready/ripe). Chauma’s fiancé bought her a cell phone. They talked every day. Chandra let her spend the afternoons sleeping or, on the rare occasion when the electricity worked, watching TV.

c. "The sadder I am, the more I laugh....": Conflicting Values of Strength and Beauty

The day Chauma met her future fiancé, I returned to Prema Devi’s house in the next village to find her daughter Deepa preparing *rotees*. Deepa knew that I had been at someone’s home in another village for a “boy-girl” meeting. As I ducked in through the kitchen entrance, she looked up and quipped, "Can you do *kethi kaam* (field work)? Can you make food? Can you wash clothes? Can you collect firewood? ... He didn’t ask, ‘What do you like?’"

Nearing twenty-five and yet unmarried made Deepa a bit of a rebel.

She held up the dough to show me that she had mixed the tiny amount of remaining *mandua* flour in with the wheat, though people generally did not eat *mandua* during warm months. Eating, like farming, followed seasonal cycles. And not without reason: *bichugaas subzee* (wild stinging nettle curry), for example, made your stomach ache in summer heat. But a superseding value in Prema’s home, as in the homes of many small-scale farmers, is that nothing, especially food, should fall to waste. The direct link between consumers and producers, the reality that those who grow food are often still the same people who cook it, has developed into a societal attunement to the fact that wasted food is wasted labor and potential scarcity – a stark contrast to India’s Public Distribution System or US food wastage, both of which in 2014 were as high as 40 percent.67

Through her social position, mother’s influence and life experiences, Deepa had become a social researcher with feminist sensibilities. She worked for a local NGO. Six days a week, she

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67This wastage has been much publicized in headlines like that in the *Indian Express* on September 3, 2013: “40 percent of foodgrains wasted every year due to lack of storage.” Also, see the FAO report on global food wastage (Gustavsson et al. 2011).
left her home around nine and returned around five, walking five kilometers each way through forest. Her employer receives money from national and foreign donors to fund a highly respected school. The organization also sells value-added products like homemade soaps, facial scrubs and organic oils and tea bags to stores, distributors and individuals in Indian metropolises and abroad. Some of the “raw materials” are sourced in pahar but most come from elsewhere, were assembled here and then sent elsewhere as a way to create “rural livelihoods” that otherwise do not exist. Deepa had spent the day making gift sets. She earned 5000 rupees (less than $100 US) a month. This enabled her to buy pre-paid cards for her cell phone and clothes for her sister’s birthday and, most importantly, pay for college. After she finished her BA degree, she planned to go on for her Masters in Social Science.

Deepa’s proclivity for joking was like her mother’s, who once told me, ”The sadder I am, the more I laugh. What would I do, cry?” The only time I witnessed Prema Devi somber was when something reminded her of her younger brother who died in a gas explosion, leaving a widow and two young children in the city of Haldwani. She rarely got to see them; that was the problem with having a cow that would not allow anyone else to take its milk. “Such a good man he was. So good,” Prema would say, her tone similar to Chauma’s lamentation of the lost potatoes. However, Deepa’s wit was more than an inherited family trait. This attribute abounds in the hills as widely as sweet shops and terraced fields, as it does in places where small farmer or other tightly bound social networks proliferate; jokes momentarily resolve social tensions and relieve the drudgery of labor and precariousness of life.68

_Pahari_ girls and women banter on most occasions save the moment a new bride leaves her maternal home, when generally she and others cry as a social release. Jokes and laughter display a social trait and a form of emotional labor highly valued in _pahari_ girls and women and

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68 “Joking relationships” were written about a great deal by social anthropologists between the 1920s-1950s such as Meyer Fortes and A.R. Radcliffe Brown. Radcliffe Brown (1965[1927]) theorized the joking relationship as “permitted disrespect.” These contributed to a functionalist view of social life prevalent in British anthropology at the time.
instructively cultivated over generations: emotional toughness. Historically, it went along with physical toughness. A Garhwali woman explained, “Women do a lot of work. Jyada bahoot.” The final “too much” was both a critique of exploitation and a badge of honor. Here women and girls, and more recently immigrant Nepali men, were said to be the strongest pahari laborers. Prabha, a farmer from Garhwali with whom I had spent time the previous October, exemplified this toughness. For a week she harvested rice and carried heavy loads of stalks through steep terrain while limping from a large abscess on her foot. She had stepped on something in the forest. When she finally had it removed she remarked casually to the town medical attendant, “This is the first time this has happened to me.” He replied equally casually, “There’s a first time for everything.” He injected her abscess, cut open her foot, removed a great deal of pus and a pus sac, packed the wound and then stuck a needle in her arm to prevent tetanus; at this point, she fainted into my lap. When she came to, she sat up and said, “Can you check my daughter, she has some fever.”

Increasingly since 2000, when Uttarakhand became a state and experienced rapid urbanization, an aesthetic favoring a woman’s physical strength has conflicted with an aesthetic favoring her apparent leisure. Or put differently, the kind of labor a woman’s body can perform and endure has conflicted with her ability to be shielded from physical labor and the sun. It is a clash of economic hierarchies and constitutive ways of exhibiting wealth, both of which rely on women to conduct the cultural labor of performing social distinction. On different occasions, three people told me that a pahari woman—particularly a daughter-in-law—of a wealthy family that still farms continues to work in fields and forests. It is not just her stock of gold but the family’s harvest, number of animals, stacks of wood—in other words, the fruits of her labor—that exhibit her family’s status and becomes a source of pride.

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69 In Prabha’s region women carry loads on their backs. In other regions, such as Gow, they carry loads on their heads. Techniques and technologies vary from place to place.

70 but for the elderly, who usually do work in the home.
However, as families migrate, as land divides over generations, as physical labor socially degrades, as daughters-in-law become “more aware of their rights,” as the consumer culture that dominates urban India also proliferates in “remote” enclaves, people display wealth and social power, and aspire to it, through purchasing items of daily life: flat screen televisions, smartphones, blenders, cement additions to homes, arrays of clothing. A pahari woman is still expected to work hard, but her work does not hold the same meaning; it reverberates with subtle refrains of shame. Movies, television serials and advertisements depict wealth through “modern” women who exude everything her life does not make possible: physical “weakness” (thinness), softness, perennial youth and whiteness that exemplify an exotic version of hegemonic, heteronormative and perceived liberatory European and North American ideals. But such ideals are restrictive and devalue existing forms of autonomy: girls and women are expected to be less physically strong, less active, less bound to other women in daily life, more concerned with how they appear to people they will never meet and more dependent on external forms of governance that did not adequately address their needs. These ideals have been able to root because they found sympathetic soil – i.e., a preference for skin lightness linked to the debasement of men’s physical labor established over centuries of colonial conquests. Paharis have a reputation for being “naturally” light-skinned because of their ancestral ties to Nepal, Tibet, Eurasia and parts of north India, which itself experienced Eurasian settlement. The diverse population of the hills reflects a series of wars and migrations, in which the “losers” often became exploited laborers. If the Nepali Gurkhas, who controlled Kumaon in the early 1800s, heavily taxed and exploited farmers, the British

71 A group of fifteen women of varying ages agreed upon this during a focus group I facilitated in mala Gow in April 2014.
72 Take, for example, the issue of domestic violence. In Garhwal, as well regions of Peru’s Sacred Valley where I stayed in 2006, I visited villages where women had banded together and greatly reduced domestic violence by using their own systems of punishment (including controlled beatings, fines, and shaming). These were effective because they approaches causes and effects as social, not individual, issues and because people were accountable to those with whom they interacted daily.
magistrate subsequently offered land as gifts to absentee landlords (often to privileged caste Hindus) who taxed farmer labor. The British elite established hill stations for leisure and unsuccessfully attempted to populate the hills with Europeans; and those paharis who allied with the British officers, for example men who joined the military, enjoyed higher social standing. More recently in the 1980s, contract farming extended into the plains and to some degree the hills of Kumaon and Garhwal. In Gow and surrounding villages, those men identified as Brahmin who “could not plow” (compared to those Brahmin men who still did) came to enjoy high social distinction, and there were families that had strategically, over generations, moved into this stratum by adhering to forms of dress and behavior. This elite group could make money as priests and spent little time in the sun.

Many paharis whom I met expressed the collective insight that this colorism was connected to the aesthetics of food in a broader social, environmental, and political economic field. “People say if you eat mandua roti, it makes you black,” people told me in various villages, most prevalently in irrigated rice-growing or cash crop regions where mandua production had significantly dropped. “She does not eat black rotee,” said one Kumaoni woman of her teenage daughter. A twenty-year old university student from a village near Kausani declared in English, “I hate mandua. I love rice.” A few scientists, researchers and NGO employees with whom I spoke in towns and cities believed farmers needed to be educated out of this view; it was akin to pahari superstition and construed as irrational. Yet such statements are in fact true and analytical: they illuminate the obscured, affective and material reality that tensions related to social power in marginalized rural spheres are constitutive of India's colonial history and its trajectory of capitalist development – as well as its food and agricultural policies.

Local varieties of wheat, finger millet, barnyard millet, foxtail millet, amaranth, and

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73 By the 1980s, industrial technologies had revolutionized Indian agriculture.
74 In his work Sweetness and Power, Sidney Mintz (1986) analyzes the symbolic power of whiteness in refined sugar set in a colonial political economy that ties indentured labor in the Caribbean to industrial wage labor in Britain.
other grains had been cultivated in the hills (and other parts of India) for centuries before the arrival of the British East India Company.\textsuperscript{75} However, after the British Raj consolidated rule and took over governance on the heels of the Indian Rebellion of 1857, British colonial policies propelled wheat – due to its familiarity, affiliation with temperate (read “civilized”) climates, whiteness when refined and ease of use in leavened European breads – into the global market as a cash crop.\textsuperscript{76} Around the same time, Great Britain was evolving into the dominant player in what sociologists Harriet Friedmann and Phillip McMichael have identified as the first international “food regime.”\textsuperscript{77} Concurrently, colonial policies diminished the economic and social value of what came to be known disparagingly as “coarse grains (mota anaaj).”\textsuperscript{78} This divergence continued after India Independence through a period of US “Food Aid,” which aimed to export the “taste” of wheat in order to further its potential commodification.\textsuperscript{79}

\textsuperscript{75} See Pande (1993) and Pant (1935).
\textsuperscript{76} This roughly yearlong rebellion against the East India Company began in May 1857. It accelerated the demise of the East India Company and led the British Crown to take over the administration to India and govern directly. This widespread and diverse rebellion began in Meerut (present-day Uttar Pradesh), which is close to the southwestern border of what is now Uttarakhand, and was most intensely fought in the central and northern plains of India (Pati 2007, Stokes 1986). Other cash crops expanded during British rule in India included opium, tea, coffee, sugar, jute and indigo. At the time grains were largely imported to Europe from settler colonies, not the tropics. Indeed many of the British cash crops in India were nonfood items, which in part accounts for why India became dependent upon US “food aid” after its independence (McMichael 2009). Mike Davis (2002) details how the British decimated aspects of the infrastructure of India’s food and agriculture systems.

\textsuperscript{77} Harriet Friedmann (1987) introduced the concept of “food regime” to describe emerging formulations of power within the capitalist world system. Broadly, she and Philip McMichael have identified the first international food regime (from 1870 to the 1930s) to be geographically centered in Great Britain – combining colonial (including settler colonial) exploitation to “[provision] emerging European industrial classes, and underwrit[e] the British ‘workshop of the world.’” The second food regime (from the 1950s to the 1970s) was geographically centered in the United States, which provided “food aid” to strengthen “its informal empire of postcolonial states on strategic perimeters of the Cold War.” A third current food regime (from the late 1980s onwards) is that of corporate “consolidating differentiated supply chains,” which provide for “privileged consumers” and “generate[e] populations of displaced slum-dwellers as small farmers leave the land” (McMichael 2009: 141-142).

\textsuperscript{78} Jhardhari et al (2012) describe the negative effects of depictions like “mota anaaj” in Uttarakhand.

\textsuperscript{79} Harriet Friedmann (1982) analyzes the rise and fall of the US Food for Peace program after World War II, and its strategic geopolitical use in the Cold War. She also notes one of the
Revolution technologies subsequently positioned corporations to coopt the US government’s international food regime and also enabled India to become self-sufficient in national grain production, a few breeds of industrial wheat and white rice – grown primarily in cash crop areas – emerged as dominant Indian foods. In the hills, the divergence between wheat and mandua was helped along by the fact that the former, not the latter, has long been incorporated into important religious and social rituals, such as weddings.

_Paharis_ connected the perceived blackness or primitiveness of people with the perceived blackness or primitiveness of foods. This subaltern perspective recognizes by necessity the practical effects of power and the entanglement of desire, shame, and belief with material and historical phenomena; however, the condition of subalternity – a tentative state of vulnerability, repression, socio-spatial containment or epistemological subjugation – also produces knowledge that is often not literal or coherently expressed; it might not have, in a Gramscian sense, detached from practice to make a larger political claim or, considering Butler, consciously sought to disrupt patterns of social reproduction. In other words, subaltern knowledge, in close proximity with subjugated practices, articulates how power works but might not make that claim. This knowledge itself is often overlooked, suppressed or dismissed by those with social power. For example, a government scientist I interviewed who was conducting research in Kumaon to produce high yield mandua and madhira varieties disavowed the racial and ideological aspects of India’s present day food production. Such issues, he felt, were “small”

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secondary aims was to promote the taste of wheat as a means of reproducing cultural and economic ties between the US and other regions.

80 In Chapter One, I discuss in more detail these industrial technologies developed on the heels of World War II in Mexico by US government, Rockefeller Foundation and Ford Foundation. Such as the semi-dwarf variety of “IR8” originally developed in the Philippines at the International Rice Research Institute funded by the Rockefeller Foundation and Ford Foundation. These also replaced local varieties of rice and wheat. South Indian ecologist and rice conservationist Debal Deb claims, “India had nearly 110,000 varieties of rice until 1970 and this diversity has been lost to posterity as a result of the green revolution with its emphasis on mono culture and hybrid crops. Now, only 6,000 species or varieties of rice survive” (as quoted in _The Hindu_, April 6, 2012).
compared to the real problems of yield and market price, about which farmers needed to be educated.  

I found girls and women held in tension contradictory pressures concerning their appearance and their labor, and the corresponding social and economic necessity of both sustenance agriculture and money. They expressed this in various ways – through their words, bodies, labor, relationships and desires. There was Chauma’s nail polish, perennially chipped and needing a fresh coat. There was the time Prabha, while limping with the abscess, called me “patlee” (thin) rather than the disparaging “kamzoor” (weak) that I heard more frequently, and then joked that she was fat. In addition, because of migration, women who remain in the hills shoulder a greater share of work than they might have fifteen years earlier, intensifying this contradiction.

“Girls get so excited for their weddings,” said Deepa. “They think about the new clothes, dressing up. They don’t think about married life when they have to work…. If you marry the wrong guy it will ruin your life. Better not to marry at all.” She noted that though their neighbor’s elder sister and husband were separated, he still beat her when he came to visit their son because “he [thinks he] has a right to do it, she is his wife.” In her view, so much rested on that moment families reproduced the marriage contract, an event that most affected the person who was often least empowered to direct its course. It bothered her that “people meet the guy once and just give their daughters away, as if they were nothing.”

Remarkably, Deepa had turned down eleven potential matches. In each case, her decision was based on the life that marriage would make possible and what it would foreclose.

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In line with Akhil Gupta’s (1998) findings among primarily male farmers in the plains of Alipur in north India, almost all the women farmers I had met in the rural hills, even in areas where warming temperatures and irrigation had enabled cash crops to replace plants like mandua, felt crops grown with chemicals were “weaker.” They did not adopt these practices because they felt them better as judged by the same criteria but for reasons of practicality according to changing social criteria. Their explanations did not resolve these contradictions but rather held them in tension.
She turned down one man because his family owned a buffalo, which was “too much work” and tied a woman to the house. She turned down others because the family either “had too many cows,” “owned too many fields” or was “too big;” it was hard to make rotees for ten hungry mouths every night. She refused a family that demanded dowry. One prospect wanted his wife to live with him in Delhi; Deepa said no because “We cannot live in the plains. Pahari women cannot sit around. It’s not in our nature. We’re used to moving here and there.” Commenting as much on perceived safety constraints on women’s mobility in the urban centers as on their perceived lifestyles, she implied that desire for “free time” is not a natural sign of progress, but produced in and through the organization and meaning of labor itself. Leisure appealed to pahari women now because, compared to even two decades earlier, women did not experience the same camaraderie.

Deepa’s mother Prema Devi was the woman for whom I collected mandua seeds from Rukmini Devi. By this time, she had already planted them. Though she asked her sixteen-year old son to make a two-hour journey home to plow the fields, she did not ask her daughters who lived at home for any help. Prema’s life exemplified the complexity of “tradition.” Poor by global or national standards, she nonetheless enjoyed social advantages relative to others with whom she directly interacted. Her parents, from a village thirty kilometers away, had good land that they now used for growing potatoes and other cash crop vegetables. Their caste privilege as Rajputs led her to marry someone whose family had the same. Having attended school until ninth standard and grown up before girls and women were also abandoning farming life, Prema had functional literacy in both reading/writing and agricultural biodiversity practices. On the one hand, she was on the vanguard of social changes. On the other hand, she was deeply tied the refrain “that’s what our ancestors did.” This dualistic belief system produced opportunities for social advancement. Indeed, her family’s class mobility and manner of daily survival relied upon a delicate set of balances: adhering to and challenging existing forms of social stratification;
diversifying her own labor while limiting her children’s farming experience; and exhibiting thrift and consumerism.

For example, Prema judged herself by standards she had learned from her mother including physical and emotional strength, endurance and the quality of her household labor. She consumed food made in hotels or canteens regardless of the server’s or cook’s purported caste, reciting the NGO refrain that “if you cut our skin, we all bleed the same blood.” Yet, she refused food made in the home of anyone who was identified as Scheduled Caste; nor would she drink their chai or accept tikka that had been dipped in water instead of oil. She explained this in terms of social distinction (“they are dirty”) and practical terms (“because then no one [in my social circle] would eat from my hands”).82 She was planning to finish her high school degree, a big deal for a forty-five year old pahari woman. Meanwhile, she withstood the inconveniences of self-segregation during her period, including not entering the kitchen and not bathing inside. She practiced this even when alone and it meant not eating. She explained that Devki, the local deity, was watching.

When Prema was not doing something productive in the field she was doing something productive in the forest. Or the kitchen. Or the courtyard. Or the cowshed. Or she was schooling her daughters on how to accommodate the occasional paying guest, usually a researcher arranged by a local NGO.83 Or she was using her networks to arrange her son’s housing in the pahari city where he attended school. Or she was on the phone with her husband who worked in Delhi. Or she was accompanying a pregnant woman to the city hospital in her role as a part-time health care worker. Officially, the latter earned her 500 rupees (about $8 US) a delivery; unofficially, she received an extra 100 rupees (roughly $1.50) and a new saree from a family

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82 One day Prema returned home from a health care training in a nearby town and recounted for me how her friend mistakenly gave a Scheduled Caste woman with whom they were traveling Prema’s bag, which contained her lunch and water, to hold. When Prema discovered that her food had been “touched,” she gave the rotees away and therefore did not eat until the evening.

83 Myself included. In 2015, the rate was 200 rupees (about $3.5 US) a night for room and board (as set by the local NGO).
each time she attended the namkaran of a baby whose mother she had helped. She showed me the trunk full of new sarees she had amassed to re-gift at her daughters’ weddings per traditional obligation. Her institutional savvy and ability to read helped her make sure her family would qualify for Below Poverty Line subsidies, even as poorer families like Chauma’s “didn't have a card.” While she collected her monthly quota of sugar, wheat, rice and kerosene she reviewed the transaction painstakingly while joking with the man behind the counter. If she had a migraine on the day the new gas canister arrived she tied a cloth tightly around her forehead and still carried it up the hill. Her cracked four-year old cell phone was “so good, so good;” she liked to read aloud the daily texts she received about vegetable prices, adding flourishes like “and the monkeys will come back at three.”

At the same time, she had lost hundreds of rupees on fees for exams her teenage son unapologetically slept through. She bought her younger daughter a12,000 rupee ($200 US) smart phone for passing her high school exams; it broke within a year. They built a new addition to their home out of heavily marketed cement rather than stone and mud even though Prema never used it because it was “too cold in the winter and too hot in the summer.” She cultivated her daughters' tastes and habits by shielding them from the brunt of farm and forest labor. Despite belief that they “could learn” if needed, the younger got “bad headaches” and Deepa got “skin infections” the few times they still tried.

Prema expressed both pride in her identity as a farmer and disdain for Rukmini and Chauma’s village where “there are flies and people have to work too hard [in the forests and fields].” Having “too much” physical labor marked people and places with the stigma of poverty, particularly because farm work bound people to land while mobility indicated social power.

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84 Many pahari babies of Hindu associated faith (as in other parts of India) are not named at birth but on the eleventh day of life – the namkaran (name giving day) – marked with social and religious rituals. The money and gifts Prema collected at these festivities is not unique. The two Brahmin priests who performed at caste Hindu marriages in Gow earned around 7000-8000 rupees ($100-120) for each two-day wedding (with a sliding scale for poor families). One of these priests had invested his earnings in small grocery shop on the road.
While almost every family in Prema’s village farmed, field labor consumed less of their daily lives. In general, families here owned fewer plots and had relied upon forms of wage labor more heavily and for more generations. The water catchment was such that there was no way to irrigate fields, while there was some irrigation in Gow. In Gow the fields were clustered and the homes were clustered separately (in each of the village’s two parts); here, homes and fields were interspersed; thus one did not see everyone out “together,” diminishing the collective farmer identity and obscuring how much people worked. Unlike Gow, which had a significant Scheduled Caste, Prema’s village was comprised almost of solely of caste Hindus. It was also located at a slightly higher elevation and was cooler – a feature British officers of the past and tourists of the present idealized about the hills.

Her two daughters stayed close to how she had raised them. Nonetheless, they were quite different from each other. Her family exemplified both the patterns and unpredictability in the reproduction of life. Deepa’s job had given her a taste for hotel food with no qualms about who had prepared it, though she would not marry someone of a “lower” caste or take food prepared in their home. Like many of those with caste privilege, her willingness to cross lines of social demarcation did not extend to the most central aspects of sociality and therefore still served to reinforce these divisions.85 Averse as she was to the labor of producing mandua, she had developed a taste for it and a strong belief in its “healthiness.” Neetu, in contrast, hardly left the house except for her college exams. She ate mandua without relish. She preferred rice and dhal and loved Nestle’s Maggi Ramen, now widely popular in the hills.86 Like her father, she refused

85 The use of “SC” or “Scheduled Caste,” a government term, for Dalit groups in villages struck me as particularly curious given the “remoteness” of the region. It might reflect the intellectual acknowledgement that “everyone bleeds the same” (as I was often told), as well as an attunement (and often resentment of by Caste Hindus) to government reservations for Scheduled Caste groups. At the same time, this terminology does not reveal a transformation of deeply held caste beliefs (as would the politicized term “Dalit”).
86 In an interview in April 2014, one of numerous store owners on the main road told me he sells 10 boxes worth of individual Maggi packages every week to people of all ages; whereas ten years ago he hardly sold any. I have seen people eat Maggi as a snack or as a curry with rotees for dinner. People said they like the taste and convenience. In June 2015, the Food Safety and
food cooked at hotels or, for that matter, in most people’s homes regardless of caste. While Deepa had close friends who identified as Scheduled Caste, Neetu had “no friends at college who are SC” and felt they “easily get admission.” She had been a child in the latter 1990s, when protests over nationally mandated caste reservations swept this caste Hindu dominated region on the heels of a recession that was used to justify India’s explicit neoliberal turn.87

The two sisters often sat on the roof at sunset before the ritual of the day’s final chai, a vestige of colonial taste. I found them there one evening. Deepa was stitching chamomile tea bags for work. A lemon tree had bloomed. And the only cucumber vine in Prema’s kitchen garden not eaten by monkeys had trailed up the wall to where they were sitting, as if headed for the sky.

Deepa narrated to Neetu details of the wedding she and I had attended earlier that day – of their twenty-one-year-old neighbor whose family had moved to Haldwani but still returned annually for the sowing and harvest and religious occasions. Against the abode Prema and her daughters maintained with care and filled with life, the teal doors and windows of their neighbor’s home plainly wore its empty years of sun and rain. The DJ’s set blasted as Deepa evaluated the wedding food. Today the bride’s side had sung songs poking fun at married life. “The monkeys [known to be thieves, i.e. the groom’s side] are coming today”…. “After the wedding there are children and after children there are expenses”…. “Look at who came today with empty pockets”….

Deepa fixated on the bride who “had gotten three facials to lighten her face” and developed “dark splotches.” She said, “For some people you can do it and for some you can’t.”

With judgment uncharacteristically focused on someone’s “mistakes” rather than her social

Standards Authority of India (FSSAI) imposed a ban on these instant noodles citing high levels of MSG and lead. One of five Nestle factories in India producing Maggi is located in Rudrapur, Uttarakhand, where it was established in 2006 after companies were given a period of tax free status to draw industry and create jobs in the new state.

87 Here, caste, like race, is “the modality through which class is lived” (Hall 1980).
realities, Deepa’s comment illustrated just how much pressure rested upon girls and women as refrains of social value, performances of wealth and struggles for survival shifted. Skin lightening creams now also has seasons; a store clerk told me that sales spike with weddings and the start of school. But people often “look worse” because they work outside without sunscreen and then apply these products according to what they can afford or weave into daily life. On her wedding day, a bride is expected to look unaffected by the strain of these competing pressures. She is supposed to model excellence according to both sets of standards. This itself is social, ideological and “domestic” labor demanded by evolving capitalist relations. Not to perform well – i.e., to make visible this labor – subjected a woman to the scrutiny of the unforgiving gaze or camera lens.

We heard the bharaat’s band leaving to return to the groom’s home. We saw them descend the path towards the main road. In the sea of terraced plots between us and them, saplings of mandua, various dhals and madhira had just broken through the dry earth.

Deepa said, “Now she will go to her in-laws’ house forever.”

Neetu said, “Now she will go to her in-laws and cut fodder and work in the fields.”

They both laughed.

Deepa said, "Pooja will too, for five or so months."

She was referring to her close friend’s younger sister whose wedding was planned. Over the next few weeks, Deepa would take days off work to accompany Pooja to beauty parlors and shops because Pooja’s older sister, now married and a mother, lived far away. As Deepa observed, as girls she once looked after crossed the threshold of married life, it only made her more conflicted.

d. Cultivating (New) Traditions: A Fieldworker’s Conflicted Role

In Delhi in April 2014, I interviewed a Program Director of a multinational NGO that funds agricultural biodiversity efforts in other regions of India. His is among the few large institutions
that articulate a critique of the global political economy and India’s national policies. He asked me to switch off my recorder before stating, “We’re not making radical change. It’s not possible within this model.” I had expected more of a bombshell – the observation has become fairly commonplace. However, that he needed to obscure it because it might jeopardize his job or reputation exemplifies how layers of subjugated knowledge exist all the way up (in power) and away (spatially) in global networks of humanitarianism. In particular, it reflects how practical knowledge is suppressed to uphold idealized tropes – with the consequences bearing down on those who contend with the contradictions in practice, and the benefits filtering up to those who can be shielded from such truths and their direct effects. I found that the ability of pahari fieldworkers to act on the knowledge of experience to be similarly curtailed within a state dominated by reformist politics, a country with a strong bureaucratic government, and organizations linked to national and transnational funders and funding cycles.

Organizations connected to millet revival efforts in the hills range greatly from those that are publicly pro-organic and anti-GMO to those whose leaders who dislike “ideological opinions” and want to defer their opinions to “scientific research.” There are farmer and environmental activists who spearhead small NGOs that train farmers to make value-added products like pickle from forest fruits, sweets like cholie laddu and juices. Some organizations link farmers to markets in Dehradun, Rishikesh, Haridwar, Haldwani or Delhi, where they can sell extra mandua to consumers and distributers interested in its newly advertised medicinal properties, such as high iron or protein content. But rarely does a pahari farmer have much extra to sell. I met a few fairly elite paharis, such as Manju’s father, who lived and worked in cities but then “missed the sound of the stream” or disliked the temporality or “hawa” (air) of urban life.88 They came back to start organizations that address problems of rural infrastructure that have gone hand in hand with India’s economic and urban development – out-migration,

88 In 2015, Delhi’s air quality was rated as worst in the world.
poverty, formal education, water rights, forest rights, domestic violence, livelihoods, women’s land rights or village-level democratic governance. NGO employment also provides a needed source of income off the tourist trail. For fieldworkers, it is not a lucrative career; most are paid between 4000-6000 a month (up to $100 US). 89

Some NGOs have constructed small campuses where field workers live to avoid strenuous, sometimes impossible, rural commutes. Manju’s parents built a campus that runs on solar and renewable energy made from dung. These become centers in the margins, places where funders, researchers, government officials and volunteers from bahar (outside) sometimes come. Because the nexuses of development and commerce are located elsewhere and often far, leaders travel between rural and urban zones so often they do not blink an eye when facing a full day of road sickness. These organizations form strong networks; many are at least tangentially connected to efforts to revive millets. Environmentally focused groups end up taking on social issues like caste discrimination; socially focused groups end up taking on environmental issues like seeds or dams. Those who have worked in the field long enough understand that these cannot be disentangled. As one director explained in an interview early on in my research, “It’s not ‘about mandua,’ it’s about how mandua connects to everything else.

In six organizations directly involved with mandua and pahari seed varieties, I found a fieldworker’s role produces a complicated relationship with tradition – more so in organizations whose central management is not locally based. Most fieldworkers come from pahari families still bound to rural networks. More are male; of the females, more are not yet married so they have fewer household responsibilities. 90 In a fieldworker's life, institutional goals and practical
life often clash. For example, I met many fieldworkers implementing programs to address caste discrimination who would not take chai in someone's house, particularly in the same village where they lived. As is also typical in other places, fieldworkers who work on agricultural issues often no longer or never did field labor themselves.

Consider the examples of two female fieldworkers, both around age forty. They work for different NGOs that focus on agricultural biodiversity and *pahari* crops. Their organizations have important similarities: both are hierarchically structured national nongovernmental organizations with global reach; both are based in Delhi, with Uttarakhand being one of many regions of focus; each has started a seed bank in the hills, one in Kumaon and the other in Garhwal; both have experimental farms; both are run by well-known and controversial figures who have been characterized by many as opportunistic and out of touch with on the ground issues as well as influential over national policy and engaged in important work. Within this frame, these organizations see and present themselves in opposition: one as a scientific and research-based promoter of food security and farmer livelihoods with an eye towards issues of power; the other as an ideologically-based group grounded in Gandhian self-reliance that is resisting seed corporations, chemical inputs and colonial/neocolonial violence.

Each of these fieldworkers mediates the complicated position of supporting small farmer practices to revive the region's plant biodiversity while inhabiting a mode of living that reinforces the desires that are pulling people away from such practices. The structure and social patterns of their organizations conflict with their aims. Heera worked for wages full time and was also a wife, mother, daughter-in-law and farmer. Hard working in all capacities, she was dubious about the effectiveness of her NGO or how beneficial it was for her life. Employees who had quit her organization informed me that because decision making power rested in Delhi and in the hands of someone who did not engage in farming or field work or live the reality of

91 with whom I spent roughly a week each, although not necessarily on consecutive days.
92 Unlike locally based organizations whose centers and campuses were located in rural *pahar*.
financial precariousness, projects kept changing according to the concerns of funders and “big [powerful] people,” including the Director. This was done without apparent concern for what the labor to implement plans actually entailed, such as walking twenty kilometers a day if the bus was not running.

Heera’s job was to maintain the seed bank, visit villages to run self-help groups, distribute and collect seeds, give information, help researchers gather data and keep logs. When her husband, a passionate collector of local seed varieties who worked for a different CSO, expounded on the benefits of organic farming or the negative effects of the Green Revolution, she tuned out. In reality, she was far less concerned about India’s future food security and pool of plant genetic material than she was with earning money for her three children to attend college. Her dream was to maintain her sustenance fields and to open her own store – it was a vision of sovereignty that corresponded to the times. Balancing two temporal regimens, she had cooking, housework, farm work and fieldwork to complete between her waking hours of 4:30 a.m. and 10:00 p.m. Her household labor accommodated to these demands: she cooked only with gas because there was no time to collect wood and she wore the same office clothes for a few days in a row to minimize washing. Still, on most days she and her co-worker sat in the sweet shop for twenty minutes after they left the office to enjoy a moment of leisure and decadence with some warm gelabi (a deep-fried sweet) and chai.

Varsha, in comparison, had not performed extensive farm work since she became a full-time fieldworker. From her long bronze fingernails and the thickness of her torso compared to how she appeared in photos from four years back, one could see the manifestation of this lifestyle change. Unlike other females her age in her village, she did not wear a saree or clinking bangles because she had not married. Nor did she intend to. Her job of reviving “traditional” grains for elite consumer-based initiatives had enabled her to travel to Delhi, Gujarat and

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93 Many homes had gas stoves, but these were generally used to make chai, Maggi and maybe vegetables.
Bijapur. At her organization she had found “very good people.” She explained, “People say that ‘life can’t go on without marriage’ but you can have very good life.” From various conversations, particularly with older women, I interpreted the sentiment “life can’t go on” not as judgments of a female’s lack of worth but as a practical assessment of the general human need to be socially connected and what that meant specifically within pahari networks of belonging. A great-grandmother asked me, “What will happen to you when your parents die?” Another woman advised me not to get married because “you [in your circumstances/networks] don’t need to. If they say you need someone to take care of you when you’re old, tell them that you’ll end up taking care of him.”

Radical as her choices seemed, in her own way Varsha adhered to the logic of social norms. She lived on her brother’s property and was woven into the household fabric through practices of labor, gift giving and sharing. When she traveled from place to place within the village, she often brought something and took something, reproducing ways social bonds were affirmed and strengthened. Her job obligations animated this movement and also benefited from it.

Unlike Heer a who critiqued the gap between the performance of ideals and practical ethics in her organization (such as what was shown to funders and the reality that paharis, including herself and her colleagues, lived), Varsha's comments were positive and reiterated her organization’s claims. The distinction paralleled the divergence of their organization’s leadership – Heera’s withheld making political claims while Varsha’s pronounced strong ones. Walking with me through her village one September afternoon, Varsha began snapping photos of women raking and men plowing. She gave directives – “Bend a little more,” “Smile,” “Do that again” – to make the photos “authentic.” Her role was one of transference: to freeze living practices into a still frame that would then become mobile and perform the work of representation. If funders wanted clear examples of effectiveness, for Varsha these supplied evidence of her labor and its necessity. A couple of times she asked me to convey to those in
urban offices that she was “good,” suggesting that she understood her vulnerability within the organization’s hierarchy. Such vulnerabilities have intensified as India’s geopolitical and economic rise and its intense oversight pressures on organizations have provoked European- and US-based foundations to pull out of the country.\footnote{\textcite{CarothersBrechenmacher2014}'s \textit{Closing Space: Democracy and Human Rights Support under Fire} describes ways in which the Indian government is pressuring foreign NGOs to leave, in part to keep its actions private.} The poor are no less poor, but there are rising middle classes and the rich are among the wealthiest in the world, capable of their own philanthropy.

Varsha introduced some people to me with: “Here is our ‘organic gardener.’” Each time, the phrase rang strange, intimating possession as much as inclusion.\footnote{Varsha might have portrayed herself and her fieldsite to me in a particular way because she saw herself as a representative and me as a foreigner. Her interactions with neighbors might be quite different in other circumstances.} It merged Varsha with her NGO and distinguished her from her neighbors. Of the many “organic gardeners” I met in the hills, rarely had anyone identified herself as such. For, this way of life was practical, or organic in the literal sense. Ironically, it was for that very reason, some farmers adopted chemicals that seemed effective. On the one hand, “organic farmers” can forge solidarities across spatial lines; on the other hand, it creates external and confining parameters of legibility. Varsha stayed close beside me during the week I visited her field sites. On three occasions when she briefly left I was able to ask “our organic gardeners” what they wanted for their children. Each answer reiterated the same problematic: “to get a job/education bahar [outside].”

Varsha’s effectiveness at her job and her commitment to it prevented her from apprehending such generational breaches in patterns of social reproduction. The projects she undertook – co-writing songs about \textit{pahari} practices, educating people about the health benefits of \textit{pahari} grains, training farmers on new methods, linking farmers to her organization which purchased certain foods to use on ecotourism sites or sell to elite markets – clearly contributed...
to family incomes and a sense of pride. At the same time, the way she lived her life, which was not as a farmer or a wife, also taught lessons.

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In late May, I encountered Rukmini Devi weeding mandua. She was with her twenty-two-year-old daughter-in-law, Janaki, whose new husband had returned to Delhi for work. Though Janaki had been raised in a town and hardly ever farmed, she was obviously learning. Her mandua and madhira was sparse. “It’s like that,” she said.

With more hands and land, Chauma’s family had sown more mandua than Rukmini’s. Still, 2014 was for them a humble year of harvest – fifty kilos, a small barrel’s worth. Save seed for next year, it was depleted by the middle of January. Chandra Devi and Chauma’s sister did the October reaping without her help. Nor was Chauma with them in the winter mornings or evenings to prepare or consume the mandua ki rotees (flat breads that contain mandua). I learned during my return in January 2015 that this was not because Chauma was married and living with her new husband.

During one of their phone calls, her fiancé had joked that Chauma would “sleep on the floor not the cot” because her family was poor. She said, “If you talk like that now, what will you do when we’re married?” Her family called the engagement off. A display of agency both limited and profound, it reminded me of how, on a still day, when pahari farmers needed the wind’s help to separate the wheat from the chaff, they produced it by holding opposite ends of a bed sheet and whipping it around in circles; this could not change the weather, but within the confines of a courtyard it did the trick.\(^96\) Chandra sent Chauma to Delhi for a few months to stay with a relative. It would shelter her from potential gossip. Besides, Chandra said, “Why not?”

\(^96\) Wolf (1990) distinguishes between kinds of power – power to direct the course of one’s own circumstances, the circumstances of others, a set of relations, or social processes that structurally affect many lives. It is helpful to think of the causes and effects of global warming/climate change in this way.
The seeds Rukmini gave Deepa’s mother yielded a thick crop cover in the two “good fields” where they were planted. Spared from wild boar and monkeys, they reaped “tasty” food that Deepa enjoyed eating but did not help to produce. At the end of January to everyone’s surprise, not least her own, Deepa agreed to marry. Someone and some family had passed her test. “Ajeeb hai! Ajeeb hai! Ajeeb hai! [It’s strange! It’s strange! It’s strange!],” she yelled into her receiver with such excitement that I could not miss it, even from 2,000 kilometers away. The wedding came within one short month. He lived in a different part of Kumaon. For now, she continues to work for the same NGO and, when it is convenient, stay at her parents’ home.

The relational threads connecting these lives and experiences suggest that even as “millets” accrue value as global or national commodities, in remote regions like the hills this might not elevate the status or economic value of the labor that produces them. Targeted solutions of raising the economic value and linking millets to the value chain can help certain individuals, groups or villages but are unlikely to resolve the broader issue of the social value of producing agricultural biodiversity. Nor do they address the underlying social contradictions related to: (1) how domestic and sustenance labor is organized in particular places, and (2) the imperative, yet undervalued, role it plays in the national economy. Furthermore, the terrain in which these crops grow is deeply ideological. Hence, NGOs and farmer groups in Uttarakhand and in the more central state of Andra Pradesh among other places have launched campaigns to re-draft millets as “Miracle Grains” or “Seeds of Truth.” Similar to Andean quinoa, the challenge is to have this new evaluative identity lodge on to the labor, knowledge and sensibilities of small-scale producers rather than acts of elite consumption or interim processes.

Hill geography poses particular difficulties. Not only because rough terrain heightens the importance of immediate forms of social organization and dependency, but also because such

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97 Reflective of the bottlenecks in the global food system, the cachet and the profits of “added value” products might go to those situated in the middle of the “value chain.” (Howard 2009).
98 As mentioned earlier, the Deccan Development Society of Andhra Pradesh has achieved some success with this.
places have been *made remote* by infrastructures intended to support national and capitalist development.\(^9\) However, it is in these very places where a great deal of biological variation exists and is reproduced by small-scale farmers as they learn their place and make their place in the world.

Why does small-scale agriculture – and the practice of biodiversity – continue to exist in a place labeled long ago as “unproductive” and “nonagricultural?” In the face of environmental disasters, the lack of infrastructure, the construction of big dams and rampant migration out of the hills – and considering that many families have stopped growing *mandua* or stopped farming altogether – why, then, do people still grow these crops and do *paharis* still farm? This is a question whose answer is not instrumental and cannot be traced to a distinct set of causes, but is suspended in a web of relations that give meaning to life and work. That web, not just its “outcomes,” comprises the practice of biodiversity.

\(^9\) Scott (2010).
13. Rukmini Devi sows mandua seeds.
14. Mandua, madhira and beans/dhals growing in June 2014

15. Mandua ripening in Kumaon August 2014
16. Harvesting mandua in Garhwal in October 2013
17. Chauma, unsure of the future, picks her beloved kafal fruit.
A village temple in Gow that “came up/was built by itself.”
19. Prabha stops to rest while working with an abscess in her foot.

20. “making wind”

22. An example of a bakhalay (pahari home) – the section underneath has historically been meant for cows and buffalo. This is Prema’s (from Chapter Two) home. The dog in the photo was taken by a leopard at dusk about three months later; he was never seen again.
23. Mandua ki rotee (flatbreads of mandua and wheat) “only taste good cooked with fire.”
subaltern practice of BIODIVERSITY

From “practice,” I turn finally to “biodiversity.” Pulling away from pahar (the hills) and maintaining a perspective “from the margins,” I analyze some of the major contentions around marginalized food grains. I examine what happens when mandua (ragi, finger millet, and eleusine coracana) leaves small-scale pahari production-consumption circuits as “(agricultural) biodiversity” in the form of seed, grain and genetic information. I examine the implications and potential consequences for mandua as “millets” move into the “center.” I also examine the implications and potential consequences for the integral practice of biodiversity as “agrobiodiversity,” particularly in the form of seeds, is increasingly compartmentalized, commodified and sold.

“(kheth) Anaaj/Beej”

The title ”(field) Grain/Seed” represents processes of material and ideological distancing and rupture. The parenthetical “field” signifies spatial, institutional and technological movement away from intimate links between production and consumption. The small farmer field becomes the source of biodiversity or "plant genetic material" and a potential destination for commodified seeds. In addition, here the integral -seed-(grain-) and -grain-(seed-), which is open to contingent pasts and futures in the pahari practice of biodiversity, develops a boundary of meaning and use as Seed/Grain. As this boundary sets, consumption emerges as a discreet end and “biodiversity” (as food and/or experience) gets reinvented in that image.

1 While aspects of what I describe bear similarities to other crops and places, like quinoa in Peru, the movement is nonetheless particular to historical and cultural contexts. For instance, Christine Folch (2010) traces a different trajectory of consumption in her work about why yerba mate “failed for centuries to penetrate the non-Latin American world and what changes have engendered new possibilities in the present day, as it traces the commodity’s path through an alternative consumption/production circuit that evades the global north.”
In the Frame
Previously, I argued that global and national economic value accrues through devaluing certain places, practices and lives; therefore, women farmers in “remote” regions and the crops they grow for sustenance exist at the interstice of marginalizing and accumulation processes. Here, I examine what happens when mandua leaves small-scale pahari production-consumption circuits as “(agricultural) biodiversity” in the form of seed, grain and genetic information: what happens when the lives, work and knowledge related to the practice of biodiversity crystalize into the mobile “millet,” a “biodiversity resource” or “plant genetic material.” This chapter illustrates how, as they grow in places and as they travel through space and time, seeds are practical and political sites of democratic struggle. Furthermore, I depict how “millets” become “public” through technological and institutional mechanisms that obfuscate information and cut off civil society access to plant life while making access easier for industry. This private via public trajectory also reflects shifts in temporal orientation towards an abstract future. Thus, the “added value” of millets not only relies upon earlier examined subtractions (including processes of rendering invisible) and socio-spatial divisions, but also on democratic divisions, deferments and ruptures.

On Form
Nine “Portraits” and nine “Passages” portray the forms of dislocation and containment that accompany the new mobility and social/economic value of marginalized grains. The "Portraits" that follow are descriptive frames. As they move from a kitchen in pahar to an NGO seed bank to a vault in the National Bureau of Plant Genetic Resources, they do not follow an individualized "seed" or "grain," but produce an imaginative and practical depiction of what this progression entails, excludes and makes possible. The "Passages" of analytical text between Portraits illuminate processes that spatially, temporally or ideologically (dis)connect; in other
words they represent passages (as in movement) of time and space. Numbered “1.1,” “2.2,” “3.3” and so on (after Portraits numbered "1," "2," "3"...), they signify shadowed, incomplete, unofficial and unequal processes. Together, the Portraits and Passages create an "interrupted" journey, riddled with opacities, countercurrents and contradictions, as well as possibilities for reclaiming meaning, power and democratic life.
"Comeback Cereal: Food security and nutrition concerns are putting an ancient, climate-smart grain back on our plates. Farm to fork, there's been a revival of interest in millet"

"The urgent need to end world hunger appears to have promoted superfood crops at the expense of nutritional diversity"

"Contaminating millets: There is disquiet over government scheme to wean traditional millet farmers on chemical inputs."

"Telangana government urged to declare state as ‘Millet’ state to prevent suicides by farmers"

"Millet project shows grain isn't just for the birds"

"India's ignored drylands could be key to climate-resilient agriculture"

"Millets Commune shows the way for rain-fed farming"

"Initiative by youngsters to revive minor millets cultivation in Tirupur"

"Indigenous crops gain ground in Adilabad"

"Tribal Priestesses Become Guardians of Seeds in Eastern India"

"Millet Magic comes to Town"

"Iron Pearl Millet Reverses Iron Deficiency in Children"

"Forget Rice & Wheat, Munch on Millet Plus"

"Consume millets for healthy life"

"Sovereign Seeds Showcase Unique Biodiversity."

"Can Millet Take on Quinoa? First It Will Need a Makeover."

Passage 1.1

- How as “millets” become “valuable” in new ways, they also constitute a terrain of resistance and appropriation

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Currently in India, headlines mark the new media presence of “millets” almost daily as they transition from being “ignored” into becoming “Comeback Cereal[s].” As explained earlier, this trajectory was largely set in motion through the globalization of agriculture from the mid-1980s through GATT, plant biotechnological leaps since the mid-1990s (specifically the ability to commercialize transgenic seeds) and the expansion of “intellectual property rights” to corporations through multilateral WTO and UPOV mandates on member nations. These altered not only the political economic “potential” for marginalized food grains, but also their symbolic resonance in the global and national arenas.

Through these headlines, certain ideological and political economic contours of the emergence of “millets” in the national and transnational arenas come into relief, revealing it to be a terrain of contention, resistance and appropriation:

First, beyond a source material for biotechnological innovation, industry is marketing “millets” and other marginalized food grains as a cure for the socio-environmental crises that the industry-dominated global food system has contributed to producing; these include climate change (global warming) and human illnesses like diabetes. The benefits of millets are more complicated than they seem when considered in context of the global food system. For example, corporations have started producing *ragi* (finger millet) biscuits marketed as “good for diabetics,” but these possess high quantities of sugar. Additionally, distributing “climate resilient” grains over far distances by using heavily carbon-producing transportation contributes in its own way to global warming. Corporations, unlike small-scale farmers, can easily move their sites of production or cater to new consumers if social or environmental conditions in a

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3 Biodiversity has always comprised the basis for breeding innovations in capitalist agriculture. Darwin’s theory of natural selection explains the need for a great pool of biological variation. Mendel’s observation of recessive and dominant genes opened the door, decades after his discovery, to the global wave of industrial agriculture known as the Green Revolution, starting in Mexico in the 1940s. (Kloppenburg 2004, Mulvany 2014, Shiva 2002). However, commercial plant breeding began before the Green Revolution: there was “pedigree breeding” in the late 19th and early 20th centuries and hybrid breeding by the early 20th (in the USA).
particular place become tough, giving them less impetus to minimize socio-environmental impacts. In other words, even when millets leave the realm of small-scale production, they remain embedded in (new) social life and relations; their “benefits” must be considered practically and in context.

“Millets” also represent civil society resistance to transgenic technologies and the global-food system. For some, they have come to symbolize and become a mechanism for enacting a collective small farmer or “peasant” identity and a means to challenge the way farming labor has been devalued in India. Thus, “dryland crops” become the “key to climate-resilient agriculture” and “declar[ing] a "millet state" becomes a potential answer to the widespread tragedy of farmer suicides in India’s cotton growing belt. Because of extreme rural distress and poverty within the global food system, creating local value chain programs could provide a necessary means to support small farmer livelihoods, while reviving local biodiversity. However, there is also the risk that profit-seeking measures, such as industry efforts to promote hybrid and transgenic seeds, will appropriate projects to create new markets and add intermediary steps in production; this could make farmers more vulnerable in the long run.

Second, "agricultural biodiversity" now evokes the commodity aura. This "aura" appears to trail behind millets in headlines with words like “magic” or “plus;” it produces an atmosphere...

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4 In India’s cotton belt, buying transgenic seeds and chemical inputs has become a necessity for survival (CHRGJ 2011).
of authenticity and inherent allure crystallized in descriptions like "indigenous," "superfood" and "comeback." Such descriptions infuse millets with a mystique that appears to be an essential quality. This quality appears to travel with seeds or grains into “town” and provokes people to "forget" their previous desires for "rice and wheat." On the one hand, the "magic" and "plus" of millets is saturated in commodity logic; on the other hand, it connotes an identity outside of it.

Third, the Indian government is now attempting to capitalize on crops it has long “underutilized.” As it does so, it faces new competition on the global stage from countries (including the US) that previously did not produce large quantities of these grains. In part, this is possible because millets can survive in “drought-prone” places like Colorado. Even in the face of compelling forces, the practice of biodiversity did not disappear and small-scale farmers continued to grow and rely upon millets despite their purported "underutilization." This is one reason why India has remained the largest national producer of millets even decades after the Green Revolution (Uttarakhand still produces over 8% of India’s finger millet). As the Indian government prepares to corner the global market and expand national consumption, it is making claims to seeds and grains it previously "ignored." For example, the Indian government has incorporated “millets” into the 2013 National Food Security Act and new agricultural policies. Consuming millets has gotten a “makeover”: it now presents as an expression of nationalism and modernity among the elite and aspirational middle classes.

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5 I discuss this in Chapter One.
Fourth, "biodiversity" and "millets" have become catalysts for rural and small farmer competition and solidarity. The headline “Can Millets Take Quinoa?” juxtaposes “quinoa” and “millets” as oppositional figures, as variously positioned actors try to find a new home in the confined place for “minor grains” on the global market. However, this confined place is also grounds for situated solidarity. Rural activists are aware of the historical threads of this phenomenon; they have developed political astuteness by learning from how their national governments implemented the Green Revolution in the post-Bretton Woods era. The fact that colonial rule morphed into a "neocolonial" global economy and system of multilateral governance has produced a framework for collective dissent born of apparently fragmented experiences. These connections have deepened and expanded transnationally in the information and "universal human rights" era, particularly because in many countries civil society groups have become disillusioned with the nation state.

Small producers across the world become competitors
Small producers find reasons for and new benefits to solidarity

Fifth, "biodiversity" and "millets" have become contested temporal constructs that negotiate the relationship between human pasts and futures. On the one hand, these terms are hailed in projects to claim cultural heritage, land, seeds and citizenship — as a means to open a future, and a past, that seems to have been foreclosed or denied. On the other hand, they have become instruments in projects to appropriate “tradition” in order to “forget” the lessons of history. In both cases, the past and future do not represent progressive time but rather interwoven, and inalienable, threads.

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Portrait 2: "Never. Unless—"
*Mandua and Meera in the kitchen*
*Kumaon, Uttarakhand*
*March 2014*

For over forty years, a large wood and earthen vessel with a narrow covered top has inhabited the high ledge above the entrance to the kitchen. Made by “bude log” (an old person, an ancestor), it holds *mandua* seeds – at best enough for two seasons of sowing because one can never be sure what a season will bring, especially in the mountains. Depending on the time of year, the outcome of a harvest and how many hands there were to perform work in the fields, sometimes it is full, sometimes half full like now.

"Most people don’t use it [the vessel] anymore,” Meera informed me while preparing *mandua ki rotee* (flat breads made of *mandua* flour mixed with wheat). The grain for the flour came from last October’s harvest, which had totaled about one *bori* (150 kilos). But before taking any of it to the mill for grinding, Meera and her daughters had selected and saved seeds for the next season. What was meant for eating was stored in a metal canister sitting in a corner of the adjacent room.

Though evidence of last year’s monsoon now streaked the walls, the house, which was made of stone, mud and wood, was built to protect people, seeds and animals from the midday heat, the hills’ volatile temperatures and torrential monsoon rains. Like all things that serve a human purpose, it needed to be maintained.

In a good season, Meera’s family keeps and grows enough *mandua* grain to eat for the year. The rest, if any, they sell within the village to those families that grow less than they consume or that have stopped growing the crop entirely. They sell it for a giveaway price – far less than what they fetch for the *gaas* (fodder) that “improves” the taste and thickness of a cow’s or buffalo’s milk. Last year, for example, Meera sold some *mandua gaas* for 200 rupees (about US$3.50) to farmers from a village not far away that had turned almost entirely to cash crop vegetables. This put some money in her pocket to buy things for her family like *chai patti* (tealeaves) and *chawal* (rice).

After she threw the final *rotee* into a basket, Meera pantomimed the different ways she combines *mandua* flour with *atta* (wheat flour). She used two small piles of straw as her aid.

"Sometimes I make two heaps of flour, one like this and one like this. Then I do this.” She pretended to separate the *mandua* and wheat and make a wheat *rotee* with a bit of *mandua* sprinkled in.

"Or I do this.” She took an almost equal amount of straw from each pile. She mixed them together as if making a ball of dough.

"Or I do this," She pretended to make a *rotee* from only the wheat pile, and then puts some straw from the *mandua* on top of its flat surface. She folded the *rotee* over it and rolled it out again, as if she were making *aloo parantha* (a popular Indian bread stuffed with potato). "It looks like it's made of wheat," she said, "but when you tear it open, the inside is dark."

"How I make it depends on who is eating. Some people like it. Others don’t, like my son. Then I put less.... I use it to make the wheat stretch longer.”
At best, her wheat harvest reaped enough for her family to consume for six months of the year. The rest she bought. However, when her brother-in-law moved out, he took the household BPL (Below Poverty Line/ration) card with him. She would get one, she said, but had not yet had time on the days the government official had come. Also, she was "not good at those things" (reading and writing Hindi) and did not have money to give a bribe.

We ate the warm rootees with boiled potatoes and namak (spice and salt). It was, at 10:00 am, her first meal of the day though she had been up since 4:30 planting rice far down the path near the river. Her husband had not touched the food she had brought him. He was laying in a shaded part of the courtyard with a thin sheet covering his body from head to toe to keep away the flies. He had returned from Delhi last week with tuberculosis. Even if he got better, it would be a long time before he could work.

"We don’t take seeds from that vessel to eat," she told me when I had asked. Never? “Never. Unless–”

**Passage 2.2**

- How the commodification of millets/agricultural biodiversity entails flattening and containing the seed’s identity

"Never. Unless–" touches upon an ethic of small-scale producers. It is one described in books such as Renée Vellvé’s *Saving the Seed*, Jack Kloppenburg’s *First the Seed* and Vandana Shiva et al.’s *The Seed Keepers*, as well as in the publications of transnational peasant solidarity networks such as La Via Campesina and BEDE (Biodiversity: Exchange and Dissemination of Experiences). It evokes a code of production whose ubiquity in small seed systems and among those engaged in the practice of biodiversity enables social connections across vast and divergent cultural, historical and geographic differences.

Specifically, "Never. Unless–" reflects a code of restraint and an acknowledgment of both uncertainty and hope. Meera and her family saved the “best” from the harvest as seeds. They set aside more than they could sow in a season; on the chance that unforeseen disaster or loss would leave them with nothing for the following harvest, they would still have something upon which to rely. In this case, it voices precarity and an awareness of potential desperation, suffering or death. However, if the next harvest is plenty or sufficient, then those unsown

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mandua seeds in the earthen vessel would be poured into the tin container of grain to be eaten and replaced with the new stock – reflecting a continuation of the cycle that often comes with both gratitude and relief.

“Unless–” also carries implications that recognize other socio-ecological unknowns and the precarity of mandua itself. An elderly male farmer in Meera’s village explained this to me. What if, for example, there was no food and one could not go to others? Or what if one’s family had stopped growing mandua or farming altogether and no one else wanted the seeds? Within a couple of years, they would lose their ability to produce, and then they might be eaten. In the practice of biodiversity, seeds need to be reproduced to retain their vitality, to remain alive as seeds. Thus, their near-certain "death" would propel them into a new source of life as food.

“Never. Unless–” exists in the practice of biodiversity in which "seed" is in fact "-seed-" and "grain" is "-grain-.” The hyphens that trail ahead and behind each word intimate the other in the pair. These trailing lines hold the past, present and future in immediate proximity. When mandua “-seeds-“ move between farmers in pahar, or when “-seeds-“ are exchanged between small-scale farmers more broadly, the mandua grain is very proximate.

In First the Seed, Jack Kloppenburg analyzes how transgenic and information technologies have made possible new forms of alienation in capitalist agriculture and plant breeding. For thousands of years seeds have been the common heritage of small farmers. Their renewable potential – the fact that farmers can harvest seeds and replant a crop from year to year – has been a site of resistance. Since the 1950s, breakthroughs in industrial agriculture opened new ways to commercialize seeds and homogenize plant traits (like high yielding "dwarf" varieties of rice) – in other words, they provided the technological means to intervene in the seed’s renewable potential and create a desire and need in farmers to buy seeds and accompanying chemical inputs. Meanwhile, multilateral governance provided the institutional
means for the same through patents, plant breeders’ rights (PBR), and national seed certification laws.\textsuperscript{8}

Technological breakthroughs in genetic coding, splicing, cataloging and combining since the 1990s take this further. If by the 1930s corporations could produce hybrid seeds that would lose their vitality in subsequent replanting, new technologies enable them to genetically “design life” that only responds to specific chemicals they expect farmers to buy. Once again, the alienating potential of this technological revolution is propelled by institutional mechanisms; for example, many of the World Bank’s structural adjustment policies require governments to reform and tighten their intellectual property regimes.

Kloppenburg argues that alienation occurs at place of reproduction or renewal in a seed’s life, in other words where the hyphens connect -seed-grain-seed-. These hyphens signify what are actually branches in broader process:

By severing the points of connection, industry appropriates the means of production (seeds), which it then sells to farmers. As we see in the portrait of mandua and Meera in the kitchen and in the tension between "never" and "unless–" another kind of splicing occurs, that of the seed’s and grain’s dual identity within the small-scale circuit of production or the practice of biodiversity.

\textsuperscript{8} Some countries mostly rely on patents (USA) and some more on PBR (EU).
At every stage of production in the practice of biodiversity, a shadow exists, hailing a contingent past and future. Its identity is not discreet as a commodity, food or resource.

As the cycle of production and consumption is severed and appropriated, the seed’s dual identity becomes flattened and delineated. This contains a seed’s temporal potential and instability so that its identity as "seed" or "grain" might be fixed at specific moments in cycle of production and consumption. It is a way of controlling contingencies (or attempting to) and limiting certain forms of human/nonhuman potential. In addition, it works to eradicate the “Never” (or “first the seed”), a sensibility of human restraint that is arguably necessary for our planet’s future.

_Portrait 3: A Dual Life_

_NGO Seed bank
Kumaon, Uttarakhand
April 2014_

The basic principle behind their work with seeds is that "if you plant just a handful, you get so much," explains Heera. She is a fieldworker. As she speaks, she spreads her hands wide apart to give a sense of how exponentially seeds can regenerate.

This burgeoning "seed bank" of a local branch of a national NGO is humble and located in the hills. Inside its walls, little evidence exists of the language and goals expressed in the Delhi headquarters or among its international funders, such as "plant genetic material," “food security” and "biodiversity.” When I interviewed her a month earlier, the Director had voiced concern over the corruption of scientific research and national legislation in India. "The playing field is uneven," she said.

It is as if the seeds here have a dual life. On the on hand, they are the seeds Heera describes: they can be given away, planted here in the hills in the coming season, harvested and then replaced based on farmers’ needs. On the other hand, they are resources and containers of genetic information to serve a generalized human need.
Most of the time, the room where the seeds are stored is locked, and either Heera or her colleagues keeps the key. Lined up on the shelves that smell of freshly cut wood, seeds of dryland crops – now known in national and transnational circles for being "climate resilient" – fill or half fill small glass jars labeled in handwritten script with their name, place of harvest and month and year of collection. They include farmer-saved varieties of mandua (finger millet) and madhira (barnyard millet) and beans, rice, wheat, lentils and vegetables.

The point, Heera explains, is for farmers to give, take and return seeds. Just a little each time. If enough farmers do this, it might reverse the decades-long trend of diminishing pahari varieties. This repository relies upon farmers’ active engagement and contributions. Without being reproduced in cycles of planting and harvesting, the seeds would lose their vitality within a few years.9

One afternoon about a week earlier Prema, a farmer from a neighboring village, visited the office because the previous year she had lost her entire mandua crop to suar (wild boar). Fieldworkers from this NGO had given a few informational sessions in her village. This is how she came to know they keep seeds.

She returned home that day empty-handed.

“What’s the point? For my fields I need a dubba [box]. What can I do with such a small quantity? How does it help me?”

She was not worried about “genes” or “plant genetic material.” The next day she went to other farmers, looking for seeds.

Passage 3.3

- How locally-based but externally-owned gene/seed banks can potentially lead to seed dispossession/appropriation or reclamation

I will start by noting a reciprocal relation: “Millet’s” are entering the national and transnational arenas through industry “added value” projects, food security legislation, “climate resilient” ventures, media portrayals and new forms of consumption. Meanwhile, national and transnational discourses and biotechnological projects are gradually expanding in the hills.10

If the remote parts of mountain regions offer a geography conducive to the “art of not being governed” and resistant to the “internal colonialism” of the state, as James C. Scott argues, in the previous chapters I depict how such places are also “made remote” – ideologically and

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9 No family in Heera’s village owned a refrigerator (unless the family owned a store on the road and had a small one there). I met one family in a similar Garhwali village that did; the “current” was so often not working they left it unplugged and used it as a cabinet.

10 As Rosset et al. (2013) and Mulvany 2014 explain, “agrobiodiversity” (in comparison to agricultural biodiversity”) is a term most often used in projects that see biodiversity as a commodity. I feel in this context, it is the apt term.
materially – in processes of colonial, capitalist and national development.\textsuperscript{11} On the one hand, national and urban development relies on extracting “natural resources” like water and wood from the hills; on the other hand, little “investment” has been made to support “remote” rural social life. In the easier to access foothills – at the altitudes at which mandua and madhira mostly grow in Uttarakhand – NGOs have both addressed societal and infrastructural challenges and made use of them. Regardless, they are important sites through which transnational, national and local processes exist in tension, collide and change.

I write that seeds in this small seed bank have a “dual life.” On the one hand, they are farmer-saved and intimately connected to the terraced fields where pahari families sow and reap from year to year. They must be so to remain productive. The “field” here would not reside in parentheses, as in this chapter’s title, and the seed (or to follow an earlier thread, the “-seed-“) is entangled with an emergent and practical future. At the same time, however, a seed here is "plant genetic material" for those in Delhi or funders abroad. In other words, it is a container of information meant for an aim (food security) and group (the nation or humankind) that is detached from the immediacy of farmer field and pahari life. In this case, the small farmer field does reside in parentheses – “(field)” – in a contained (remote) realm separate from the seed’s imagined future. Though seeds here are given to farmers and rely on their labor, the protagonists and the decision makers are donors or officials who will likely never plant, touch or even see them.

On the one hand, the seed’s mobility here involves horizontal movement among farmers (considering that the fieldworkers are also farmers). On the other hand, the seed’s mobility implies vertical movement between socio-spatial arenas.

\textsuperscript{11} See James C. Scott’s (2010) \textit{The Art of Not Being Governed}.
On the one hand, the lived effects and the living practice of biodiversity is what matters (an emphasis on a -seed-’s integrated and relational whole). On the other hand, it is the diversity of genetic information (an emphasis on the parts a seed possesses and on possessing them).

On the one hand, the farmer-saved seed is renewable and enables farmers to resist forms of capitalist alienation and the -seed- is still reproduced through the non-alienated practice of biodiversity. On the other hand, as it makes the leap to become “plant genetic information (or material),” it can be appropriated into alienating projects.

The identity of the seed here is ambivalent, and much rests on the intentions and transparency of those in charge of the NGO. The ambivalence in this case also stems from the geographic location of this repository: a village relatively far from the nearest city but accessible by motor road. It is, in other words, open to officials, foreigners, donors and paharis. At the same time, it is remote enough that space cannot be rapidly "conquered by time."\(^{12}\) This makes possible but slows down processes of incorporation into national and transnational projects. Fieldworkers like Heera help to both slow and propel the trajectory from “–seed–” to “Seed,” or “plant genetic material.” As local residents, they are socially embedded in rural networks and the practice of biodiversity; as employees, they are structurally situated at key places (despite their low rank) of national organizations. They, therefore, become conduits for the movement from the first

\(^{12}\) Harvey (1990) on “space-time compression.”
column (above) to the second. In contrast, “scaling up” small farmer networks and the practice of biodiversity would entail expanding the qualities listed in the first column rather than fundamentally transforming them.¹³

Seed repositories in the hills do not necessarily entail this movement and in fact have long played an important role. Pahari farmer-activist Vijay Jhardhari of Beej Bachao Andolaan (Save the Seeds Movement) writes about the history of village seed centers; they have been places where farmers contribute and take seeds depending on their needs.¹⁴ Generally, a group of farmers or a chosen person manages them (compared here to someone selected by an external organization) and they have relied on systems of local governance, like the village panchayat. Essentially, they have functioned like a protected commons. While local governing bodies continue to deny women and historically oppressed caste groups decision-making power, there are ways seeds – particularly those like mandua that have long had little to no economic value – traverse social lines in patterns of exchange.¹⁵ They were, and in many cases still are, places of transformational possibility – sites where social hierarchies are less rigid, and therefore places from which broader openings can be forged.

Moreover, the moral code of seed exchange in pahar advocates that one should give away more seeds than one has received. This ethic is not rooted in personal generosity (A gives to B, therefore B should give to C; or what many people call "paying it forward"), but in religious beliefs and the social value of what Valentine Daniel refers to as "excess" in his work with small farmers in Sri Lanka.¹⁶ In this case, "excess" is an engagement with and belief in a social abundance that is contingent upon the enactment of restraint. The seed houses Jhardhari describes were not "ex sitio" because they are embedded in the world of practice. Thus, they held

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¹⁵ I discuss this at length in the previous chapter.
greater quantities of seeds so farmers like Prema could replant a field. These have diminished considerably for many reasons including rural to urban migration, the expansion of cash crops, urbanization of and tourism in Uttarakhand and the growing importance of material consumption.

This NGO seed bank is not a farmer-led endeavor. Nonetheless, as Heera says, farmer-saved seeds can multiply exponentially and farmers who come here are generally freely given a bit of seed. Thus, farmers can, over a few seasons, increase these small quantities, bringing them into the fold of farmer-to-farmer networks. Nevertheless, the question remains of what happens to the plant genetic material that might leave and how farmers would know.

**Portrait 4: To Make Less Remote**

*Government Researcher and Scientist*

*Agricultural Research Center, Uttarakhand*

*August 2014*

"We call our trips 'explorations.' We go throughout Uttarakhand. Sometimes farmers join us. Our explorer groups fill out passport data sheets. When places are remote they mark the latitude and longitude and other geographic markers. They go by jeep. They walk far sometimes.

When we collect seeds or cuttings from farmers, we ask, 'What is the name? How many days to maturation?' Questions like that. In fact, some local landraces have better production than hybrids in Uttarakhand. They have resistance to diseases. We also get collections from farmers' fields. If plants are in standing fields at the maturity stage, we select them ourselves; if they are not in fields, then we take what farmers give us. If they are from a new village, we use mapping technology to complete the passport data....

How do we get seeds? We just talk to local people to make them understand things. But now sometimes they don't give seeds. Between fifteen years back and now is a hell of a difference. Before they didn't know things, now they do. They say, 'Why are you collecting our seeds?' We tell them it is not meant for any particular purpose. They cannot select the best because we are doing it in scientific way.

Farmers come to us evaluate and register their seeds. There is protection for that. There is community monetary benefit for that. If a seed has a single measurable trait it can be registered with National Bureau of Plant Genetic Resources.

*Pointing*

That is one of our experimental fields. Our seeds are self-pollinating. We do not do mixed cropping like farmers here, it’s impossible to control. In some fields we combine crops, but we do it systematically. We have marked the plots and there are controls. They will have different harvest times, which will work out well for us logistically....
Yes, you can take photos. But only from here. No closer. Just from here. Do not photograph any details of the plants....
I can't say that.... I can't say that all these millet fields are without fertilizers....
Listen, we are a state agricultural research center. We are one among thirty-five throughout India. We can't do seed production on a huge scale. These are government seeds. We are working for farmers. We don't want to make money from them. Farmers can harvest and replant them. They can do this for a long time, for many cycles.
As of yet, we have not really made hybrid millet varieties because that requires some male sterility system. It is private investment that can bring out hybrids and develop methods by which you can create male sterility, like spraying a chemical. These are being tested in Uganda. But unless technology is foolproof and commercialized, it does not really exist.
We are making improved varieties to give to farmers using a pedigree method. We identify and cross elite lines, observe and select. We produce seeds that show some important difference. We do this for three years and have them tested and inspected by a certification agency. Only the fourth generation is released by the central government as breeder seed. Breeder seed must have 100% purity.
We give improved varieties to six or seven districts in the state. It can be challenging in this region. Some places are quite remote. We do it through tech demonstrations in farmer fields. Sometimes we give seeds out to a whole village. Or we choose randomly and give one packet to each farmer we meet, enough to grow on one nali of land. Sometimes we select fields near the road so other farmers will see it. Usually farmers in the hills don't use chemicals, even when we give them. Most of the crops here are grown in organic conditions...
The truth is, millets have not gained much importance until recently, and even still they do not have much. They have more in southern part of the country. We call them “underutilized.” But there are still very little funds diverted for these crops. Mostly, everybody still wants rice and wheat. Still very little has been done for research and development. We only started millets breeding in the 1980s, this is late in comparison to other crops. We are slowly increasing the varieties of millets in the national registry. Someone must create a market.
Why are they more important now?
Well, because they are India's own crops. All small millets are grown here. Africa was their first home and Asia is their second home. They are nutritious, high in protein. They can give yield in dry conditions. They are underutilized. People have explored wheat, rice and other crops.
As a country, we have gone through the phase of high yield. Now comes quality.”

Passage 4.4:
• How government projects to collect pahari plant material also enable the geographic and social expansion of government and capitalist reach

Government projects to collect "plant material" and distribute breeders’ seeds in the hills are also projects to expand government reach – in other words, they incorporate remote places into the nation-state. Though this border region and religious pilgrimage site has an extensive
military and tourist presence, these tend to be contained locales around which commerce, motor roads and government infrastructures have developed. Many places in the hills – even those that might appear near to "developed" areas on the map – continue to evade forms of state governance and capitalist agriculture.

These are among the reasons why pahari crop varieties are "underutilized." This latter term, which the Indian government has used increasingly over the past two decades to promote research on “millets” among other crops, is a commentary on their relationship to the government (state and national) and industry. “Underutilized” crops have not visibly added to economic and productive value. "Underutilized" reflects an ideology that assumes a competitive arena, utilitarian aims and a lack of wholeness ("under" + "util"). However, mandua is not "underutilized" if one considers that, even if in decline, in the places it exists it does so wholesly embedded in pahari life. If "underutilization" implies the absence of incorporation, that condition – and its idealized potential – now signifies a marketable cache in the "time of quality."

"Utilizing" pahari crops necessitates making the places in which they grow less remote. It means incorporating them, the farmers who grow them and the places in which they grow into bureaucratic and governing structures. In the hills of Uttarakhand, where extension agents often do not venture into the interior but where village residents must travel for many things now essential to daily life, seeds and the activities around them can perform some of this work. On the one hand, as Kloppenburg suggests, the renewability of farmer-saved seeds continues to subvert capitalist processes. On the other hand, as computer technologies and plant biotechnology evolve and motor roads reach new areas, seeds also become agents of incorporation. They travel easily in bags and packets. Farmers can transport them to or from

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17 Roads have also been built to facilitate the construction of dams.
agricultural centers and fairs; residents can do the work of carrying them into areas where scientists or officials may not want to go.

Both “collection” and “dissemination” play a role in this. To collect material, scientists go on “explorations.” This colonial language evokes the impulse of government branches to expand, geographically and scientifically, into frontier territory in order to collect and claim “national” biodiversity resources. These resources in the field or on the plate become expressions of national pride and citizenship: they are “India’s own crops.” Their information is recorded as “passport data.” To “give them passports,” the terrain must be mapped and the information catalogued to become legible and accessible to government officials and scientists – an endeavor far more possible now than it was even a few years ago.

Collection also relies on farmers to give seeds and information freely; in other words, it relies on “underutilization” or what is in fact the survival of non-economic forms of value and reciprocity that still dominate the movement of seeds in the hills. That “between fifteen years back and now is a hell of a difference. Before they didn’t know things, now they do. They say, ‘Why are you collecting our seeds?’” reveals the way national and transnational skepticism about government has also touched down and created new forms of resistance. It also suggests a shift in how pahari farmers understand seeds, as the economic value and “importance” of “underutilized crops” grow. When the scientist explains, “We tell them it is not meant for any particular purpose,” this is very likely true. Because plant genetic information can now be compartmentalized, catalogued and stored away, and because so many pahari varieties are in decline, the goal becomes to collect as much as possible – without necessarily having a particular project in mind.

This research center also disseminates conventionally bred “100% pure” and “improved” seeds. “Purity” here means they have been stabilized and made uniform, and that the reproducibility and consistency of this uniformity has been tested in order to conform to national standards of “innovation.” These same qualities are absent in farmer-saved seeds;
indeed that absence is fundamental to the practice of biodiversity. The lack of uniformity in farmer-saved seeds essentially is biodiversity and the basis of plant breeding. The “plant material” that scientists in this research center use to produce improved millets derives from collections from various other parts of India, just as the material from collections here will be sent to other regions. This scientist explains that their seeds, which are not hybrid or transgenic, have the potential to be saved and replanted. However, once systems of dissemination and seed promotion are better established in the hills and once farmers begin to pay even nominal fees for seeds, other kinds of seeds, chemicals and exploitative sales techniques could expand – especially in light of new mapping and classification techniques.18

Similarly, Shaila Seshia Galvin writes about how organic agricultural projects in the hills near Dehradun, Uttarakhand’s new capital, have played a role in “the new state formation” since the early 2000s. Uttarakhand’s first Forest and Rural Development Commissioner’s vision led to an ambitious declaration of the state as the “Organic Capital of India,” and he moved quickly to expand the area under organic cultivation, administer and implement organic programs, and build market linkages both domestically and internationally for smallholder organic farmers by establishing India’s first dedicated Organic Commodity Board. The Commissioner wrote his memo just over a decade after India embarked on a remarkable series of liberalizing economic and regulatory reforms, which opened its economy to far greater foreign investment and trade. In this context, he evidently saw the political and economic destinies of the new state as closely intertwined.19

In part through collaborations with multilateral institutions, in particular the World Bank’s Integrated Watershed Development Project, the Uttarakhand state government has taken steps to create a state run organic certification agency and promote formal methods of composting that distinguish “current practices from past ones, when manure was collected in an open heap.”20 Thus, farmers who adopt state-promoted “organic by design” agricultural strategies are

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18 The extension techniques this scientist are similar to those employed to promote transgenic cotton in Glenn Stone’s (2007) work in Warangal.


20 As Seshia Galvin (2015:124) writes, this government-run agency also provides third-party certification to organic producers in other regions of India.
“newly recognized as agentive by state institutions” and associated with formal education while those who have not, especially those in remote and poorer regions, are considered “organic by default” and denied their roles as cultivators and knowledge producers. They are relegated to “the past,” thereby effacing the multiple and diverse land practices that produce and sustain the diversity of plant and animal life in the hills.

“This newfound agrarian subjectivity is clearly double edged, and just as being organic by design affords some cultivators opportunities for new forms of agrarian identity, at the same time it positions them as ‘subjects’ in a more Foucauldian sense.” 21 If projects for state-integration are eliciting ambivalent responses from farmers, the hills too pose challenges: many places are still remote, more so during the monsoon when roads fall apart, and extension agents end up using methods over which they have less control. Whereas in the plains, “display” plots have been used to mislead farmers who do not have similar quality land or access to resources, residents of the hills are highly aware of environmental and social variability; thus, they are less likely to assume that a crop will grow the same way in their fields as in another’s. Moreover, as this scientist says, pahari farmers often do not use recommended chemical inputs at all. 22 Seeds might be carried long distances, but accompanying instructions and chemicals might not.

Portrait 5: Deferring Democracy
National Bureau of Plant Genetic Resources
New Delhi
August 2014

The establishment of the Bureau coincided with the advent of the Green Revolution and was in response to the realization of perceived effects of the Green Revolution on agrobiodiversity... The NBPGR played a pivotal role in the improvement of various crop plants and diversification and development of agriculture in India through germplasm introduction

21 Furthermore, she writes, “‘Organic by default’ builds on a longer legacy that diminishes cultivators as agents in making and shaping agrarian landscapes in the Uttarakhand Himalaya” (Ibid:126).
22 I found that this government research institute does use chemicals (particularly nitrogen-fixing) in at least some experimental plots, even though Uttarakhand has officially been an organic state since 2001.
from various institutes/organizations located in foreign countries and germplasm collection from within the country and abroad and conservation thereof.23

By the time it arrives in this conservation site holding 4 million accessions, of which but a small portion are “millets,” in this locale within India’s capital through which all plant material that enters the country for research should land, a seed has well acquired the identity of plant genetic material.24

By the time it arrives here, teams from one of ten regional stations located in different regions that reflect the country’s climactic, environmental and geographic variation have explored, selected and collected the seeds from which it derives; they have planted, harvested, replanted and replicated their acquisitions under tightly controlled and monitored conditions, stabilizing it over three subsequent generations.

The seed that arrives here has been carefully harvested, with care and urgency, at that instance in its life when it was at the pinnacle of its vitality. And this was done by a person who knows that every moment of delay is a moment of depletion, a moment that harkens its demise, renders it susceptible to fungus and disease. At that moment it came into ripeness, the seed that arrives here was removed from warmth and heat. It was wrapped in a porous muslin cloth and exposed to cool, dry air so about half of its moisture could seep. By the time it arrives here, a seed has been weighed using a gravimetric method. It has been placed in a container that is impervious to moisture like a special insulated bag or aluminum foil. It has been characterized, evaluated, quarantined.

By the time it arrives here, a seed has been sealed in a packet with other seeds tested and marked as identical. The seed that arrives here and the seeds with which it is sealed should reap the same, predictable results under the same conditions.

A seed that arrives here is, in a way, a national treasure. It is kept like something valuable, in a national bank of safety deposits that relies on duplicate seeds instead of duplicate keys and stores them in faraway places such as Svalbard, Norway. It – the seed that arrives here – is itself a storehouse of information, information that can be replicated, isolated, used, multiplied and resuscitated sometime, somewhere.

The seed that arrives here is public material. Within guidelines, it is “open to anyone.” And anyone, “breeders and farmers,” can request seeds and it is a mandated duty of those who work here to provide it. The seed that arrived here through the path above described keeps company with private and public “deposits” maintained free of charge. The seed that arrives here might be distributed if a specific request has been made and if it is not available for any source – under the condition that some of what it reaps will be returned.

Inside a vault, the conditions for this seed are regulated as in a hospital’s ICU. The temperature of negative eight degrees Celsius is cold enough to slow its metabolic rate enough for “medium-term storage.” At negative twenty, “long-term storage,” it becomes almost dormant. Its metabolic lethargy “buys time.” Allows it to conserve energy. Prevents deterioration. So when and if it becomes useful or necessary, it can be warmed up and hauled back into productivity.

The seed that arrives here is made to biologically simulate death in the present in order to stave it off. Yet there is no getting around it, that condition of all life.

23 As written on the website of the National Bureau of Plant Genetic Resources.
24 30-40% of seeds stored here are duplicates, as earlier they did not have the technology to test and classify duplicates that exists now. Plant material that enters the country for commercial, as opposed to research, reasons is covered by a different division.
Periodically, it must be taken out and tested to see if it is still viable, still alive, can still assume the mantle of sustaining human life.

**Passage 5.5**

- *How freezing plant genetic material for future food security or innovation also "freezes" certain democratic processes*

A national gene bank is an intervening place between producer and consumer, production and consumption. The slash in this chapter’s title (“Seed/Grain”) represents physical distance, temporal distance and social distance. It could be otherwise represented as “Seed-/-/Grain,” where the hyphens reflect the space and time wedged into a plant’s life cycle that enables the national government (in this case) to “bank on” biodiversity as a future “food security” resource. Here the “Seed” is a storehouse of added value potentiality, one based on “freezing” – rather than speeding – productive time. It is also a bundle of genetic information that can be spliced and combined to create new life and new wealth. Unlike other forms of “natural” wealth that can be depleted or take a long time to regenerate, this resource can be both saved and used, given away and kept. Hence, it enables particular forms of cooperation and competition between government and industry, and it is a point of connection and disconnection between the government and populace.

Considering Portraits 1, 4 and 5, one finds that the movement from the family field to this public realm is, paradoxically, a trajectory towards privatization. While farmers even in remote hill regions are starting to develop skepticism about researchers who arrive on “explorations,” for the most part they do not treat -seeds- as private property or commodities. Embedded and utterly entangled in everyday life, -seeds- embody social relations and relations beyond the social; they are not generally treated as, or easily rendered into, things. The practice of seed reciprocity and exchange, particularly for crops largely “ignored” in capitalist agriculture, constitute part of those relations; many farmers, therefore, still give (their) -seeds- away.
In contrast, despite the national bureau’s legal mandate of public access, it is far more difficult for small farmers to access seeds or control what becomes of them than it is for corporations, foundations, research institutes and other national governments. For example, it takes a great deal of time, money, family negotiation and social finagling for a woman farmer (especially if her family has cows or buffalo) to make the journey from a remote village in Uttarakhand to this vault in Delhi and feel comfortable entering it. Unless one is well versed in its language and classification system, knowing how to identify what one is asking for is like looking for a needle in a haystack. This is a task that organizations and individuals with money can train people specifically to do and for which they can use their social and institutional connections.

In the previous chapter, a close look into the practice of biodiversity from the “margins” of Uttarakhand underscored converging and intensifying environmental and democratic concerns. However, if agriculture is now widely recognized as a “major driver and victim of climate change,” it is a less recognized driver and victim of crises of representation in bureaucratic democracies.\textsuperscript{25} Since its Independence in 1947, India’s agricultural policies have been motivated by and have profoundly affected questions of democracy, class and civil society representation. India’s Green Revolution did not just increase domestic food production exponentially, but it also deflected growing rural unrest and demands for land reform and increased India’s GDP. However, now there is evidence that industrial crop yields in many regions have plateaued and India’s land, irrigation and biodiversity sources are drying up leading to problems of water grabbing; concurrently (and despite India’s expanding middle classes), rural class disparities have intensified.\textsuperscript{26}

\textsuperscript{25} The quotation is from UNCTAD (2013). Because food is an inalienable necessity of human life, it has been throughout history both a source of political unrest and a barometer of political “stability.” Many rural movements through India, including Uttarakhand, now directly relate the issue of democracy to that of agriculture and the environment – in particular those around land rights (in both law and its implementation).

\textsuperscript{26} Wagle et al (2012) examine water grabbing in the Indian state of Maharashtra.
New methods of plant breeding, such as transgenics, offer new methods to stave off these problems; they technologically relieve socio-environmental symptoms that are becoming generalized and enable them to once again be spatially and socially contained – in other words, born by segments of the population least represented in and by government. Thus, a national gene bank can mitigate the loss of agricultural biodiversity even as agricultural policies reproduce the conditions of that trend. By orienting towards the future, the needs and experiences of people in rural areas appear to be less urgent. By centrally storing seeds so they can be transported and sown elsewhere (or used for breeding), the government can avoid dealing with the effects of climate change on particular places. The technology of freezing not only slows down the metabolic rate of plant life, but also helps to defer the government’s responsibility to segments of the populace. As “dormant” receptacles of “plant genetic diversity” (embodied work/labor and knowledge), seeds are depoliticized and severed from their connection to farmers’ lives (or the practice of biodiversity).

Socio-environmental contingencies cannot be practically contained, eradicated or perpetually deferred. As concerns about environmental degradation, biodiversity loss and climate change intensify, one might note a reciprocal move to construct highly controlled places for storage. If the very contingencies of socio-environmental life contribute to the planting of mandua in Uttarakhand and the social practice of “freely” giving seeds, those same conditions in "public realm" provoke attempts to shelter seeds from the mounting intensity of that variability. That mandua has declined in the hills marks the rural distress and environmental change that the current emphasis on gene banks does not resolve and from which, arguably, it deflects attention. Gene banks might or might not serve a necessary purpose based on today’s environmental realities. Regardless, it is important to interrogate how they function and the role they play in India’s democracy.

The practice of biodiversity by pahari farmers growing “climate resilient” crops suggests an additional concern. Farmers, like Meera in Portrait 1 and Prema in Portrait 3, who spend a
great deal of time observing environmental changes (that too, in a region known for its abundant biodiversity) save seeds every year. Every year they select the “best” specimens according to that season’s environmental and social conditions. By doing so, they are accommodating to changes both perceptible and imperceptible; they are also contributing to shaping the next season’s crops based on intuitive knowledge that comes out of persistent engagement. This develops a seed’s quality of “resilience.” Resilience is, in other words, a living attribute, forged, again, through persistent engagement. This is true also of “climate resilience.” It is not inherent to a seed or simply contained in its genetic code.

Seeds can be frozen. However, life in the present with all its precarity, cycles and transformations goes on. Despite recombinant possibilities and what plant biotechnological advances transpire, will “genetic information” that has been severed from practical life have a comparable ability to address evolving environmental conditions and human needs?

**Portrait 6: Between Scientists and Farmers**
Min. (Official in a Government Ministry), PC (author), Commentators 1-3
Agricultural Branch, National Government Office, Delhi
March 2014

**SETTING:** South Delhi. A cool afternoon, just a couple of days before the city’s overnight shift to summer. PC enters a complex of government buildings. She walks through a set of gates after conversing with two armed guards. She passes a few pink buildings and one with a landscaped lawn and many guards, then crosses a small parking lot to arrive at a dilapidated green edifice. More guards inspect her identification, search her bag and ask if she has an appointment and whom she is there to see, before they make a call, motioning for her to proceed. At the entrance, she is given a form, and inside the lobby, she is asked to show it. She steps into a small elevator crammed with employees who all press different buttons. She gets off on the fifth floor. The space is dark and dingy, full of metal shelves and haphazard stacks of files. In an open closet, a sink is stained and dripping water. People work in cramped niches here and there. She walks to the end of a hallway lined with tattered cardboard boxes and more files. She knocks on a door and is told to enter. The office is surprisingly spacious. It is clean, well lit, with windows and two desks. One desk is empty. Behind the other sits a woman, here called Min.

Min.: I have very little time, you see, I have a last-minute urgent meeting. Anyway, I do not understand why students keep coming to ask questions about GM.\(^\text{27}\)

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\(^{27}\) GM also indicates GMO, or genetically modified/transgenic seeds.
It is true biodiversity and biotech is a concern of our Ministry. But we are not concerned with just agriculture. Since 1986, we monitor various activities of industry, mining, medical waste. At that time, biotech was just coming up.

PC: I am interested in what you make of the opposition of some farmers and scientists to the fact that the Genetic Engineering Approval Committee, under the direction of your Minister, has overturned the moratorium on GM field trials for food crops?

Min: I don’t know what you mean. The trials have been going on for many years. There was a Supreme Court case and a Technical Expert Committee needed to be made because a Public Interest Litigation was filed. Yes, there was a complete ban at first, but not everyone agreed on the position. They added one member, Dr. Paroda – on that basis the ban was lifted. They have been doing field trials on GM crops for many years. The process was slowed down until the matter was resolved but there was no ban by court.

.Commentator 1 (a Delhi-based journalist who writes about agriculture in India, 4 months later):

I was among those who filed the complaint. It was this Ministry that insisted on the appointment of Dr. Paroda. He is head of TAAS [Trust for Advancement of Agricultural Sciences] and on that Board is the Chairman of Mahyco, the Monsanto corporation’s partner in India. They added a member who was GM friendly just to alter the makeup of the committee.

PC: I am confused, as you said there was a ban, then you said there was no ban. If nothing has changed, why are people coming out against this now? You must know that farmers from many states including Uttarakhand convened in Delhi about a week ago for a National Seeds Festival to showcase thousands of farmer-saved varieties including millets to show their contribution to India’s agriculture. They did this in protest of the GM trials.

Min.: Meetings were held to make an official pronouncement about twenty crops including rice, sorghum, mustard, chickpea, brinjal, castor and ground nut – mostly in state agricultural universities. We are not even that interested in millets right now.

PC: But both ragi [finger millet] and pearl millet have been listed in newspaper articles as crops in the GM pipeline. Are you at all concerned that problems that have transpired with Bt cotton [a transgenic variety] might happen with other GM crops in India? For example, farmer suicides.

Min.: What suicides? There have been no suicides.

PC: The Center for Human Rights and Global Justice reported over 270,000 farmers have committed suicide in India since 1995, especially in the cotton belt.

28 These events have been portrayed extremely differently by opposing media sources.
29 Parsai’s (2013) article “Sovereign Seeds Showcase Unique Biodiversity” in The Hindu describes this event.
Min.: There are a lot of socio-economic issues involved. What I meant is there are no suicides because of Bt cotton. Warangal [in India’s cotton belt where Bt cotton is heavily grown] is a drought prone region. Whether Bt existed or not, suicides would be going on. There are hectares of areas under Bt cotton. It cannot only happen, for example, that in only one pocket sheep are dying. In fact we had written to the state government asking would you like to withdraw approval for Andhra Pradesh and they said no. We don’t know what is outcome. Every technology has pros and cons. We evaluate those and take a decision.

PC: I realized that 1995 is before Bt cotton was introduced. But what about this trend? Some farmers I interviewed are not against “technology” per say, but criticize the way decisions are made about the course technology takes.

Min.: That is the activists’ point of view.

PC: But it is what many farmers are saying, and India is still a majority rural population.

Min. We go through a huge consultation process. We put information on the website.... Of course, only technical persons can respond. But we put the information there. We can only clarify, we can’t control how much is absorbed or what people do.

PC: One concern I have heard people voice is that there will be genetic contamination between neighboring fields, so that even farmers who don’t use GM will find their crops affected. I know the public interest lawsuit was filed because even some scientists feel that adequate biosafety testing has not yet been done and this might have irreversible consequences on existing biological diversity, and possibly leave farmers susceptible to corporate lawsuits.

Min. People need to understand more about plants and biological materials and the reproductive biology of organisms. Contamination isn’t just because of Bt or GM. Contamination has always existed. If a crop of a type of Puna rice is sown next to a field of basmati, there could also be contamination. We must see the flowering time of both, only if flowering time matches they are going to cross.

PC: So you are sure that GM technologies do not pose any difference or additional risks compared to conventional breeding, even though some scientists and farmers have doubts?

Min.: Listen, we are not worried about genetic contamination. For all these years these various varieties of plants have been maintained, so there is an inherent protection. If there was not inherent protection, we would already have only monocultures. We must understand this if we talk about contamination. We are taking isolation measures, and doing pre and post monitoring. People don’t understand about gene flow.

PC: That is very different from what I have heard. Is your background in genetics, agriculture or environment?”
Commentator 2 (who works under a different government, after reviewing Min.’s professional title one day later):
She is what you call a professional bureaucrat. Someone who worked her way through the ranks. In India, this is not easy. It involves a pretty exam. Then they are trained for two years nonstop in all fields of government, trained to be bureaucrats. They are put in charge of a small district and everything in that district – police, education, everything. Then they leave the district and work their way up a very hierarchal structure. Every three years they are made to shift positions, from department to department. Their jobs are guaranteed, regardless of whether the government changes hands. Unfortunately the system trains them not to look on the ground or think about whether something is feasible.

Min.:  People still use petrol despite all the damage it does to the environment, we did not go back to the bullock cart. Just because of people’s opinions, science cannot stop. Science must go forward.

[Time runs out]
PC (recounting story to Commentator 3, a scientist who has argued for the necessity of more bio-safety research before any decisions are made on GM field trials, in Uttarakhand one month later):
When I got off the elevator on the first floor–

Commentator 3:
Let me guess. White men in suits were getting in and going to her floor.

Me:  How did you know?

Commentator 3:
I can guess who you are talking about, you are talking about [Min.]. As an individual she is not so powerful or important, but she is in a convenient position to make some things happen.

Me:  You mean, by taking bribes?

Commentator 3:
Does she take bribes? [laughs] What do you think?

Passage 6.6:
- How neoliberal governmental regimes are pulling millets and other pahari crops into the “public” realm while undermining the democratic rights of the farmers who grow them

When I arranged to interview Min., I knew little about her other than that she had a position in a national government branch that covered issues pertaining to biodiversity and transgenics (GM
technologies). For a few weeks before, I had tried unsuccessfully to interview one of her colleagues and her superior; ultimately, she was the one who gave me time (or who had been assigned to do so).

If Portrait 6 reads as theater, I want to first call attention to this political “stage” and consider the kinds of actions and practices of power that it encourages. As one of the commentator’s suggests, Min.’s ability to rise within a hierarchical structure depends upon her ability to perform a certain kind of “democracy,” one that keeps the messiness of social issues and social life at a distance. If in Chapter Two, the practice of biodiversity involves “messy” human relationships and human interactions with nonhuman life, here the practice of democratic governance related to biodiversity (as a resource, narrowly construed) involves detachment from that “messiness.” It is hollowed out of the complexities and the life that this work argues constitutes biodiversity itself. As the gene bank portrayed in the previous Portrait and Passage, this government setting is highly controlled. Moreover, it appears far more likely that someone who has power within its hierarchy will interact with white executives than with the people in Chapter Two. How people like Min. perform modernity here is highly constrained; and it is a kind of modernity that institutes economic wealth, whiteness and industrialization as prized human virtues.

Within this setting, Min. is a concerning figure. She is accused of taking “bribes;” furthermore, she exhibits an apparent lack of concern, bordering on disdain, for the realities of rural life. For example, “going back to the bullock cart” maligns a technology that is still used in many rural areas because of practicality, environment, culture and available resources. Yet here the bullock cart is a symbol of rural “backwardness” (much like millets have been portrayed). Her job seems to entail avoiding serious engagement with the multiple environmental, social, political and economic concerns of segments of India’s rural polity.30

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30 Similar patterns exist in the transnational arena. For example, at the UN Committee on Food Security 41, young US representatives from the Gates Foundation, who socialized with venture
Her attitude aligns with the questionable manner in which her Ministry appointed a new member of the Technical Expert Committee to override small farmer concerns.\textsuperscript{31} In other words, individual profit making (or ladder climbing) by those mandated to govern biodiversity issues dovetails with corporate (and likely also individual) profit making through the accumulation strategy of transgenic crops. Thus, as the “information age” of agriculture takes flight in India’s neoliberal economy, the government has developed new ways to use the institutional structures of democracy \textit{and} to suppress the voices and bodies that in fact comprise India’s democracy.\textsuperscript{32}

Particularly after the passage of the Freedom of Information Act in 2002 (an “activist” victory), timing has become key: the environmental ministry rescinded the moratorium on GM field trials, which had resulted from democratic contentions and information countering dominant refrains, through an almost too quick to debate structural intervention (replacing a key person on the commission). The rapidity of this move suppressed democratic uncertainties/debate as well as the potential freedom of information through the internet and social networks. As such, a present course of action became “history” and rendered “inevitable” (as the dominant refrains often are; here, one might recall Turner and Swaminathan’s words in Chapter One). In other words, it is only through controlling information that the Indian government is able to open its doors to information technologies; moreover, with its biodiversity “resources,” rising GDP, ability to invest and collaborate with industry and membership in BRICS, India – as a geopolitical entity – is poised to benefit.

\textsuperscript{31} The appointment of Dr. Paroda happened during is happened during Prime Minister Manmohan Singh’s (of the Congress Party) tenure. Prime Minister Narendra Modi’s (BJP Party) government expanded these field trials in 2015.

\textsuperscript{32} I describe India’s neoliberal economy in Chapter One.
Such a performance of neoliberal democratic governance falls into what Karine Peschard argues makes India fit the description of a “cunning” state.33 Her reading of India’s agricultural, biodiversity and seed legislation in relation to the civil society actions over the past two decades presents a compelling case that the Indian government has assumed a stance of legislative ambivalence so as to assuage civil society unrest without addressing the fundamental issues behind it. For example, India has passed conflicting legislation – like the 2001 Plant Varieties Protection and Farmers Rights Act, which in many ways protected farmers’ rights, and the 2013 Seeds Bill, which undid many of the rights afforded by the former. Similarly, as seen here with the appointment of someone with strong agri-business affiliations to the Technical Expert Committee, the question of “how the decisions get made” becomes “an activist’s perspective” rather than a necessary question in a representative democracy.

It is in fact through “democratic” means, and public-private partnerships, that agri-business has managed to gain such a stronghold over global food production. On the multilateral stage, a parallel legal ambivalence abounds.34 In tandem with the Convention on Biodiversity which aims to protect “national” biodiversity resources, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) or the “Seed Treaty” is, in the words of the Food and Agricultural Organization,

a global response to promote the conservation of plant genetic resources and to protect farmer’s rights to access and have fair and equitable sharing of benefits arising out of their use. Sustainable use of plant genetic resources is fundamental for achieving food and nutrition security and for a progressive realization of the right to food.35

Nevertheless, in September 2014, the transnational peasant network La Via Campesina wrote an open letter to the Secretary of the ITPGRFA stating:

‘Farmers’ Rights’ is a core component of the Treaty, and as such its full implementation is a pre-requisite to achieving the Treaty objectives. However,

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33 Peschard (2014).
34 See the Third World Network and the Bern Declaration’s report International Contradictions on Farmers Rights (Shashikant and Meienberg 2015)
35 As written on the FAO webpage.
there is much concern that the instruments and/or activities of UPOV and WIPO are not supportive of Farmers rights, and even undermine those Rights, thereby hindering implementation of the Treaty provisions.\textsuperscript{36}

In both the national and transnational arenas, legislative ambivalence (compounded by the compartmentalization of fundamentally related issues) works to create spaces for the agribusiness (or the “life science” industry) to use economic power and political alliances \textit{and} for civil society groups to make opposing claims, such as by filing a public interest lawsuit to halt GM field trials. However, in many of these instances, industry has been able to use neoliberal infrastructures and wealth to ultimately win legislative battles.

The biological and social attributes of seeds themselves produce kinds of ambivalence, as well as opportunities for actors within complex global and national networks to take advantage of them. Because seeds can be duplicated and distributed, they can be used simultaneously in projects that promote the practice of biodiversity among small-scale farmers and projects of industrial innovation that endanger it. The Indian government and multilateral institutions like the FAO now support both, in part because industrial innovation relies on practice of biodiversity for its source material. However, as this dialogue in Portrait 6 shows, many farmers and scientists have voiced public concerns about the potential consequences of this strategy down the line: transgenic seeds could “genetically contaminate” existing agricultural biodiversity in ways we might not foresee; genetic uniformity comes with new environmental vulnerabilities, not only for an individual species but also for related species and non-crop biodiversity; the socio-environmental changes wrought by transgenic seeds might serve to increase corporate power over the global food system (by precipitating new necessities) and thereby further jeopardize the livelihoods of small farmers and cause new food insecurities.\textsuperscript{37}

\textsuperscript{36} La Via Campesina (2014). Civil society groups have also contested this (BEDE 2011). For more on contradictions on farmers’ rights in the transnational sphere, see the Bern Declaration (Shashikant and Meienberg 2015).

\textsuperscript{37} The Center for Food Safety’s (2015) report “Monarchs in Peril” describes how the Monarch butterfly population has plummeted between 1995-2015 due to glyphosate spraying on milkweeds (their host plant) on the edge of farmers’ fields in the US Midwest. These butterflies
other words, it might foreclose possibilities for the futures of plant life and, simultaneously, possibilities for future democratic decision-making.

These issues intersect with what the Millets Network of India (MINI) describe as the “grip of multiple crises” that prompted its formation and drives its mission:38

- a hunger and nutrition crisis, in which the International Food Policy Research Institute ranked fourteen out of seventeen states [of India] as “alarming” and one as “very alarming” on its 2008 Hunger Index;
- an agricultural crisis, in which more than 200,000 farmers committed suicide between 2000 and 2009 according to the National Crime Records Bureau; and in which over the last fifty years, “the total area under millets declined by about 50%” and their production by more than 3 million tons;39
- a water crisis, with the decrease of availability “especially in the arid and semi-arid belts, which in India comprise of more than 65% of the total area under cultivation;”
- a food distribution crisis, in which “the current model of centralized procurement means that the grain in India travels about 2000 kilometers before being distributed;” and,
- a crisis of democracy, in which “biotechnology companies have been hell-bent on introducing [genetically engineered] crops at all costs. Sometimes, they have attempted to subvert democratic institutions and spread misinformation among the general public.”

This suggests that the “information age” is not one in which information belongs to the people of India’s democracy; rather, it is a time of diminished choices. While the internet has contributed profoundly to information sharing and connections between rural groups from different regions of India (for example, the very active Revitalizing Rainfed Agriculture list serve), it has also been a “stage” for the performance of making information “public” even as it brought into new regimes of control. In this Portrait, one can see the prevalence of an accompanying neoliberal ideology, in which farmers are expected to be disciplined and proper modern (again narrowly conceived) liberal subjects. Consider Min.’s suggestion that because "the information is there" on the internet, it is farmer’s fault for not accessing it, even though it are indicators of the overall health of their environment; they are an important part of the food chain; and they support predators and parasites. In other words, their endangerment signals the potential endangerment of other species.

38 MINI (2015).

39 As MINI explains, as millets are grown in “arid and semi-arid regions of the country, which comprise of more than 65% of its landmass, and are grown by [those] who constitute some of the most deprived and marginalized sections of the Indian population, this decline in the area under and the production of millets represents a serious comprise of the food security of India.”
is well known that much of India’s rural population do not have the means to do so. It is as if democracy were a matter of individualized and uniform actions, despite highly divergent social conditions, rather than about social parity and distributive justice.\(^{40}\)

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**Portrait 7: Consuming Biodiversity**  
*Tourist locale in the hills*  
*Kumaon, Uttarakhand*  
*May 2014*

Aaron from France has not seen his family or communicated with them in eight years. "What does it matter? We are always leaving, moving," he said. This is why when he parts from people, and doesn’t keep in touch. To explain, he cited the Buddhist philosophy of non-attachment. "Besides," he added, "in this lifetime, people have betrayed me."

Tall, wiry and missing a few teeth, he came to India for travel and never left. He stays mostly in the hills, away from the congested cities, the smog, the toxins. He lives off a yearly stipend from "a sponsor" he met years ago in Israel where he was a yoga teacher, and the cost living in this part of India measured in Euros makes this possible. He spent last year in the hills of Himachal Pradesh where “the winter was rough” and "sometimes we would lose electricity for a week. I couldn’t even walk outside or find my way in the snow until someone set the path."

We met outside a restaurant of a small guesthouse where mandua flour, madhira grains and other organic pahari products were sold at tourist prices local farmers would find exorbitant. Unequivocally morose in demeanor, he brightened a bit when he learned about my interest in mandua. He was a “frequent consumer of millets,” he said. “If you want, you can eat mandua ki rotee here in this restaurant.” Most of all, he enjoyed “bajra” or pearl millet, once widely known in India as "poor man’s staple food." Hardly grown here, it is common in other parts of India as well as parts of Africa. He mixes mandua – what he calls ragi – flour with bajra and corn when he cooks because “alone it can be tough." He had spent a few months in Andhra Pradesh. "There, they eat a lot of ragi. Ragi balls. And in the south as well."

Self-medicating with marijuana, he rolled the dried leaves in a transparent cellophane wrapper that "has no chemicals unlike the paper." He said, “This helps me breathe.”

He used to be healthy. March 2011 was when he started feeling ill. He believed that illnesses like cancer were on the rise throughout the world "because of nuclear radiation and pollution.” He even got tested and found his immune system was down. After that, he gave up dairy because he worried about the concentrated radiation and chemicals that might be contained in a cow's milk. What he saw in the future for humankind was "corporations, money, materialism, pollution... a world headed for crisis."

He ate mandua and other millets because they were "healing."

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\(^{40}\) Her words reflect a neoliberal ideology.
• How consumers who comprise emerging markets for millets want to consume not only the “nutritional qualities” of these grains, but also the “remote” life it appears to embody

Though Aaron is in many ways a societal outlier, he articulates a sentiment about millets (and associated foods) that has become increasingly, and globally, prevalent: that they have the attributes of “healing.”

This Portrait with Aaron expands on issues touched on in Passage 1.1. Similar to how pahar represents (and, since the British colonial era, has been) an escape from urban life, consuming mandua and other "underutilized" crops represents an escape from the harms of capitalist agriculture and the global food system. They offer a sense of relief and salvation from the illnesses and stresses of capitalist consumption and temporal urgencies. They symbolize a way to be healthy in the midst of the unhealthiness of “modern life,” from its nuclear hazards to the fertilizers that are sprayed on fields.

This sentiment itself is appropriated and (re)produced as an accumulation strategy; so, millets are woven into the very processes that produce them as a necessity and an alternative. Though quantity-based rubrics continue to dominate transnational and national agriculture and food policies and discourses, quality (and especially nutrition) has come into its moment in agriculture. High protein, high iron, low gluten and the other characteristics about these grains cited by current scientific and medical studies are no less true than they would have been forty years earlier when the infrastructures of rural life in the hills had not been dismantled to the extent they have now. Consumers’ needs and modes of profit making have precipitated this change.

"Really, I think people want to consume a kind of life," suggested a seed activist in Dehradun, Uttarakhand during an interview. "But they want just a bit of it, not to accept it as part of them.” In other words, beyond matters pertaining to physical health, the allure of millets to new markets is the imagined lifestyle these grains evoke. Crops grown in the "peasant modes of production" and stamped, perhaps, with "geographic indicators" appeal to a generalized
disillusionment with capitalist ways of life and corporate consolidation in the global market (and for some, the global food system has become an emblem of what is wrong). Along with tourist forays into “remote” places, one can consume this “time away,” develop a taste for it and make it a contained part of one’s physiology. Millets’ perceived healthfulness reflects new performances of modernity and class: it signifies not only individualized self-care but also a kind of leisure (time away, in a place where the clock does not tick) that people have come to need in a time of government austerity, global competition and individualized discipline.

However, as this work illustrates, the lives that produce mandua are not separate from the social or environmental stresses of modern life. Indeed the practice of biodiversity mediates and contends with those stresses in intimate and deliberate ways, and mandua (as well as its nutritional qualities) literally grows out of the work that entails. It is the fact that “remoteness” does not buffer places from the compulsions of global capitalism or offer farmers “time away” that accounts for the survival of “underutilized” pahari crops. Nevertheless, their production does embody forms of knowledge and sociality beyond capitalist relations and commodity logics, and this simultaneously accounts for their continued production. If, as one European entrepreneur told me, turmeric grown in the hills is "pahari gold" because the soil’s mineral content and the stress on plants in tough, rainfed conditions cause them to develop enhanced nutrients, then those qualities emerge out of the stresses on human life in those same places.

Portrait 8: Two Tales of Theft
En route from hills to town, Kumaon
April 2015

"Never put your money somewhere apart from you. If someone takes your bag, then what will you have?" the man on the other side of the open window warns as I pass my belongings to the driver on the roof of the jeep. "You should keep a small purse like this." The man draws a small rectangle with his fingers and pretends to put it inside his shirt. "Otherwise, it causes trouble... People take things if you don’t keep them close."

I climb in beside him. We are headed from a village in Kumaon to a pahari city about twelve kilometers away. Today we are pressed together even more tightly than usual. We are almost sitting on each other’s laps. For a half hour before this jeep
came along, every ride that passed was full. In a month, Narendra Modi of the BJP will be announced as the winner of the national election for Prime Minister. But at present that outcome is unknown, and his rival Rahul Gandhi has landed in Uttarakhand by helicopter to campaign for the incumbent Congress party.

My advice giver is a talkative man, who had lived all his seventy years in the same village. He explains that politics in this hill state swings back and forth in an anti-incumbent pendulum.

The man across from us, whose knees are wedged against mine, comments periodically on the state of the road, especially when the jeep makes a big bump and our heads hit the roof. He is saying things like, "Despite all the tourists who come, this road is hasn’t changed."

Everyone else in the jeep come from farming families, so the conversation moves to crops. Eventually the man across me brings up the fact that "mandua can get a good price outside."

My advice giver retorts, "In Delhi, mandua is selling for 80 rupees [$1.10] a kilo, but here everyone in the family works hard and people don’t have mandua to eat." It recalled something I overheard a Greek traveler say the previous afternoon at a tourist restaurant, "Now companies want our olive oil. We have olive trees lining the streets and families here can’t eat it anymore."

As we near our destination, the jeep begins to crawl. Thousands of people from surrounding villages, predominantly men, jam the streets, holding up flags, chanting and wearing caps adorned with political symbol.

For some reason, my advice giver remembers his earlier warning. And he tells me this story: Once a man on the train fell asleep with his head on top of a bag that contained important papers and his wallet. And he slept well and sound. When he woke up, the bag was still there safely under his head. But a short while later, he discovered his papers and wallet were gone.

**Passage 8.8**

- How the appropriation and commodification of pahari agricultural biodiversity is connected to, and distinct from, the appropriation and commodification of pahari forest biodiversity.

In Portrait 8, a pahari man presents two warnings about theft. The story he tells about the bag in the train recounts the kind of theft in which someone physically takes something valuable away. It is theft in a literal sense. In comparison, the social effects that he relates to the high price of mandua in Delhi suggests a kind of theft that presents as profit and might not even be considered theft. If his first warning can be paraphrased: Guard your possessions. The second can be paraphrased: Be aware of the cost of wealth. In the first chapter I depict a general feeling of disillusionment with government in the hills; this man’s warning, at a time when industry and

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41 Regions in Peru and Bolivia are experiencing a similar phenomenon with quinoa.
the Indian government are gradually working to bring millets into the value chain, reflects skepticism about becoming “visible” or being included in such projects.\textsuperscript{42}

The history of Uttarakhand, as I have written, has in many ways been a history of theft and resistance to theft. There were the violent abuses and taxes of the Nepali Gurkas in the early 1800s, which led segments of the Kumaoni and Garhwali populations to align with the British. Later, British officials claimed "hills stations" like Mussoorie for Europeans only; they heavily deforested land to support export, industry, empire building and war while enacting forest policies that led peasants to protest and set fires, demanding access to local forests. The Indian government adopted those forest policies almost verbatim after Independence in 1947; the forest areas it auctioned to corporations to fell trees for construction projects led to the famous "Chipko" ("to hug," i.e. physically protect trees) movement of the 1970s and 1980s. One of its rallying cries was "jal jangal zameen" (water, forest, land).\textsuperscript{43} This motto lived on as activists turned their attention to hydroelectric dams, the largest of which – the Tehri Dam (completed in 1986) – submerged thousands of acres of forests, many villages and a pahari city and involved blasting mountainsides to create the necessary motor roads. A forest activist in Kumaon, whom I interviewed in 2014, designed pamphlets that analyze how even the present forest rights policy – achieved through civil society protest – does not fulfill its purpose, and still enables theft for places outside pahar.

Importantly, from the late 1980s on, pahari activists also turned their attention to seeds and biodiversity, forming networks like \textit{Beej Bachao Andolaan} (Save the Seeds Movement). Vandana Shiva started her organization \textit{Navdanya} (nine seeds) – with Garhwal, Uttarakhand as one of its two initial sites.\textsuperscript{44} These moves reflect market "constrictions" at a moment of economic

\begin{footnotesize}
\begin{enumerate}
\item[42] Scott (2009). The rest of this passage moves away from forms of theft that derive from exporting \textit{mandua} away from \textit{pahar} to sell for consumption and analyzes its theft as agricultural biodiversity.
\item[43] This phrase is the subject of my concluding chapter.
\item[44] Refer to Navdanya’s website (http://www.navdanya.org/about-us/our-history) and the English website of Beej Bachao Andolaan (http://beebachaoandolan.org/about/)
\end{enumerate}
\end{footnotesize}
The Indian government was just beginning to widen its doors to foreign investors. The launch of Uruguay Round of GATT, "the biggest negotiating mandate on trade ever agreed" that aimed to significantly "reduced barriers" to global trade in agriculture, was sparking widespread protests throughout India and the world, and fortified transnational peasant alliances against "agricultural globalization." The Indian government would launch small research programs to increase the productivity of "underutilized crops;" and within a few years, farmers groups in the plains of Andhra Pradesh, another millets-growing region, would launch the Millets Network of India. Within a few years, the WTO would form out of GATT, transgenic technologies would appear on the global market, national seed certification laws throughout the world would become more restrictive and seed corporations would rapidly consolidate and grow; and within a few years, transnational social movements including La Via Campesina would officially become a major counter-force in the multilateral sphere.

If the "theft" from pahari forests and rivers falls under the man's first warning, that of seeds and agricultural biodiversity falls under the second. I do not intend to dig a trench between forest and field. Indeed, this work joins other scholarship in challenging the perceived separation between environment and agriculture and "nature" as separate from "humans;" that very distinction has led the national government to approach Uttarakhand as a nonagricultural zone. Pahari farmers practice (agricultural) biodiversity and maintain small seed systems and

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45 Polanyi (2001[1944]).
46 Refer to the WTO website for more on the basic history of the Uruguay Round of GATT. For the history of the formation of the transnational peasant movement La Via Campesina see their 20 year anniversary publication (Choplin 2013).
47 MINI's website contains a great many resources and publications.
intimate production-consumption circuits in close proximity to river, forests and forest labor. However, pahari farmers do not play such a formative role in producing the biodiversity of the forests; this is why strategies for “theft” of the latter (alienating paharis from forests or rivers) appear more literal.

As pahari farmers have reminded me many times, mandua would cease to exist if they stopped growing it; hence, it has declined or disappeared in places. In other words, agricultural biodiversity relies critically on human labor and knowledge. Therefore, strategies for theft and resistance also take a different form. For example, after human labor and knowledge has been effaced (to varying degrees) by some of the technological and institutional methods described in Portraits 4, 5 and 6, industry can acquire "genetic information" (for example, produce seeds that are "distinct, uniform and stable") and then patent their innovations (seeds) as intellectual "property" for which farmers in some countries have been jailed for “stealing.” We also see in Portraits 4, 5 and 6 how the Indian government collects seeds as a national resource (or possession), enabling it to also claim a right of ownership under the multilateral Convention on Biodiversity. However, throughout this chapter I show that farmer contribution cannot – in any practical way – be extricated from the qualities, information and materiality of agricultural biodiversity or "climate resilient" crops. It is on similar grounds that groups like La Via Campesina or the Uttarakhand-based Navdanya and Beej Bachao Andolaan make claims of theft against seed corporations and national governments.

**Portrait 9: Experiments in Democracy**

*Experimental Farmer Fields*

*Kumaon, Uttarakhand*

*August 2014*

Sanjay had walked the thirteen kilometers from his home with some anticipation. To get here, we had gained and lost upwards of 1000 meters to arrive at an altitude that was almost same – a lesson about the nonlinearity of movement that the mountains teach time again, one that becomes engrained for those who live in them. There were few clouds this day to temper the intensity of sun at the times we passed out of the shade.
As we walked, Sanjay had told me about how he had attended three events over the past twenty years in which pahari farmers displayed samples of different seeds; each time the diversity had plummeted and more varieties had disappeared. He attributed this to the inundation of industrially produced wheat and rice—both as seeds through Green and post-Green Revolution government “extension” efforts and as food through the Public Distribution System. Many pahari varieties, he added, were already “high yield,” or their yield was “high enough.” He explained that every moment “longer” a seed sown here took to grow was a moment in which something important was happening, something that would determine its taste, nutrients and appearance and become the basis for the farmer’s selection of seeds for the next cycle.

I had met him a few months earlier, in April 2014, after befriending an NGO fieldworker who would later introduce him to me as her husband.\(^50\) I had soon discovered that he knew and worked with various activists I had met throughout the state, many who were linked with Beej Bachao Andolan. Three were collaborators on this project he was taking me to see. Though their locales in the hills were far apart and could take days to traverse, they had established and were attempting to expand a network; cell phones, and occasionally the Internet, helped.\(^51\) Among the seeds they were concerned about were \textit{mandua} (ragi, finger millet) and \textit{madhira} (janghora, barnyard millet) and \textit{pahari} farmer-saved varieties of \textit{dhan} (rice), \textit{dhals}, (lentils), \textit{rajma} (beans) and \textit{gehu} (wheat). Sanjay and those spearheading this project were mostly farmers; they generally saved seeds like other pahari farmers: in newspaper packets, bags, tins, baskets, clay pots—methods that required planting in the next cycle.

He has suggested to me a couple of months before that he could take me to this experimental site, one of four in Kumaon that he was overseeing. His sites, like those of his peers that comprised twenty in total, were located at different altitudes in different districts; all were places where the crops he was observing have historically grown. They wanted to work with fellow farmers to see which varieties grew best where. They wanted to have a sense of what kind of observable variations existed, which differences were practically, rather than genetically, significant, and if it made sense to have farmers exchange farmer-saved varieties across regions and microclimates in the state.

Most everything, he explained on the way, was directly in the hands of local residents; the plots were in villages; and they relied on unsupervised farmer labor and interest to maintain the plots. Their experiment did not use gene banks or controlled sites. Of course, most of them could not afford to hire people. Beyond that, they were interested in practical results, understanding that the success or failure in each instance would reveal more than plant conditions, but also social conditions. The two were interconnected.\(^52\)

After a final steep climb into the village, we arrived at the terraced fields, labeled with numbers and names on small sticks or pieces of plastic, to find most of the \textit{mandua} plots had not been weeded as needed. By now, about six weeks before the harvest, they should have been tall, even taller than I am, and sprouted the “\textit{baal}” or head of the plant. But many of the plants were stunted and sparse. His face showed

\(^{50}\) She is Heera in Chapter 2.

\(^{51}\) It is still very difficult to get an internet connection in many places in pahar, even with a modem.

\(^{52}\) Similar techniques with grassroots NGOs promotion’of SRI or System of Rice Intensification. Some called participatory, this more than that.
some disappointment as he spoke to members of families nearby about what had happened. At the same time, he also seemed to take it in stride. This is what happens in practical experiments, which contend with the variables of social and environmental life and which take culture to be fundamental to agriculture, rather than as a component to be eliminated and then reintroduced. To understand this means accepting the contingencies – uncertainty, hope, surrender, drama, precarity. It means that work to revive local seed varieties and set up new farmer-to-farmer networks across mountain slopes and valleys is work in the social terrain.

"I know at least two of the other sites are better," he said. “We’ll do this differently next year."

Passage 9.9

- How with new forms of appropriation of pahari seeds and grains, new forms of resistance and practice are emerging

Finally, attempts to create farmer-to-farmer networks to cultivate *mandua* and other *pahari* seed varieties are also attempts to open democratic and social possibilities. Such networks provide alternatives to gene banks and highly bureaucratic and industry-friendly models of development and democratic governance. This does not mean that these networks provide solutions devoid of violence, exploitation or discrimination, but that in some way they must contend with (rather than defer) these social issues. Such projects are initiated in their sites of implementation and therefore demand a level of practicality; to some extent, people must consider which bodies perform the labor involved, how and when. Thus, moments when the labor does not get done, as in the village that Sanjay and I visited, can provoke reflection about why and lead to a redistribution of responsibilities, a recalibration of social relationships and a focus on land rights. Moments of “failure” shed light on important social contradictions as local histories of patriarchal land and labor practices intersect with the demands of contemporary life in such a way as to bear down on women who are the primary agrarian practitioners and bearers of environmental knowledge yet whose families have meager economic and environmental

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means. There are opportunity here, in other words, to cultivate more equitable socio-ecological infrastructures.

Farmer networks also might embody aspects of the practice of biodiversity; in particular, modes of social organizing that emulate close and consistent attention to the temporalities and needs of multiple species in changing socio-environmental contexts. While small-scale and informally taught *pahari* land practices are often considered “from the past” and denied their coevality, they in fact display profound engagement with the present. For example, the collaborative experiment in seed production and sharing described in this Portrait articulates broad relational goals and heightened awareness of environmental and social uncertainty, not as an aberration but as a key aspect of life.

Such attunement to the practical conditions of now is a way of being open to and working to shape the future. For, it attends to the social values that form and change through *how* people practice, or repetitively perform, ways of relating, making decisions, distributing resources and organizing work and labor in everyday life.\(^{54}\) Consider how in the “practice of biodiversity,” “biodiversity” inhabits a clause that is dependent on “practice.” It is *the practice* that produces and sustains a variety of human and nonhuman life. Given life in that precarious realm of “Never. Unless-,” farmer-saved seeds in small-scale systems must be sown, tended to and harvested in order to have futures. “Biodiversity” as a goal without this practice would fail; yet the practice would still produce and sustain diverse life even if this outcome were not stated as a goal. Working from this perspective, attention to the quality of human-human and human-nonhuman relationships *in the present* might acknowledge tenuous futures but mindfully establish how people will face and experience them.

Many of the collaborators whom Sanjay named on our walk were people with whom I had spent time during my five trips to Uttarakhand from 2011 to 2015. They were from far

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\(^{54}\) Butler (2004).
reaching parts of the state. They were affiliated in different ways with grassroots organizations, local NGOs, national NGOs, transnational institutions and state and national government branches. In my time in Uttarakhand, I observed a slowly expanding network that was using the infrastructure established by development and social projects. This network challenged the paradigm of “organic by design”/“organic by default” (discussed in Passage 4) by intentionally (i.e. by design) working to expand pahari farmer practices in ways likely not foreseen by Uttarakhand state officials – ways that value practices perceived as “in the past” while at the same time working to transform them.

What makes these experiments in democracy?

- They have the potential to make issues of power, such as the gendered division of labor, household responsibilities, land rights and caste divisions, central to local governance.
- They focus on the importance of everyday life and illustrate how democracy is created through how relationships are formed in the present.
- They recognize the agency and contribution of small-scale farmers’ and women’s labor to India’s food production and variation in plant life and, therefore, to the fabric of India’s democracy.
- They incorporate an attunement to interdependent and diverse forms of life and modes of human restraint as a counter to undifferentiated growth and GDP-driven development models that are putting at risk India’s formative projects of representative democracy and redistributive justice.
- They serve as a reminder that democracy itself is an experiment, whose conditions cannot ultimately be controlled or predicted.

These farmer networks extend far beyond the “local” arena. Portrait 6 depicts how, in March, 2013, a National Seed Network officially announced its formation in response to the announcement that India would launch GM field trials. This National Seed Network connects farmer activists in Uttarakhand with those in other parts of India, and many people and organizations in it are already connected to other regional, national, transnational and transregional networks. As Elisa Da Vià writes based on her research in Europe, “these

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55 NGOs have also helped provide social infrastructure for this network. Its formation, like that of La Via Campesina, could be understood as a constriction on the “free market” (Polanyi 2001 [1994]).
initiatives reassert the centrality of the social and ecological role of agriculture...beyond the reductionism of the market-based approaches to rural change."\textsuperscript{56} The National Seed Network is a way to collectively address issues of biodiversity theft; it is also a way in which people from rural areas can share seeds and establish practices across the country.\textsuperscript{57} At the same time, farmer networks in the hills face and will face challenges due to migration, climate change and new social pressures and tastes. As profit-driven projects accelerate and dovetail with programs meant to help the rural poor, there is the question of urgency and time. And there are no guarantees.

\textsuperscript{56} Da Vià (2010:229).
\textsuperscript{57} Vandana Shiva calls this “biopiracy.”
25. Seeds in village homes
26. Seeds at two local (but nationally connected) seed banks that pahari farmers can access
27. Seeds at a national gene bank
28. A seed activist in Garhwal shows me saved local millet varieties.
29. Farmer activists expand experimental plots of local seed varieties.
A Small Rebellion

In January 2015, I attended a “farmer’s fair” on the main road that passes the Kumaoni village Gow, where much of this work takes place. A government official working in the capacity of an extension officer and a plant pathologist had come to inform villagers about an “improved” mandua (finger millet) variety that was available with fertilizer and spraying packs for a discounted price at an agricultural university about four hours away by bus. In some cases, they explained, they were distributing free trial packets of seeds and inputs. After that, interested farmers were expected to travel to the university or distribution sites to buy them for – at least initially – a highly discounted price.

The event lasted for more than two hours, and they kept people alert by distributing samosas and sweet chai. The tent had been set up outside, right off the motor road. With rows of chairs and a couple of long tables up front, where the two speakers, predictably both men, sat beside elected members of the local governing board. The government official spoke first and at length, then the scientist. Both lauded farmers for being important and for how much they knew. They also lauded the new varieties they were trying to promote, focusing on how much quantity the seeds could produce in small plots, as was common in pahar.

In the morning, word about the meeting had spread throughout Gow. I was there when a man told his daughter in law in the courtyard of their home. When he told her he was going, she laughed and said, "Who has time?" She had to collect her cows from where they were grazing near the forest. If the cows grazed in the wrong area, there was a village fine. Therefore, no one was no surprised to find the tent to be empty at first; most of the audience members were men who spent their days near the road and did not daily engage in agricultural labor, though they were instrumental in market transactions. However, more than an hour into the event, after the many introductions were made and as the government official was saying his piece, women –
who had finished their morning duties – trickled in. Some had even found time to change their clothes and fix their hair. People brought out more seats and set up additional rows. Soon, all the seats were occupied and some people had to stand.

This was all in time for the scientist’s speech. He too spoke for an extended time. He described the travails of farming in the mountains, and people nodded their heads. He gave various compliments to pahari farmers, adding phrases like "You know all that already" to facts he was relaying. He spoke about how the market for pahari crops was expanding. He probed here and there to learn about the specific crops grown in this region; he appeared particularly interested in beans and lentils for which consumer interest was also growing. He stood up, and elaborated on the yield benefits of new mandua varieties in an impassioned way. Some people listened with discernible interest; others looked around and seemed bored.

Then, as he paused to take a sip of water, an older man seated in the back who had been quietly grumbling shouted out, “What's the benefit? Suar [wild boar] will eat it anyway!” In that instant, the event unraveled. People turned away from the stage to face each other. Everyone began talking at once. Mostly, they were talking about suar. About the problem of suar coming out of the forest in search of water to drink or food to eat and ruining their crops. About how there was a problem before but it was nothing compared to how extensive it had become. About how the fields in the village up the hill from Gow – where Prema and Deepa in Chapters Two and Three live – had been completely overturned in the past month as suar dug for worms where the wheat had been planted. One man joked that "high yield" would only mean more food for suar. This received nods and laughs.

The scientist got visibly flustered. He tried a few times to pull the conversation back to his main point. However, it was no use. The conversation had successfully derailed – or gotten on track – to the most pressing practical concern on farmers' minds. Eventually, he relented and changed his focus. And suar, rather than high yield mandua, became the protagonists. People brainstormed solutions, drawing from that they had heard about or seen: they talked about nets;
they talked about guns; they talked about building walls between forest and field. One might say, in other words, that the conversation was hauled back to practical life.

The concerns voiced by paharis that January afternoon also haul this work back to its beginning – to the opening of the first chapter – when Nirmila and other women of Gow go out at night in April 2014 night to scare away the suar who are destroying their wheat before the harvest. The concerns voiced that January afternoon orient this work, again, towards the present challenges of growing mandua and other "climate resilient" pahari crops in a rapidly changing social and environmental "surround." The concerns voiced that January afternoon contend, again, with problems of deforestation, forest monocropping (of pine trees for turpentine), river diversions and erratic monsoons that increasingly are becoming – and are being felt as – problems in the field. These concerns call attention to the social life around mandua and other pahari crops and the trends that are eroding the "soil" in which they grow. They arrive, again, at the juncture of place and contingent life.

For, what becomes evident in this interaction, in this event gone awry (or set on track), is the difficulty – arguably, the impossibility – of escaping the questions these pahari "audience members" pose. What becomes evident is that ultimately commodities produced in highly controlled settings, such as the sanctuary of a lab, must be brought back into the fold of life outside deliberate controls – whether for productive or consumptive purposes.

What becomes evident is how small-scale farmers, and paharis, are among those in our global society tasked with voicing and mediating obscured but unavoidable environmental crises. This is because they keenly observe and directly interact with a variety of nonhuman species every day; it is because they are engaged in practical labor on the land; it is because they live at the precipice of forest and field; it is because their relationship to globalization is fraught
and their lives are both marginalized and situated at the interstice of contradictions related to biodiversity, agricultural policy, food governance and national development.¹

Furthermore, what becomes evident is that “high yield” solutions for an individuated commodity crop do not resolve problems of production in places where the "yield" is down because of interrelated factors that even recombinant genes will not resolve.

And that those engaged in the practice of biodiversity – in other words, those who contribute to maintaining the diversity of nonhuman life upon which all human life, and many other animal species, depends – live in precarious conditions wrought by intersecting social and environmental trends. And these conditions of precarity – such as that of suar coming so often into the fields (and the broader reasons why they are doing so) – cannot simply be fixed by technological means or added value endeavors such as commodifying grains and selling them in the global market.²

Moreover, what happened that January afternoon underscores the connection between "jal, jangal, zameen" – or water, forest, land. This phrase has an important history and a prolific life today in Uttarakhand. By briefly elaborating on it now at the conclusion of this work, I aim to highlight openings – or ways in which the things learned through this study of millets at the margins provides a looking glass for categorical, commodity and quantitative "added value" frameworks, and brings us to a place of onto-epistemological possibility and rural solidarities.

These openings are counter currents to capitalist processes that seek to "add value" through the forms of subtraction (exploiting labor, people, places and uncommodified relations while rendering them invisible) and division (socio-spatial segregation and bureaucratic compartmentalization). As such, they are also counter currents to evolving colonial relations

¹ See Borras et al. (2009), Desmarais (2007) and Schneider and McMichael (2010).
² Kloppenburg (2004) makes clear that the political economy of plant biotechnology consists of institutional and technological processes. Therefore, it would make sense that both would need to be addressed.
that have been examined in overt and subtle ways throughout this work. These evolving colonial relations manifest in how:

(a) contemporary global economic relations and transnational institutions emerged out of European empire building from the 1400s to the mid-1900s;
(b) the Indian government adopted British colonial structures of governance and bureaucracy;
(c) wealth and land accumulated among certain elite Indian groups through alliances with British officers;
(d) gender, caste, and class relations in Kumaon and Garhwal were affected through the phases of British colonial rule;
(e) Enlightenment ideals of progress have contributed to shaping modern India;
(f) security (food, border, natural resource) has become a defining aspects of national sovereignty;
(g) both “whiteness” and "tradition" resonate as aesthetic ideals for foods and people;
(h) India’s food, agricultural and development policies are related to regional wars and territorial disputes that came out of political boundaries drawn by or negotiated with British colonial officers; and,
(i) US hegemony over food production, food technologies, and transnational institutions in the post-Bretton Woods era ("neo-colonialism") has shaped the trajectory of "development" for newly independent nation-states.

These relations inhere as spatial, bureaucratic, and ideological divisions that constitute the "fluidity" of globalization. As we see in this work, they produce social, ecological and ethical contradictions whose intensifying crises have not been resolved, and have been deferred, from within their onto-epistemological limits.

"Jal, Jangal, Zameen" is an intersectional node

- that challenges the “divisions” and “subtractions” of capitalism bound to particular "ideologies of nature."

The example of the "derailed presentation" is an example of how methods of compartmentalization in industrial agriculture – for example, the isolation of the plant (as a composite of genetic material) from other forms of life – pose problems in hill regions, whose topography and (diverse) forms of life do not conform easily to human dictates, and in many ways require humans to conform. In contrast, paharis and hill people and small farmers who

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3 Again, I draw from Neil Smith’s use of the term.
practice biodiversity more broadly tend to have an integrated approach to agriculture and the "human-nature" relationship.

Accordingly, the common pahari wisdom "jal, jangal, zameen" can be understood as an intersectional node that arises out of the practice of biodiversity in the hills. It is an environmental node, as it understands water, forest and land to be fundamentally joined. In this sense, it counters colonial and capitalist logics that compartmentalize elements of nature to be appropriated or administered separately; for example, through distinct ministries and laws that govern forests as separate from agriculture.\(^4\) It challenges the way these boundaries have served to displace tensions and problems from one perceived realm onto another realms or have overlooked issues that exist at liminal sites of connection; for example, suar ruining the fields. These liminal sites then bear a great deal of pressure from accrued displacements.

"Jal, jangal, zameen" is also an agrarian environmental node. Here, I borrow the phrase Agarwal and Sivaramakrishnan coined to emphasize that in the hills, the diversity of nonhuman life that humans play a foundational role in producing (here called the practice of biodiversity) and the diversity of nonhuman life in which humans play a less foundational role abut each other, and are both deeply rooted in social life.\(^5\) This counters the distinction of "agricultural" and "nonagricultural" zones based on productivity. It also challenges the notion that "resources" can be simply "natural," apart from human life.\(^6\)

Processes of capitalist development and accumulation work by dividing elements of nature (denying environmental nodes) and alienating humans from these elements (denying agrarian environmental nodes). Such divisions and forms of classification perform some of the necessary work to make "fictitious commodities" (like land and labor, which do not in fact exist

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\(^5\) See Agarwal and Sivaramakrishnan’s (2000) introduction to the collection *Agrarian Environments*.

\(^6\) See Neil’s Smith’s (1990)
for the market) appear as commodities on the global market. The commas in "jal, jangal, zameen," represent these (constructed) separations, which enable “surplus” value and "GDP" to be produced, whether through deforestation (for construction and development), hydroelectric dams (for urban and industrial expansion), land grabs (for geopolitical positioning or rents), or industrial agriculture (controlling the means of production and determining the modes of production upon the land). As each of these aspects of "nature" categorically individuates, it also appears to have its own essence detached from human life.

However, the commas in "jal, jangal, zameen" also signify shifting articulations and foci of dissent, as will be discussed in the next section.

"Jal, Jangal, Zameen" is a rallying cry

- that reveals the "margins" to be central to national and capitalist development.

"Jal, jangal, zameen" has an important political history in pahar. Drawing from peasant protests during the era of princely and British colonial rule, it became one of the rallying cries of the Chipko forest movement, which spread through the hills of Garhwal and Kumaon in the 1970s and 1980s. At this time it signified a local, customary, claim to forest access and anger about the ways the Indian government was restricting local forest use while auctioning trees to industry to build far away factories. By the 1980s, pahari activists were using this same collective phrase to protest the construction of major hydroelectric dams, in particular the Tehri Dam. In the 1990s, when Uttarakhand was still a part of the largely plain state of Uttar Pradesh, it became a pahari call for sovereignty. As discussed in the first chapter, at that time, many paharis argued for the capital to be in the hills between Kumaon and Garhwal; they envisioned this as a symbolic emblem of pahari identity and a way to prevent "neo-colonialism" by the Indian government and the plains.

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7 Karl Polanyi (1944) conceived of "fictitious commodities." Also see [seed paper].
8 See Kumar (2010). "Uttaranchal" became a state in 2000 and the name was later changed to "Uttarakhand."
In March 2014, I visited Lakshmi Ashram, a girls’ school that was started by Gandhi’s disciple Sarala Devi. I went for a walk with one of the school’s long-time teachers and activists. She still spent a great deal of time organizing residents of the surrounding villages to protect forests and promote “sarvodaya” (upliftment for all) through anti-alcohol endeavors. While she took me to the homes of various farmers who grew mandua and dhan (rice), she talked about her work, using the phrase "jal, jangal, zameen" repeatedly. Even when talking specifically about the forest, she did not disarticulate it from water or land. She said she saw my project as fundamentally related to her work for this reason. "Jangal," she explained, did not signify protecting forests from outsiders, as much as a consciousness about this integrated relationship – particularly because many villagers now depend on the commodification of wood, forest life, land and water for income and survival, even as they also understand biodiversity as practice.

In other words, paharis have historically used "jal, jangal, zameen" to make specific local claims as forms of appropriation change, as well as to voice a counter-hegemonic "ideology of nature." They have used it to highlight a certain aspect of the trinity and its connection to the others, and to rural pahari life. The changing forms of appropriation and dissent since Indian Independence have moved through each of these elements, along with the changing focus of national development (and what is appropriated to support it): in the Chipko forest movement, it called attention to the connection of jangal (forest) to local food security; a decade later, it protested how dams caused the loss of land, crops and forest (and propelled forest animals into the fields); now some of the same activists are using it to organize around local pahari seeds and crops, and specifically pahari millet varieties.

Though mandua is not any of these three, in the various ways depicted in the preceding chapters, it embodies their connection: Paharis cook mandua ki rotee [flatbreads made of mandua and wheat] with forest wood rather than gas because that is what makes it "taste good."

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9 Smith (1990).
Mandua is a dryland crop that can survive without the kinds of irrigation that are not conducive to the geography of the hills. Mandua grows near forests. It grows in mixed fields with other pahari crops. Its decline in the hills stems partly from the construction of dams and loss of forest access, which have made life in pahar more difficult. Now, as millets are being commodified as food and seed, mandua signifies the appropriation of (agri)cultural heritage.

Like "jal, jangal, zameen," mandua is an intersectional node. It emphasizes human labor and life and the subaltern practice of biodiversity; it emphasizes the relationship of small-scale farmers to the places in which they live; it emphasizes the work of humans in producing biodiversity and sustaining life as part of "nature." In the hills where, as analyzed in Chapter Three, government or industrial seed distribution and acquisition is more difficult and creates socio-environmental barriers to forms of accumulation and appropriation, this awareness is arguably more palpably felt and articulated in daily life.

"Jal, Jangal, Zameen" is a political site
- that emerges out of practical life (the practice of biodiversity) and challenges impractical ideals.

Above I argue that "jal, jangal, zameen" has overtly political dimensions that challenge the ideological compartmentalization of capitalist development and seed commodification. However, what accounts for its relevance through various periods of pahari history? Its relevance is part and parcel of the resilience of mandua. Like mandua, it emerges out of the pahari practice of biodiversity.¹⁰

Even as paharis rely more on cash in everyday life and become more embedded in commodity relations, life in the rural hills still evokes and demands the integrated sensibility of "jal, jangal, zameen," which resides in and with capitalist relations and the financialization of everyday life. This is both because spoken wisdom like "jal, jangal, zameen" have become

pahari colloquialisms and also because farmers here must think consciously about each of these elements many times every day, whether when they go to fetch drinking water from the spring in the morning or afternoon or when they move between the forest, field and home.

The political force of this cry emerges out of an evolving mode of life, a structure of feeling, a living practice that has remained collectively "true" through historical changes, just as mandua has continued to exist in the face of social and environmental currents propelling its decline. This truth exists as (everyday) life. It also reflects a consciousness that asserts a right to exist. It is both a practical expression and a (consciously) political one. It embodies a quality of emergent political awareness and power that comes out of small farmer practices. Thus, "millets" – a broad category initially defined by the relation, a perceived unimportance, to global capitalist agriculture – can become a crucible of transregional alliances.

"Jal, Jangal, Zameen" is a "countertopographical" terrain of solidarity

- that confronts and “constricts” the globalization of agriculture and food.  

Since the mid-1980s when agriculture was introduced into global trade liberalization, there has been a remarkable rise of transnational social movements. The marginalized people, places and grains discussed in this work have been part of (and affected by) that change. If the “force of history” is comprised, as Gandhi suggested, of everyday acts of sustenance and meaning making, then aspects of that force have become visible. Disparate subaltern rural groups within a broader global economy are articulating deeply shared understandings that come of practical aspects of their work/labor on the land with nonhuman species as well as practical experiences of the globalized food and agricultural system. To return to Prema Devi’s theory of socio-spatial “islands,” people separated by oceans of culture, history, belief and language (and even actual oceans) are seeing themselves as inhabiting the same “island.” It is an “island” that does not

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11 Katz (2001)
map onto dominating images of our world; it fits with what Cindi Katz calls “countertopographies,” or social lines that can transform the map. These lines do not join people by identity-based or abstract categories. They themselves can be imagined as “land practices” – for, they arise out of a deep, practical and historical human connection to places and ways of life whose roots run so deep as to become entangled with the roots of others.

In this work, we see how “forces of industry,” are enabled rather than constricted (to use Polanyi’s term) by mechanisms of bureaucratic democracy, which at every turn work against this expanding countertopographical movement. Because the globalization of food and agriculture, compounded by land and water grabs, has made rural lives so precarious (pushing sustenance to the brink of subsistence), people have physically abandoned and lost faith in rural places and farm labor. As Chapter Two depicts, this is true of many farmers in Uttarakhand; the migratory flow of people out and the “common sense” belief that the only viable or respectable future is elsewhere makes it difficult for rural activists, themselves susceptible to these realities, to harness the political will. There have been remarkable examples throughout this work of civil society groups stalling, reversing, changing or ushering national and transnational legislation. In many instances, however, these victories have been overturned, complicated or sidestepped through purportedly “democratic” structures of governance. Transregional countertopographical alliances that surpass the “nation” as a unifying construct still must contend with the nation-state as an economic and political unit whose power and “security” is deeply entangled with industry.

Significantly, one of the founding members of Beej Bachao Andolaan (Save the Seeds Movement) who had been involved in Chipko’s anti-dam efforts told me that most important to him was fostering “seeds” and “millets” as “a shared identity.” He recognized, in other words, the importance of the ideological terrain for people who do not have economic or political power. He felt it was important not to define this identity, but to understand it as a construct that was open to interpretation. Because it was tied to aspects of cultural heritage and
sustenance labor, this identity of “saving seeds” was “shared” through points of practical, rather than abstract, connection – forged, for example, through physically saving and exchanging seeds. In this vision, the revival of plant species is not the aim; rather, the aim is to strengthen rural social life through what in this work I have called “the practice of biodiversity.” A woman who has been involved with local NGOs in Kumaon for a long time and who, since 2010, has affiliated with Beej Bachao Andolaan reminded me a few times that “aspects of cultural heritage” in rural Uttarakhand are infused with casteism and patriarchy. She is promoting efforts to re-structure local governance, decision-making and land practices; she sees “saving seeds,” and transforming how seeds are saved and sown, as a means of addressing these issues in everyday life. Similarly, Bina Agarwal has written about how the women farmers connected to the Deccan Development Society in Andhra Pradesh have collectivized land across caste lines to grow millets.¹²

At the end of Chapter Three, farmers and activists in Uttarakhand are initiating farming experiments to expand local seed exchanges across the state. Meanwhile, members of Beej Bachao Andolaan have linked up with the Millets Network of India (MINI), which itself emerged out of the Deccan Development Society in 2007. Since 2010, the Deccan Development Society has linked with La Via Campesina. At the same time, MINI is working to expand an Afro-Asian Millets Network, and in 2013 members of MINI and DDS attended the West African Regional Assembly of COPAGEN, a network of nine West African farmers:

The Deccan Development Society has forged an alliance with African nations on the issue of millets and food sovereignty. Many West African nations are getting ready to follow in the footsteps of Deccan Development Society in relentlessly pursuing the model of agriculture that encapsulates ecological farming, biodiversity, food and nutritional security along with health and ecological security.¹³

¹³ as quoted in Rao (2013).
Farmers and activists in Uttarakhand, including those linked with *Beej Bachao Andolaan*, have also joined (and helped to create) a National Seed Savers Forum, to foster farmer seed exchanges and political alliances across India. As described earlier, in the same week in March 2013 the National Biodiversity Authority overturned the civil society-initiated moratorium on GM field trials,

farmers from 17 States have arrived here with 2300 seed varieties they have conserved through generations to put them on display at the National Seeds Festival that opened here on Saturday.... The seeds of various crops, vegetables, fruits, tubers, and millets developed by the farmers proclaim the unique biodiversity of the country and back their demand to be treated on a par with agriculture researchers for minimum income security.  

In addition, I met leaders of small NGOs throughout Uttarakhand that do not work in agriculture who have “joined” *Beej Bachao Andolaan* as a show of solidarity and a recognition that social issues ranging from domestic violence to dams are connected to land and seeds.

Through all these example, seeds and millets help to “draw” these countertopographical lines, lines that intersect and overlap in the “messy” way of social life, directly connecting “remote” places whose relationship would otherwise be mediated (and disabled) through capitalist infrastructures.

"*Jal, Jangal, Zameen* is a method

- to address intersecting socio-environmental crises.

In the Opening of this work, I describe writing about the practice of biodiversity as a practice in itself. I say that “this has meant not only calling attention to what has been outframed... but to re-orient the process of framing... [in order to] either consciously problematize commodity logics and ‘inevitable’ refrains of history or ‘progress’ or... enter into spaces of nonlinear logic, ‘extended family’ ways of relating and temporal attunement to multiple species modeled by *pahari* practices and philosophies.”

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14 Parsai (2013).
Though contentions abound about crises of climate change, agriculture, biodiversity, food, and seeds today, there is, undeniably, the recognition that these issues intersect in ways that the human population must immediately contend. The practice of biodiversity, situated at this subaltern site, opens a space to learn from and attend to other species on which our futures depend. It suggests that ways forward will be forged not only by the human “design,” but also by the human ability to listen and adapt. It also reminds that no abstract future humans imagine will assure its fruition or guarantee the quality of life in the present; however, the present we create in relation to each other and other species will open up to possible futures.

Finally, "Jal, Jangal, Zameen" is a way of thinking about and forging democracy through attention to practices, social relationships and everyday life

I call the derailment of the presentation in the event that opens this concluding chapter “a rebellion” because it reflects an instance when the enactment of power in a space transformed; I call it “a small rebellion” because that transformation was neither planned nor structural in its effects. In this instance, knowledge emerging out of the practice of biodiversity became a collective statement that challenged the speakers’ assumptions. Here, one sees how practice is always already political and holds potential for rebellions.

This interaction, in other words, can be understood as a democratic moment, in that the concerns of the “audience” temporarily overtook those of the “speakers;” the “receivers” of information revealed themselves to be the producers of knowledge. They did not ask to be heard but made themselves heard; each voice incited another. Unexpectedly, the practical and everyday concerns of people engaged in small-scale mixed crop agriculture gained preeminence over those of a government official and a scientist whose projects were fashioned in controlled laboratory settings and with narrow goals disconnected from the everyday realities of agrarian
production in the hills. This dissent erupted irrepresibly because the majority of those present intuited it to be truth. It was, in Raymond Williams’ terms, a “structure of feeling.”

The lives in this ethnography show how small-scale agriculture and the practice of biodiversity in Uttarakhand is neglected and then celebrated, but never allowed to stabilize. This chronic instability of hill agriculture is a condition that has allowed capitalist and nation-building projects to “subtract” different “resources” — plants, water, people, environmental services, food — from the hills in different historical moments. This is exacerbating social inequalities in “modern India” and increasing the pace and spread of environmental decline. At the onset of this work, I ask how India’s evolving model of progress, now strongly invested in income generation and trade liberalization, undermines the project of democracy upon which it embarked in the 1950s. Financially driven governmental models of progress have threatened India’s diversity of plant life and its diversity of human ways of life. Beyond impoverishing segments of India’s population and devaluing small-scale agrarian life, these models have impoverished democratic life. Nonetheless, in this opening event and in various places throughout this work, India reveals itself to be a place in which small rebellions, or democratic surges, can and do take place. During the years of this research, anti-corruption protests and campaigns alighted throughout India, bringing everyday life and experiences of the Indian polity into the foreground of institutional democracy.

The practice of biodiversity reveals how the diversity of cultivated plant life (a social good and a “natural resource”) is an effect of human ways of life and that its production is coterminous with the production of social values, aesthetic sensibilities and understandings of need. Therefore, re-organizing those practices, for example, through experiments of seed sharing in Uttarakhand and India, has the potential to practically address or bring collective

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16 I thank Kalyanakrishnan Sivaramakrishnan for this insight into my work.
17 Shrivastava and Kothari (2012).
consciousness to issues of power, land distribution and economy, particularly in the local sphere; in other words, to transform human relationships (to “bend them towards justice,” in the words of the Martin Luther King Junior) through attention to their enactment in the present rather than through an obsession with determining what their futures will be. “People use what is available to make a place in the world” and, as Ruth Wilson Gilmore reminds, democracy is about making a place.  

Like biodiversity, democracy is a practice, a practice in which everyday cultivation matters, a practice in which the diversity of life must be consciously maintained, a practice whose iterative performance produces social values, a practice that is about tending to the life and quality of the soil, and all it that is unseen, which nourishes all that grows. Our “thoughts can be far, but body must deal with what is near,” a teacher and former student at the Lakshmi Ashram in Kausani told me. Where did she learn this? I “learned this here, and I read some of Gandhi’s works on my own.” This, she explained, is “zameeni soch (grounded thought) [compared to] hawa soch (wind thoughts) that can fly away.” In a vibrant democracy, one that cultivates zameeni soch, “common people” are recognized as the protagonists not the audience, and their voices do not derail events but set their course. If the practice of biodiversity in Uttarakhand is attuned to (and cultivates) the interdependence of various forms of life and temporalities, if it is predicated on philosophies of restraint in the present that are entangled with the acknowledgment of an unknown and emergent future and a living past, then it models qualities important for the practice of democracy.

“Food security” is and has been a recurring preoccupation for the Indian government. This is because food signifies a basic element of human existence that fundamentally depends upon human cultivation and knowledge, and is therefore, among other things, a baseline indicator of the quality of our social relationships and forms of governance. The basis of food

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derives from the biological diversity of food crops that have been cultivated over thousands of years (and in the present) by small-scale farmers. As the farmers in this “small rebellion” suggest, no predominantly genetically based solution to crop yields produced in a controlled setting can contend with the complex and interrelated conditions of life and converging socio-environmental crises. However, by contending with the latter, by understanding biodiversity and democracy to be animate, entangled and inseparable from the contingencies of the world at large, we can “make places” and possible sustainable futures.
Reflections on Methodology

Between July 2011 and February 2015, I took five trips to India and spent about fifteen months visiting informally and conducting fieldwork. For much of that time, I was in *pahar*, in the state of Uttarakhand, and largely conducting participant observation and interviewing (predominantly women and girl) farmers about land practices. Half my time there involved visiting villages in both Kumaon and Garhwal at altitudes ranging from 2500 to 12000 feet for periods from a few hours to a few weeks. I returned to places – particularly in the Rudraprayag, Bhilangana, and Nagni regions of Garhwal and the Nainital and Almora districts of Kumaon – numerous times and in different seasons. Sometimes I resided with farmer-activist-scholars, sometimes with NGO fieldworker-farmers, sometimes in guesthouses, and often with farmers who do not associate with a political or environmental mission. For the other half of my time there, about eight months, I resided in one region in the Nainital District of Kumaon, about an hour and a half by bus to the small *pahari* city of Almora. I also interviewed seed and environmental activists, NGO employees, and entrepreneurs in the cities of Dehradun, Rishikesh, and Haldwani (many of these were men). Interviews, site visits, conferences, and archival research often took me to Delhi (and once to Chennai) for one- to two-week stretches. For an additional two months, I conducted participant observation (often at conferences), interviews, and archival research in Rome and New York.

By the end of “fieldwork,” I had spent significant periods over several seasons with ten women farmers. In addition, I interviewed (often more than once) and spoke with roughly forty other *pahari* farmers, and had countless informal, often brief but illuminative, conversations with many more. I conducted thirty-three interviews with non-farmers on the regional, national, and transnational level and about fifteen more with farmers-activists from different regions in India (including *pahar*). Because of the rural demographic in Uttarakhand and for cultural
reasons, my work focuses predominantly on women's labor. Certainly, an area for further study would be the lives and labor of men who move between urban and rural spheres.

I experienced (at least once) every season of planting, weeding, harvesting, seed saving, cooking, and eating. Half my time there involved visiting villages in both Kumaon and Garhwal at altitudes ranging from 2500 to 12000 feet for periods from a few hours to a few weeks. I returned to places – particularly in the Rudraprayag, Bhilangana, and Nagni regions of Garhwal and the Nainital and Almora districts of Kumaon – numerous times and in different seasons. Sometimes I resided with farmer-activist-scholars, sometimes with NGO fieldworker-farmers, sometimes in guesthouses, and often with farmers who do not associate with a political or environmental mission. For the other half of my time there, about eight months, I resided in one region in the Nainital District of Kumaon, about an hour and a half by bus to the small pahari city of Almora. I did a homestay in one village and daily (and sometimes nightly) walked fifteen minutes down a hill and across a road, with its row of twenty-five or so small stores, to the neighboring village (as opens this work) where I focused my study and spent the bulk of my waking time.

Physical mobility gave me social mobility: it enabled me to move between the two parts of my principle village of study – that which housed historically privileged “caste Hindus” (including those who appear in the beginning) and that which housed “Scheduled Castes” who have been historically subjugated. Caste prejudices made it difficult for me to live in one side and give considerable time and attention to the other. At the same time, moving between two villages on a daily basis illuminated relations between neighboring places, the incredible variation in social and ecological life that exists in the hills, and how the same policies impact “similar” places differently. This helped me to understand “village” as a relational entity. I was struck by how little interaction there was between adjacent places (I became a courier of news and seeds), even as those places might have daily interactions with towns and cities much farther away. These are things traditional maps cannot convey; I learned that distance has more
to do with the means and energy it takes to get somewhere than with measurements of kilometers or miles.

The *in between* proved to be an important field site. Occasionally seeking out some of the very things that were transforming *pahar* in ways that marginalized many *paharis*—like going on treks that had “Himalayan views” or visiting “tourist places” where I have access to Wi-Fi to back up my field notes—also enabled me to learn relevant details by, for example, speaking to customers who bought *Himalayan Finger Millet* and the shop owners who sold it. In the process of traveling to and from places I had countless conversations—often with *pahari* men with whom I generally had less contact—that shed light on important issues (wedged together in a shared jeep for seven hours, a civil engineer stationed in Garhwal and I had a long conversation about the contested hydro-electric dam he was helping to design; I spoke with two young men who were working for telemarketing companies in Delhi; an elderly man discussed how the scourge of alcohol was contributing to out-migration). If I listed all these en route conversations, they would comprise a separate dissertation.

Like many researchers, I relied on intuition. By “intuition,” I mean those moments when the intelligence of the senses pierces through consciousness as insight, epiphany, or a core feeling.¹ While I had a set of concerns related to the circulation of ideas, people, seeds, commodities, power, and foods, I found fieldwork to be more like following a trail of emerging questions. This meant being as open as possible, pulling at the threads of footnote, not letting go of questions that haunted me, trusting “my gut” when deciding where and when to go and stay. This intuition guided me to be persistent in attempts to meet government officials, NGO leaders, and corporate or foundation representatives (even last minute cancellations informed me about how things worked) and I never regretted it—though I entertained my doubts en route as the passengers beside me vomited out the windows on winding mountain roads. However, relying

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¹ Merton and Barber (2006).
on intuition also means my own (socially situated) biases shaped the very “data” I collected and the manner in which I did. There is no getting around this, though in the process of writing and revising this work I have tried at the very least to recognize some of them and address them as I could.

Intuition led me to Gramsci’s grave one October morning when I was in Rome for the UN Committee on Food Security. I found out that he was buried close to where I stayed. Reading Gramsci has taught me that what I am calling “intuition” is historically situated. The fact that I was in Rome at all had to do with its significance in transnational food security negotiations. Reading Gramsci has also taught me that what I am calling “my intuition” might be better described as the education of my senses – through transnational mobility I have claimed all my life as a U.S.-born citizen, through having the formal educational opportunities an upper middle-class childhood in the New York suburbs affords followed by an informal education teaching in public schools in Mississippi and New York and working in rural communities abroad, through leaving academia to learn something of the world only to return to it for the same reason. These facts about me also shaped much of what I could and could not do during the course of research. For example, being a woman gave me more access to women’s spaces in the field, homes and forests; but at the same time, it often restricted my movements in spaces dominated by men, many of which were spaces of power.

I had tried to go one evening but the cemetery was closed. I had stuck the small bunch of flowers I had plucked among the branches of a tree by the entrance so it blended in with foliage. When I returned the following morning the cemetery was open, and the flowers were still on the tree. However, they had wilted and were obvious. I was relieved inside to find markers to his grave. Nonetheless, the path was not clear and at times I needed to simply make a decision about whether to go straight or turn. Walking the dirt paths, I remembered Alice Walker’s essay.

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about looking for the grave of Zora Neale Hurston, the education of her senses had so fine-tuned her ear. I thought about Gramsci writing in his notebooks, analyzing a moment of possibility for the Communist Party in Italy from within a fascist prison. I thought about the many people who have read what he produced, and how they have influenced this work. Some might have furthered what he saw as his project, and others might have turned it into something he would not have foreseen.

When I found his tombstone, it felt as if I had just stumbled upon it. He had had visitors. Rocks and stones were painted with his initials or his name. Some visitors had brought potted plants. It struck me then that his notebooks might well have not “existed,” had his sister-in-law not smuggled them out of prison when he died. They could have been burned. That they do exist one might relegate to chance, luck, coincidence, destiny, faith, the ways in which things are not just economic/ecological, but also indeterminate. This dwelling for the dead was plush with signs of life. Tombstones blended in with small boulders; grasses and wildflowers sprouted up out of every possible crevice; a tree was growing on Gramsci’s site; and the whole place had been taken over by stray cats. Noticing a warm human in their midst, a particularly well fed one strolled over and brushed against me.

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Appendix

**SOME EVENTS**

|“Long” | Pasts | *50 million years ago the Indo-Australian plate began its collision with the Eurasian... | *10,000 humans “domesticate” agriculture  
*around 7000 years ago humans begin to grow “millets”  
*around 4000 years ago humans begin to grow varieties of finger millet  
*1400s expansion of European Empires and Europeans wars throughout the world and Christopher Columbus calls corn “milho” (millet in Portuguese). |
|---|---|---|---|
|“Pasts” | *Part of Hindu epic Mahabharata believed to have taken place here  
*8th C Adi Shankara converts many Buddhists to Hinduism  
*“Millets” grown in mixed crop fields with dhals, oilseeds and other grains | *75,000 years ago evidence of anatomically modern human here  
major civilizations dating back thousands of years BCE  
*Region ruled by various dynasties that also engaged in various wars  
*1200s Delhi Sultanate founded by Central Asian Turks in north  
*1300s Sultanate declines as other powerful states emerge  
*1500s Mughal Empire begins  
*1700s Mughal Empire declines, and Maratha, Sikh and Mysore Empires expand  
*1600s British East India Company established trade in Bengal  
*1700s to mid-1800s various parts annexed by British East India Company and British win “Battle of Plassey”  
*1803 major earthquake in Garhwal  
1803-1815 Nepali Gurka rule  
*1815 British East India Company won war with Gurkas and took over rule of Kumaon and forged close alliance with Kingdom of Garhwal  
*1857 British Crown takes over rule from British East India Company, establishing systems of forced labor, taxation, forest control  
*massive deforestation of forests in Uttarakhand to build war ships and railroads and for export  
*1929 Gandhi writes Anasakti Yog in Kumaon  
*1940s anti-alcohol and Gandhian Sarvodaya movements expand | *British Empire becomes global driver of deforestation  
*Seed certification laws first created in the US to protect farmers, not industry  
*Anti-colonial liberation movements throughout the world  
*World War I  
*World War II  
*1944 Bretton Woods Conference launches a global restructuring  
*1940s multilateral institutions like the UN, World Bank, IMF, GATT created and GDP established as a global economic measure  
*US consolidates global power  
*1950s US Food for Peace Program  
*Monsanto produces chemicals and chemical weapons |
|Local (Kumaon and Garhwal) | National (India) | International/transnational |
|1960s | *Expansions of roads to border for military  
*1961 Indian government begins to draft plans for major hydro-electric dams in the area  
*Local farmers note decline of millet varieties | *Beginning of India’s Public Distribution System  
*US backs the expansion of agricultural universities throughout India, the first in what is now Uttarakhand  
*1962 India War with China at Kumaoni border and various military conflicts and wars within and at its northern border begin (and continue) | *Cold War and numerous related wars |
<table>
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<tr>
<th>Decade</th>
<th>Key Events</th>
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<tr>
<td>1970s</td>
<td>*India launches Green Revolution of high yield varieties. MS Swaminathan plays a key role&lt;br&gt; *India’s GDP gradually begins to rise&lt;br&gt; *1970 Patent Act excludes agriculture from patentability&lt;br&gt; *1974 India performs first nuclear bomb test&lt;br&gt; *India participated in war for Bangladesh to secede from Pakistan&lt;br&gt; *1974 the term “Food Security” officially coined at the FAO&lt;br&gt; *1978 International Union for the Protection of New Varieties of Plants (UPOV) seed certifications</td>
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<td>1980s</td>
<td>*Expanding “Chipko” anti-forest movement protests restricted forest access and commercializing forests&lt;br&gt; *1970s Chipko activists make dams a major point of focus&lt;br&gt; *Contract farming in parts of Uttarakhand&lt;br&gt; *1970 Patent Act excludes agriculture from patentability&lt;br&gt; *1974 India performs first nuclear bomb test&lt;br&gt; *India participated in war for Bangladesh to secede from Pakistan&lt;br&gt; *India’s GDP rises exponentially as it embraces a direct course of trade liberalization&lt;br&gt; *1998 India performs second nuclear bomb test&lt;br&gt; *Claude Alvarez accused Swaminathan of the great gene robbery and giving away 20,000 local varieties of Indian rice&lt;br&gt; *1984 Massive gas disaster caused by Union Carbide Pesticide Plant in Bhopal; forging networks of activists across India&lt;br&gt; *1986 India passes Environmental Protection Act&lt;br&gt; *1987 Uruguay round of GATT begins&lt;br&gt; *1991 UPOV makes rules more restrictive on farmers, provoking protests (continuing today) throughout the world&lt;br&gt; *1992 Convention on Biodiversity (CBD) established to safeguard biodiversity and related “traditional” knowledge&lt;br&gt; *1993 the transnational peasant network La Via Campesina forms in Mons, Belgium.</td>
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<td>1990s</td>
<td>*1991 earthquake in Garhwal&lt;br&gt; *Some Chipko activists and others in the region begin to turn attention to seeds and form Beej Bachao Andolan (Save the Seeds Network) in response to GATT.&lt;br&gt; *Vandana Shiva’s organization Navdanya forms in Garhwal (and nationally) also in response to GATT, and develops seed bank of local varieties.&lt;br&gt; *1997 India signs Convention on Biodiversity (CBD)&lt;br&gt; *1992 India passes legislation to re-invigorate local forms of governance (panchayat system)&lt;br&gt; *India’s attempt to change patent law regarding agriculture meets with widespread protest, helping to incorporate farmers’ rights into India’s later WTO-compliant sui generis legislation&lt;br&gt; *India’s GDP rises exponentially as it embraces a direct course of trade liberalization&lt;br&gt; *1998 India performs second nuclear bomb test&lt;br&gt; *1991 India signs Convention on Biodiversity (CBD)&lt;br&gt; *1992 India passes legislation to re-invigorate local forms of governance (panchayat system)&lt;br&gt; *1993 the transnational peasant network La Via Campesina forms in Mons, Belgium.&lt;br&gt; *1995 Uruguay Round of GATT ends and World Trade Organization forms out of GATT with the goal of “reducing barriers to trade.”&lt;br&gt; *Tariffs on agricultural commodities are significantly reduced, embedding them further in global trade&lt;br&gt; *Transgenic seeds are commercialized&lt;br&gt; *Corporations consolidate power over the global food system&lt;br&gt; *Monsanto biggest seed producer in world&lt;br&gt; *UN Summit declares goals including to eradicate extreme poverty and hunger and achieving gender equality&lt;br&gt; *UN launches “Zero Hunger” campaign&lt;br&gt; *2001 ITPGRA or international “Seed Treaty” established to protect farmers’ rights&lt;br&gt; *2001 La Via Campesina announces seeds as one of its main foci (“Our Seeds Our Future”)</td>
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<td>2000s</td>
<td>*Uttarakhand becomes a state after a decade of struggle&lt;br&gt; *Uttarakhand declared an “organic state”&lt;br&gt; *Uttarakhand establishes tax free/low tax industrial zones to attract business&lt;br&gt; *Tehri Dam completed after 30 years, over 100,000 people were relocated; towns and villages, and large swaths of forest were submerged&lt;br&gt; *Migration intensified and now whole families leave for towns, so&lt;br&gt; *2001 Indian activists launch Right to Food movement in connection with a transnational network of RTF movements&lt;br&gt; *2001 India passes its sui generis Protection of Plant Varieties and Farmers Rights Act (PPVFR), among the most protective of farmers’ rights&lt;br&gt; *2002 Freedom of Information Act (Right to Information)&lt;br&gt; *2002 Biodiversity Act and Indian government forms National Biodiversity Authority&lt;br&gt; *Monsanto biggest seed producer in world&lt;br&gt; *UN Summit declares goals including to eradicate extreme poverty and hunger and achieving gender equality&lt;br&gt; *UN launches “Zero Hunger” campaign&lt;br&gt; *2001 ITPGRA or international “Seed Treaty” established to protect farmers’ rights&lt;br&gt; *2001 La Via Campesina announces seeds as one of its main foci (“Our Seeds Our Future”)</td>
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many villages becoming “ghost towns”
*Uttarakhand becomes the second fastest state economy in India
*Beej Bachao Andolaan begins to turn special attention to millets because of biodiversity loss and information that the government plans to disseminate packets if industrially produced millet seed with chemicals.
*Beej Bachao Andolaan connects with Millets Network of India
*US and Delhi-based business processing companies outsource labor here creating jobs

2004 India drafts controversial Seeds Bill that works against many of the farmer protections in the PPVFR
*2005 India passes law to expand tax free “SEZ” or Special Economic Zones (strongly linked to local land dispossession) for industry
*2005 India passes National Rural Employment Guarantee Act
*2006 India passes Forest Rights Act
*2006 Hindu Succession Act legislated gender equality in land inheritance
*2007 Millets Network of India (MINI) forms out of Deccan Development Society (DDS) in Andhra Pradesh (also linked to La Via Campesina).
*National urban market for millets grows
*MS Swaminathan Research Foundation conducts studies on millets throughout India

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*US and Delhi-based business processing companies outsource labor here creating jobs

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*MS Swaminathan Research Foundation conducts studies on millets throughout India

*the term “BRIC” (later BRICS) coined to describe emerging economies including India that now produce 20% of the world’s Gross World Product
*2006 Gates Foundation and Monsanto Corporation and other partners launch plans for “AGRA” or a “Second Green Revolution in Africa,” which promotes hybrid and transgenic varieties of marginalized food grains for small farmers
*2007-2008 Food prices spike erratically, causing “food riots”
*ICRISAT launches Project HOPE to “harness” millet and sorghum production in Asia and Africa in the face of drought
*Global elite market for millets grows

2010s

*2013 a “cloud burst”
*US and Delhi-based business processing companies move labor to other places or experience problems from rapid growth and pull out, contributing to unemployment
*2015 construction of more branches of State Banks on motor roads

*Delhi area becomes home to offices of half the world’s Fortune 500 companies
*9 million fewer farmers than a decade before
*2011-2012 Indian government launches Initiative for Intensive Nutritional Security through Millets Promotion (INSIMP)
*2012 the Global Hunger Index ranks India 66th out of 81 countries.
*The civil society Environmental Support Group files a public interest lawsuit against the National Biodiversity Authority citing the Biodiversity Act resulting in a moratorium on transgenic field trials.
*2013 the Seeds Bill and the Biotechnology Regulation Authority of India (BRAI) Act promote industry interests and undermine farmers’ right
*2013 Nalanda, Bihar cites record yields through organic grain production
*2013 National Food Security Act includes millets
*Millets Network of India begins seed sharing with Senegal as part of efforts to launch an Afro-Asian Millets Network
*2014 number of farmers in India falls in absolute numbers for the first time
*2014 BJP candidate Modi wins election
*2014 MS Swaminathan, father of India’s Green Revolution, promotes “Evergreen Revolution” and advocates for both transgenic technologies and

*2011 The Second Committee of the UN reports that the conditions of those people living in extreme poverty in developing countries has declined and cites rural development to be of critical importance
*UN launches “Zero Hunger” Campaign
*2014 India’s Food Security Act and subsidies for farmers creates stalls WTO trade agreement in Bali
*2014 at UN Climate Summit agriculture is listed as a key area of concern and action
*Civil society groups protest the “Global Alliance for Climate Smart Agriculture” as being ambiguous and industry-friendly
*2015 UN Framework Convention on Climate Change (COP21)
agrobiodiversity including in millet production
*National seed network declares its official formation after India announces transgenic field trials will begin
*2015 Indian government employs eminent domain law to seize land for industrial “agriparks”
*2015 MS Swaminathan holds conference for “mainstreaming millets in India”
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