

MATERIAL IMAGINATION OF THE OREGON FLAX INDUSTRY

by

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Abstract

Commercial flax-to-linen production went through boom and bust in the Willamette Valley, Oregon over a period just shy of one hundred years (1876–1962). Multiple small attempts at recovery between early 1990–2010 tried and failed to re-establish the industry; yet commercial flax-to-linen production is once again undergoing an early-stage revival. Through historical research with primary and secondary materials, ethnographic research alongside the contemporary efforts, and image-based analysis, this essay makes a contemporary contribution to flax-to-linen history in the region and suggests an interpretation of recurrent hopes for revival as an impulse to resolve the haunting conditions of ecologies, and socio-ecological relations, in a post-industrial world.

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Introduction

Flax in Oregon

The domesticated flax plant (*Linum usitatissimum*) yields fiber for producing linen thread and cloth. The first recorded agricultural sowing of flax in Oregon was in 1844 (settlers brought seed) and an early spinning mill opened in Albany in 1877, then another in Scio in 1890. In 1942, at the height of production, 19,000 acres of flax were harvested and 37,000 short tons of flax processed. Oregon was the main producer of flax/linen in the U.S. until post-WWII, when the industry took a hit; the last mill closed its doors in the early 1960s.

The environmental and cultural history of commercial flax-to-linen production in Oregon is—once you know where to look—well-kept in archival databases, historical societies, and regional museums. But the tale of flax in Oregon has been one of boom and bust, subject to abandonment. Machinery was left to rust, old mill buildings have faded out of recognition, and oral accounts remain scattered. More broadly, the succession of agricultural land stands uncertain: farmers are an aging demographic and, statistically, few young people show serious interest in working the land.

Flax, once a prized crop of Oregon, has been all but forgotten in the Willamette Valley, though it has faced multiple attempts at recovery in the last two decades. Excitingly, commercial flax-to-linen production is once again undergoing an early-stage revival effort as a promising low-input and impact crop/cloth for the 21st century, with Oregon at the lead for its ideal growing conditions.

What is a fibershed?

Midway through fall of 2017, attending classes at Lewis & Clark College, at that point over a year into an intense time of personal healing, I found myself unable to string thoughts and words together. All parts of my body were demanding more rest, more time for digesting my days, my haunting memories, and the task of rebuilding present experience alongside others. I was left without capacity to empathize with the abstract content of required readings. I found myself faltering on assignments, then dropping classes, and searching, praying, for another way forward.

2018 welcomed me to a life alongside a mother garden in west Sonoma County, California, a region stretching the western outskirts of the northern San Francisco Bay Area's techno-frenzy, and unconscionable wealth. "West county," as locals call it, is rich in both capital and hundred-acre parcels of rural-type rangelands. Economically manageable because of its proximity to a large market of wealthy customers, Sonoma County has developed as a diversified small-scale agrarian economy, rich with dairies, famous cheese-makers, wines, meat markets, fresh produce, heirloom grain growers, and, as a result, a hotspot for agrarian visionaries and idealists.

Through accidental meetings and invitations from the networks of people who had brought me to the garden, I began to pay attention to a social movement for the revival of natural fiber and dye materials with a small non-profit, Fibershed, at the helm. Fibershed¹ began with one quiet, steadfast, and capable woman named Rebecca Burgess after her one-year experimental foray into

¹ See <https://www.Fibershed.com>

procuring a wardrobe from strictly within a 150-mile radius of her Northern California home. Now grown to a staffed non-profit, fifty or so international self-organized affiliates, and a for-profit wing, ² Fibershed is a locus for folks dreaming of new ways of doing human economy in relation with landscape.

The neologism “fibershed,” composed by Burgess, drew on the geographic imagination of a “watershed” to suggest that all factors of clothing production occur within a regional radius. A fibershed, then, is an imagined relational web made by the fibers and colors of our clothes and tools. Fibersheds are material geographies woven between places, human people, nonhuman people by the histories and hopes of the acts of making and wearing and disposing of our clothes over the course of decades, lifetimes, generations, and millenia of global change.

Yet Fibershed leaders like Shannon have realized that the original concept of a fibershed as production within a radius of a few hundred miles could not function as a pragmatic model for launching regional fiber systems able to participate and compete within existing marketplaces. If they were interested in building regional textile systems, they would have to work with standard pathways of production and consumption to develop and coordinate across regions.³ In today’s global economy, no one region, realistically, could start up on its own.

The term as-strategic-model has morphed into a new one: the “shed economy.” Shed economies specialize according to regional resources and expertise; they exist within the capitalist free market, but with support from the Fibershed non-profit; and they collectively represent an effort at achieving an ecologically beneficial system of textile production.

Refreshed with ten months of quiet, rhythmic stewardship of the garden and newly motivated by burning curiosity about the fibershed concept and organization, I returned to Lewis & Clark College for the space and guidance needed to define and pursue social research.

Back in Portland by early 2019, I began sitting in on wool-spinners gatherings. Having not grown up with any sort of fiber crafts in my family, save that my mother and her mother were both professional seamstresses before I was born, I had no idea that so many people knew how to hand-spin. It’s not such a public activity in North American circles, it seems, and I started imagining the spinners as a hidden secret of our times. Just as the old moon keeps waves lapping, tide after tide, on Earth’s shores, the spinsters gather together once a month in the evening and then disperse home, quickly as they came. I repeatedly heard from them, in conversations and a couple semi-formal interviews, that there was no economic purpose to their practice, and they never expected there would be; wool goods wouldn’t make them any money, around here. Nevertheless, they would continue raising lambs, shearing, washing, carding, roving, spinning, knitting and weaving. It was beautiful to be alongside, and I began to learn to spin wool on a drop spindle. But there was something about the conversations about building regional natural fiber economies that struck me, during those conversations in Northern California, that wasn’t showing up within the spinning circles.

² See <https://www.fibershedmarketplace.com>

³ This point comes from my own observations of the organization, publications such as the National Mill Inventory Report (Burgess et al. 2016) which sought to map mills in North America for utilitarian purposes, and conversations with Shannon Welsh (introduced shortly) a relatively close colleague of Rebecca Burgess within Fibershed.

I sent an email to Shannon Welsh, founder of the Portland-based Pacific Northwest Fibershed⁴ (“PNW Fibershed”) affiliate group. Shannon is also co-founder, alongside a skilled farmer Angela Wartes-Kahl, of a business called Fibrevolution⁵ intent on revitalizing flax-to-linen production in North America. Shannon replied with enthusiasm, and an enduring conversation between us began.

Shannon Welsh has lived most of her life in and around Portland, coming from a farming family in North Dakota.⁶ Fearless optimism shines through her eyes, though she’s weathered plenty of uncertainty in the last half-decade of self-employment. Finding dissatisfaction with her work in conventional design and textiles, Shannon began dedicating her time to extensive research into how flax-to-linen production would succeed at commercial scale. Shannon is upbeat, and a light-hearted laugh comes easily, even if it’s with an admission about how hard it is to keep going sometimes.

Research methodology

Inspired by an ongoing conversation with Shannon, my research methodology and questions came together. My primary task was to gain a comprehensive understanding of the history of flax agriculture and linen production in Oregon. In early summer 2019, Shannon shared an online Dropbox folder with me documenting the materials from her research (5+ years) to date. I scoured the digital folder, pouring through scans of photographs from archives throughout the State, spreadsheets charting the amounts of fiber-flax acreage sown and harvested between 1925–1939, and started to familiarize myself with names of key players and materials retained in historical records of flax in Oregon.

Starting in early July, I conducted a total of five semi-formal recorded and unrecorded interviews with Shannon, totaling at least six hours of transcripts, and accompanied her to one public flax demonstration in early September, which connected me with photographers and textile designers promoting flax via contemporary images (taken at events like that one) and curating historical images.⁷ I also made visits to peek in the windows and meet residents at a historic mill site in Canby with the only known remaining processing equipment in the region.

Shannon connected me with multiple other contacts who, because of time constraints, I did not get to meet in person; I will mention two briefly, and introduce them later. Ralph Fisher is a farmer connected with Fibrevolution who planted fourteen acres of flax to grow out seed stock in 2018 that succumbed to drought. Dr. Jennifer Kling, an independent seed breeder in contract with Oregon State University, has been breeding flax varieties acclimated to Oregon climate, and witnessed the last attempt at industry revival, around 2010 (before Fibrevolution).

Through mutual connections, I also reached out to connect with Kyla Sjogren via her Instagram account. She is a textile artist experimenting with flax at her home studio on the Oregon coast, in Seaside, with something of a textile community social media following. She responded

⁴ See www.Pacific-Northwest-Fibershed.com

⁵ Pronounced “fiber evolution”

⁶ Incidentally, Shannon tells me her family grows oilseed flax. It informs her position as a visionary: “There are lots of waste byproducts. I think a lot of people *would* shift to fiber if the market—it’s all about what the market will pay you.”

⁷ “Flaxen”, curated by Matthew Cowan, features hand-tinted glass lantern slides showing scenes of flax in Oregon during the early 1930s, from the Portland School Collection. On exhibition at the Oregon Historical Society (1200 Park Ave., Portland, OR), October 8, 2019–March 31, 2020.

enthusiastically, inviting me to visit in late August to accompany some of her flax process. We conducted a 1.5-hour recorded semi-structured interview, and have stayed in touch over email.

My planned methods included original film photography, but in a comical fluke due to my own amateurity—I'm completely self-taught, and that has its limitations!—I performed but did not actually capture sixty exposures across two rolls of film. The surprise initially was a bummer, then welcome: it led me to decide to give greater attention to the representative function of image. Part III of this essay is constituted by image-driven analysis from a careful selection I made from images of flax circulated in both historical and contemporary times. Curating and interpreting others' work proves a rich source of theory on the material imagination of flax, impossible without my utter foolishness!

Fiber-flax

If you haven't thought twice about your linens or the material processes that went into producing them, you wouldn't be alone. "I work with people that don't understand that linen comes from the flax plant," says Kyla Sjogren, who works in the textile design department at a multi-million dollar outdoor clothing company. She continues: "For myself, I've spoken up at work about how linen is produced because I've watched videos of it, but I've never, you know, even seen a flax plant."

The word *linen* that we use today is of West Germanic origin, the cognate of Latin *Linum* (now the taxonomic classification of the flax genus) and earlier Greek λ ι ν ό ν (linón). In Old English, *linen* literally meant "made of flax." And, in a beautiful show of how flax has long been a companion to our human projects, the word *line* is of the same etymological root, from the use of flax fiber in ancient times to determine a straight line.

I use "flax" to refer to the one agriculturally cultivated species, *L. usitatissimum* in the *Linaceae*/Flax family.⁸ However, there are nearly two-hundred recognized species within the genus, *Linum*. Scholarship from the disciplinary fields of genetics and archaeology currently pinpoint the origination of cultivated flax to one domestication event roughly 10,000 years ago in the Mediterranean Near East (Zohary et al. 2012) from the wild pale flax, *L. bienne* (Allaby 2005); flax was one among many other plants agriculturally appropriated during the fertile period following the end of the Last Glacial Period.⁹ Over time, humans likely collected seed from individual wild pale flax plants that exhibited less "capsular dehiscence"—the essential strategy by which angiosperms (flowering, seed-producing plants) let their seed pods disintegrate and spread their seed. Keeping intact seed pods or fiber structure for greater lengths of time, scholars suggest, would have made that flesh more reliably available to humans (Fu 2011).

Within the cultivated flax species are multiple varieties bred for one or another particular traits such as fiber length and quality, seed production, or climatic hardiness. For instance, fiber-flax varieties selected for their height grow to over a meter/nearly four feet tall.

⁸ In another etymological side note, *usitatissimum* translates to "most useful". So, we can interpret *L. usitatissimum* to mean something like "most useful line".

⁹ Earliest evidence of flax spinning currently dates to 30,000 years ago, from archaeological remains in present-day Republic of Georgia (Kvavadze et al. 2009). Such evidence leaves scholars to estimate that weaving clothing from flax predates agriculture (Zohary et al. 2012).

The strong, tensile fiber sought after for spinning into thread and cloth are the thin threads of once-alive vascular phloem tissue stretching the full length of a flax stem. Phloem tissue grows in thin and supple strands to distribute sugars produced in photosynthesis throughout the plant's flesh. Xylem tissue, in complement, is like a straw, transporting water from the roots upward. That water-transport straw constitutes the stalky core of a plant, serving a structural purpose; we feel it as 'woody' material.

The term "bast" fiber broadly refers to the class of fibers derived from plants. Flax is a bast fiber, and so is hemp; describing both plants as yielding bast fiber is not to confuse them as close plant relatives (they are not), but instead to relate the process/equipment required to adapt their cellulosic fiber for human use.

From flax to linen

Shannon, co-founder of Fibrevolution, often reminds me that procuring high-quality fiber from flax, a process of many stages, starts with how it's grown.

Densely sowing fiber-flax ensures that its fibrous stalks grow straight, and it does not require intensive irrigation or excessive fertilizer inputs to grow successfully in the Pacific Northwest. Trials in the last few decades out of Oregon State University demonstrate that Oregon's climate is conducive to two growing seasons. Flax is a 100-day crop usually spring-planted to be harvested by late summer. In Oregon, it can also be overwintered, sown in fall and harvested in early to mid-spring, and this further cuts down on irrigation needs.

When the flax field is roughly one-third green (stalks are supple and in flower) and two-thirds brown (flower has gone to seed), flax stalks are pulled up by their roots, rather than cut, to preserve the length and integrity of the fiber. Industrial pullers have been in development since the early 20th century, and contributions were made by innovators in the North American fiber-flax industry at the time that traveled back to Europe (and continued in development there, as the North American industry collapsed). Flax grown in North America today must be hand-pulled because of a lack of harvesting equipment.

Once the flax is pulled, it will be *rippled*—the seed pods adorning the tops of the flax stalk are removed. Where commercial planting does occur, industrial harvesting equipment have de-seeders that pull, ripple and collect the seed (to be seed stock for next season planting) all at once.

The next crucial process for producing high-quality fiber is *retting*. A cognate with *rot*, retting is the process of allowing enzymatic action to begin breaking down the lignin and pectin (binding proteins) within the flax stalk, releasing the inner fibers from the stalk's woody core and outer flesh. There are multiple ways of doing so: dew-retting or field-retting allows the moisture content and biochemistry of soil and air in the field to rett the flax, taking a total of six weeks (turned over once at three weeks). Tank-retting at industrial scale expedites the process to about seven days, but leaves tanks of stinking, standing water. Some innovative companies in recent decades have even attempted to synthesize an enzymatic process—without much success. However they are retted, when done properly the flax stalks will no longer be a sturdy golden color, but a brittle grey.

The brittle flax stalks are then round-bundled to keep them unidirectional—that is, all roots and tips aligned—and readied for the next processes: *breaking*, *scutching*, and *hackling*. At industrial

scale, these three processes are sited in the same facility, called a scutching mill.¹⁰ The flax bales are unrolled into machines—called flax brakes—that will pound and bend the flax to break the woody material that falls away (called shives) to release the stalk’s inner fibers.

After the braker, flax then moves through a scutching machine designed with paddles to beat and whack the broken flax to knock the woody material away. The fiber that’s left is then hackled, a process of combing long-line fiber from shorter tow fiber. This begins differentiating flax fiber into different grades. Long-line fiber is the material used for weaving high-quality linen fabrics; tow fiber, shives, and dust all have use, too, after capture, and can be directed toward a bio-composites market for products such as bioplastics. At last, long-line fiber is ready to be shipped to a spinning house to be drafted (readied for spinning), spun, and beyond that woven or knit, depending on wherever it goes for cloth.

Revitalizing Oregon industry: Haunted hope

I must make clear to the reader that this essay is the result of extensive preliminary, descriptive research into the historical and contemporary presence of flax in Oregon. I will remind the reader that the industry, being subject to sudden abandon, holds a fragmented history, and therefore my descriptive and explanatory work linking present and past times represents a meaningful scholarly contribution, and an update to previous theses (Tobin 1960; Wyatt 1994). Secondly, I suggest an interpretation of the recurrent hope as one characterized by haunting.

As such, my research questions were as follows:

- Why did flax agriculture and linen production (1877–1952) ultimately decline in Oregon?
- How have flax land and mill sites been used/transformed/historicized since?
- How might we envision the revival of flax, a next generation of farmers, and industry in Oregon?

I address the first question in Part I. In all sections, but especially II and III, I address the second. Finally, I introduce my approach to the third in this section, then address it further in Part III and the Conclusion. As with all research, these questions are ongoing and will always benefit from continued research beyond the scope of this essay.

Haunted hope

Burgess’s original concept of a fibershed evokes bioregional thinking. Coined by Canadian poet Allen Van Newkirk and first popularized by authors Peter Berg and Raymond Dasmann in their essay, “Reinhabiting California” (1977), bioregionalism is a theoretical premise within radical environmentalism that “emerged from a particular social context [of] environmental degradation in Northern California” (Taylor 2000, 63).¹¹ Bioregional thinking suggests redrawing political boundaries of human settlement to localized, ecologically-defined domains. In this impulse is a utopic idealization of indigeneity—“reinhabitation,” in Berg and Dasmann’s popular terms

¹⁰ In Oregon history, tank-retting facilities were incorporated in the design of scutching mill sites; “processing facilities” is henceforth synonymous with “retting & scutching mills”.

¹¹ Northern California and the Pacific Northwest have been subsumed in a bioregion called “Cascadia”, i.e., this region has long been home to utopians. See, for example, Ernest Callenbach’s *Ecotopia* (1975), circulating at about the same time.

(1977)—motivated by dystopian imaginations of late industrial, globalized social systems.¹² “The bioregional mandate [is] to settle in a place and learn its lore, spirits, and proper lifeways” (Taylor 2000, 59).

Popular and scholarly authors determine the following features as identifiers of bioregions (Taylor 2000, 61): watersheds, cultural/phenomenological markers “where people perceive their homes and regions,” geomorphological land-forms, elevation, and “spirit places.” Some (watersheds, cultural/phenomenological markers) more strongly resonate with the fibershed typology than others. The fibershed concept does significantly differ from classical bioregional thinking in that, unlike the classic, it is not deployed as a framework for political exclusivity. The adapted pragmatic fibershed concept (mentioned above) even goes so far as to strategically incorporate itself into the economic and political networks of modern economic production, leveraging bioregional thinking only as a tool for narrating its organizational mission.¹³

“What kind of case is a case of a ghost?” asks Avery Gordon in *Ghostly Matters: Haunting and the Sociological Imagination*. “It is a case of haunting,” she continues, “a story about what happens when we admit the ghost—that special instance of the merging of the...past and the present—into the making of worldly relations and into the making of our accounts of the world” (Gordon 1997, 24).

The contemporary hope of revitalizing a flax-to-linen industry in Oregon is haunted, but its ghost is not merely the shadow of one or another instances of abandonment: a 1962 mill with the lights flicked off, one too many untimely accidents. “If haunting describes how that which appears to be not there is often a seething presence, acting on and often meddling with taken-for-granted realities, the ghost is just the sign...that tells you a haunting is taking place.” (Gordon, p. 8). The ghost I see is the dissonance of hope within abandonment—and it is a dissonance that has recurred many times over, for many different people. The case of a ghost “is often a case of inarticulate experiences...It is a case of modernity’s violence and wounds, and a case of the haunting reminder of the complex social relations in which we live” (Gordon 1997, 25). The presence of flax is one of absence.

What follows is a ghost story. Attempts are made to spot ghosts, not overlook them. Following ghosts of images and imaginaries to their abodes, we find that the imaginations of flax point to a haunted hope in people seeking to remediate relations with ecologies, lands, and suppressed lifeways, by way of changing the social systems producing the fibers that clothe our skin.

¹² My ideas about utopia/dystopia as a dichotomous duo come from conversations with Professor James Proctor at Lewis & Clark College, as well as the following publication: Proctor, James D., and Evan Berry. 2011. “Ecotopian Exceptionalism.” *Journal for the Study of Religion, Nature and Culture* 5 (2). <https://doi.org/10.1558/jsrnc.v5i2.145>.

¹³ Shannon and I frequently discuss the contradiction of Fibershed both deploying bioregional thinking and a relatively mainstream economic strategy (e.g., trade ties with other regions, as well as legal negotiations and partnerships with the State) as being a problem for many more general members to understand, who are expecting, and searching for, a Fibershed that succeeds in the utopian bioregional model.

Part I: A cultural history of Commercial Flax Production in Oregon

Chapter 1: Uncovering a faded industry

I heard it from an old mill

Just outside of Canby is what's left of the last flax mill in Oregon to close its doors. Built in 1936, less than two decades before the industry collapsed in Oregon, it is one of the few mill buildings still standing, and holds some of the only known remaining processing equipment. The mill sits at the edge of the Canby-Marquam regional highway, a stretch of road with relaxed traffic, because it is out of reach of the city business to the north.

It was a late summer afternoon when I first searched for the old mill. Shannon had passed along directions that led me to a nonspecific quarter-mile stretch of land along the east side of the highway. I drove my rumbling old Jeep, parked at the side of the road and walked back and forth a bit along that old stretch of highway to find out what was what.

Canby is at the northmost end of the hundred-or-so mile-long Willamette Valley, but seems ready enough to tell of the valley's full character. It's grassland—with cropland and industrial businesses, too—that fills up fecund with rain in winter. When summer comes, that moisture has sunk deep through the roots into the belly of the soil. You almost wouldn't know it, for the tips of grass get parched and turn golden.

The historical mill site is now split into multiple private lots. Two of the back lots are owned by current manufacturing businesses; concrete slab still lies there, the foundation of the old scutching mill that burned down. The two lots nearer to the road are owned by families. On the southmost one stands a corrugated metal barn, once holding machinery, and you can just make out a few faded red letters spell "Clackamas Flax Growers" on the southern wall.

Further south on the property sits a long wooden barn. The broad side must measure close to two-hundred feet, and something like fifty wide and, comparing it with other historical images, it must have been a storage barn for flax bales between harvest and processing at the mill. But it's hard to tell what's left there—you can't peek in. A necklace of barbed wire, blackberry brambles, and a rusted lineup of 1950s Studebakers dutifully stand watch, reminding me of a fairytale: mirthful furniture animates the beast's spell-bound castle, awaiting the love of beauty.

There is something of a fairytale past to flax in the valley. Beginning in 1936 through the early 1950s, a flax festival paraded the streets of Mt. Angel and then the State capitol, Salem. There were plays and scutching dances, children dressed up as flax angels and women were crowned flax queens. A monk at the Benedictine Abbey was even crowned the "Father of Flax". The mysticism may come with flax, Shannon tells me; everywhere she travels in Europe (Belgium, the Netherlands, Ireland) to shadow their commercial flax-to-linen economy, flax inspires such an imagination.

On the northmost roadside property is what looks like a very big two-story house from the outside, but with an exhaust pipe coming out the top. This is the old mill Shannon has been telling me about; in the early 1980s, a man named Daryl had returned from serving in the Vietnam War

and decided to invest in real estate.¹⁴ He bought that property along with many others, initially without looking; when he finally visited, he was amazed to discover what was in the building that still stood.

The Clackamas Flax Growers, or the Canby Mill, is rumored to be the last mill to cease operations in Oregon around 1962. Fiber is still strung through the machines, now covered with the dust and weather of sixty years. “You’re walking around and it feels like they just turned the lights off...” Shannon had said. “You’re standing there where people were standing, probably in 1962, and then never again.” The abandoned mill will stay for years to come; before he passed in early 2019, Daryl filed with the U.S. National Register of Historic Places to preserve the site.

Overview: Oregon fiber-flax history

1865 marked the first year of commercial flax production when Pioneer Oil Company, headquartered just south of Salem, began sowing fields of flax for linseed oil. By 1873 they had 6,000 acres under contract, and by 1876, the first Oregon fiber-flax processing plant in record—the Mears, Parrish and Miller plant—was built in Jefferson, just south of Salem, to process the flax straw.

It is not commercially standard to grow a flax crop for both flaxseed and fiber at once because harvest time and genetic variety requirements differ between the two. Flax is harvested earlier for fiber and later for seed; varieties are selectively bred to grow taller for fiber and stalkier for seed. The flax straw processing plant was likely something of a test operation, processing the fiber from the flax grown for seed just because it was there. It did, however, output at about 450 pounds of finished product each month, perhaps flax twine.

The fiber was surprisingly high quality, so the mill sent a sample from Pioneer Oil Company flax for exhibit at the Centennial Exposition in Philadelphia. The submitted fiber was praised with high marks for its “extraordinary length, superior gloss and silky finish” and took home a bronze medal. With that, Oregon, and the Pacific Northwest region more broadly, gained attention as a potential epicenter for flax agriculture and industry in the American West (Wyatt 1994, 154).

And so it was. A commercial flax industry persisted over the next seventy-five years until the mid-20th century in the Oregon Willamette Valley. But constant fluctuation between promised success and recurrent downturn characterized the industry for its duration, and convergence of factors after the Second World War led to the collapse of flax-to-linen production in Oregon.

A handful of scholars have since contributed toward recreating a historical chronicle from industry reports, photography, oral accounts, and other forms of documentation. Among them are differing interpretive conclusions (interesting differences appear in hopeful vs. neutral connotations) as well as telling consistencies, especially in interpreting the principal challenges haunting Oregon fiber-flax production throughout its history and their convergence, to its end.

One of the first scholarly investigations into Oregon fiber-flax production history was a graduate thesis by Louise Agnes Tobin, submitted to the Oregon State College (since renamed Oregon State University) in 1960. She investigated primary materials—newspaper clippings, industry reports, agricultural data, and other materials in public record, even including scans of linen fabrics and flax twine in her project’s pages. Writing at the far end of the WWII boom, her

¹⁴ This is a different Daryl than Daryl Ehrensing at Oregon State University, discussed later.

thesis ends on a hopeful note: “A market for linen products does exist but needs development through education and salesmanship to overcome misconceptions and to establish a recognition of the value of linen products... This writer feels that... flax can regain its place in the fiber market and the State of Oregon holds a potential for a recognized linen industry” (Tobin 1960, 141).

Decades later, masters candidate Steven Wyatt published another extensive review of the Oregon flax industry, this time with a more neutral tone. Wyatt highlights the multiple challenges faced by the industry that culminated in its later years, such as a lack of grading standards to give proper market value, competition with synthetic substitutes, high cost of labor, and highly flammable mill settings as vulnerable to damaging fire disasters—all issues identified by earlier publications (Rada and DeLoach 1942; Hill and Price 1946; Hurst et. al. 1953; Tobin 1960). Wyatt makes two points that distinguish his interpretation from others: first, that the industry was tied to large-scale government investments, and second, that the industry suffered recurrent instability, even within those moments of strong government support, from multiple factors outside of itself.

Chapter 2: “Flax fever” and government action

Historian Steven Wyatt quoted it “flax fever”—contagious enthusiasm for the flax industry that spread among individuals with ties to wealth and politics, at multiple junctures, inspiring them to stimulate wider public attention and mobilize the government sponsorship that, in hindsight, was essential to keeping the fiber-flax industry afloat throughout the decades.

Enthusiasm (early years)

Around the year 1890, Juliette Lord, wife of Governor William P. Lord, felt inspired to campaign for a fiber-flax industry in Oregon. Some historians have conjectured that her inspiration drew on her family history and her position of prominence in the upper-class political circles of Salem; Mrs. Lord was a descendent of colonial New England flax growers. Louise Agnes Tobin figures it possible that, along with others, “Mrs. Lord’s interest was aroused by the Philadelphia Centennial award and her foresight for an industry brought about by her first-hand knowledge of the state institutions where she saw a two-fold possibility—employment for the inmates of the state penitentiary and birth of a state industry, utilizing an agricultural resource” (Tobin 1960, 15-16).

Mrs. Lord circulated her idea in the state capitol of Salem, likely among wealthy families and members of politics, and traveled out of the state capitol to give presentations to the Portland Chamber of Commerce and the Women’s Club of Portland. The Portland Chamber of Commerce did not engage with the proposal at the time, though they would later (in 1923) prove to heavily support the industry by purchasing twelve Vessot flax pulling machines (the latest mechanical innovation supporting flax harvest) for use throughout the Willamette Valley. In Mrs. Lord’s time it was the Women’s Club of Portland—a collective of nearly ninety prominent Portland women (Tobin 1960)—that took an immediate interest in promoting flax. They called a special meeting on March 5, 1897, during which they established The Women’s Flax Fiber Association and quickly moved to form a corporation that would sell stock, so the group imagined, to raise the capital needed to catalyze an industry. Signees included some of the wealthiest in Portland. Funds raised were loaned out to farmers for purchase of seed and invested in harvesting machinery and processing equipment installed at the State Penitentiary in anticipation of the Women’s Club following through with Mrs. Lord’s vision to establish a mill at the prison.

The association lasted a mere five years. In 1902, at the annual stockholders’ meeting “called by President Mrs. H. L. Pittock, [it was decided] the property of the Women’s Flax Fiber Association would be turned over to the state.” Historian Louise Agnes Tobin later uncovers in her 1960 graduate thesis: “At this meeting, all the work of the Association was shown and the statement made that no part of the world could surpass Oregon flax in quality, the climate was ideal for growing...but that experienced labor, machinery, and equipment were much needed” (Tobin 1960, 18). Though the Women’s Flax Fiber Association was a short-lived and idealist effort, Mrs. Lord was said to have persisted with her campaign until her death in 1924 and it is conceivable that the group’s collective impact propelled later developments.

Progress proved slow. The processing equipment would sit at the penitentiary for over a decade with no further action until, in 1915, the Oregon State Legislature (at the interest of the governor in office at the time, Gov. James Withycombe, but certainly also inspired by Mrs. Lord’s initial campaign idea), \$50,000 dollars were allocated to launch the processing plant at the State

Penitentiary, officially named the State Flax Industry (Rada and DeLoach 1942, 81-82). Flax processing was a costly enterprise but, perhaps for its use of inexpensive labor at the prison, the plant would become financially viable by 1923. Despite significant political complications surrounding the ethics of prison labor in the late twenties, it would prove to be the steadiest fixture of the Oregon flax economy, in operation until 1955.

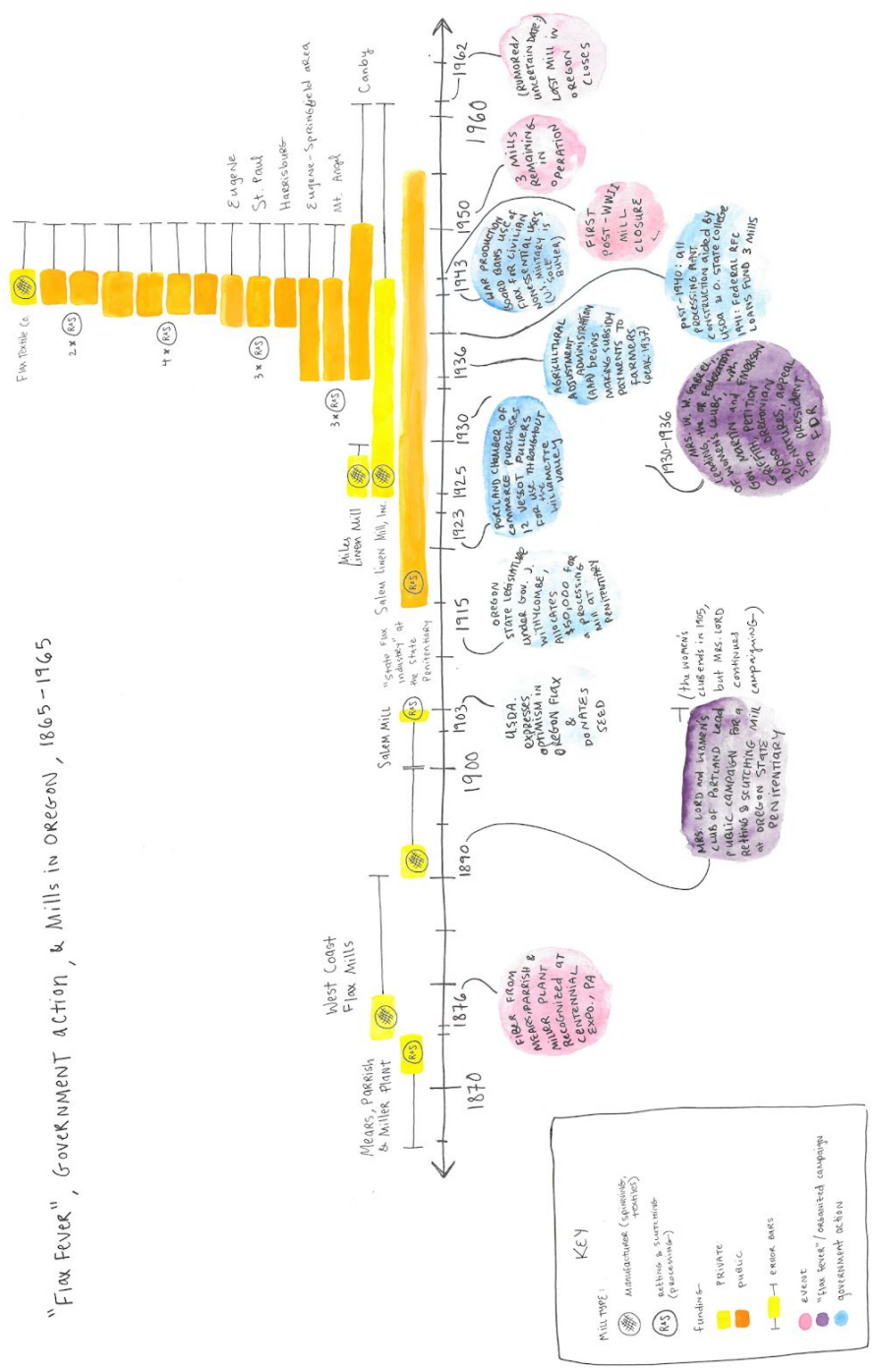
Enthusiasm (later years)

1930 was one of the most successful growing years on record yet: flax acreage hit a high of 3,811 acres. The flax purchased for processing at the Penitentiary plant was then sold to the Salem Linen Mill for spinning. At the time, those two facilities were the only ones standing—the other spinning house had shut down in 1928, surviving a brief three years before hitting the major economic recession. So, despite gaining momentum from a successful 1930 crop, the privately owned Salem Linen Mill was left in dire need of capital.

The struggling mill, then five years running, hired Emerson Griffith to help with recruitment of capital. Griffith was skilled and quickly initiated a refinancing of the mill, reorganized it as a cooperative, then secured a federal loan from the New Deal Reconstruction Finance Corporation (RFC) agency.

Emerson Griffith's restructuring of the spinning house was in good timing. Mrs. W. W. Gabriel, like Mrs. Ford before her, took a special interest in the flax industry. Leading the Oregon Federation of Women's Clubs, another group for prominent city women, she sought to point Governor Charles Martin's attention to the promising commerce of flax—and it worked. Governor Martin became an enthusiastic advocate (Wyatt 1994, 165; WPA 1939, 7). Leading up to 1935, Governor Martin, Mrs. Gabriel, and Emerson Griffith (now appointed to head of the Oregon State branch of the Federal Works Progress Administration [WPA]) coordinated a statewide petition, collecting 90,000 Oregonian signatures; the petition, plus a letter scribed by Governor Martin, were sent to President Franklin Delano Roosevelt in a personal request for federal funding to develop the flax industry in Oregon. The appeal was successful, and Oregon's grant application to the WPA was approved for \$60,000 toward the construction of three new processing mills. (WPA 1939, 6-7; Wyatt 1994, 165-166). Riding the wave of the post-Depression, New Deal and pre-World War II era in United States history, this infrastructural investment initiated heavy-handed government support in mill infrastructure for a few short years until the winding down of WWII in 1943.

Referring to the role that women's clubs played in mobilizing public and government support, a 1939 Works Progress Administration project report notes "feminine interest" in the industry (WPA 1939, 6). Certainly, it was women organizing interest in flax; but, more precisely, figures such as Mrs. Lord and Mrs. Gabriel were women positioned as local elites within circles of wealth and politics. They promoted industry mobilization through both private and public channels, that would involve labor not by them but by an agricultural working class, out of pretense—or, we could more graciously assume a sincere faith—that the flax industry could achieve long-term economic viability. Their dream would not come true; industry success would be thwarted (amidst larger-scale forces of political economy) by relatively simple material challenges inherent to mill, machinery, and labor conditions of the time.



Illustrated timeline: "Flax fever," Government action, and Mills in Oregon, 1865-1965

Chapter 3: Recurrent troubles and collapse

Records indicate that roughly twenty processing mills and spinning houses were built during the one-hundred years of flax agriculture in Oregon.¹⁵ But few of the early mills ever lasted beyond their start-up years, due in large part to machinery and labor inefficiencies: mills repeatedly caught fire, the newness of the industry meant challenging learning curves for management, and labor was grueling, costly, and somewhat unskilled. These recurrent conditions troubled mills and farmers, leaving a flax-to-linen “industry” hardly able to live up to the name.

When substantial government support poured into industry growth across the country in mid-20th century, during U.S. involvement in the Second World War, flax production was swept onto its feet with the construction of new processing facilities, equipment purchases, grant-funded salaries and subsidies.

Infrastructure: Mills, machinery, and labor

Mills were financed and managed privately, by the State, or by farmer cooperatives. Six out of seven of early processing and spinning mills operating between 1865–1935 were privately funded, only one of which lasted through its first few years (WPA 1939; Hurst & Klein 1953; Wyatt 1994). The first processing plant in Jefferson, Oregon, was established sometime between 1865–1876 and two additional processing mills came soon after. In 1877 H. M. Crane opened West Coast Flax Mills in Albany, which “operated sporadically...because of a shortage of flax available to process.” In 1890 a similar mill opened in the town of Scio. Without equipment to efficiently harvest the acreage needed to produce enough flax fiber to mill, the three mills were short-lived due to inefficiency of hand-pulling, resultant insufficient amount of flax, and general scarcity of labor (Wyatt 1994).

In 1904, an enthusiastic Belgian flax merchant, Eugene Bosse, opened a fourth mill in Salem, but it promptly burnt down in flames which discouraged further investment by Mr. Bosse. Fires troubled most flax mills that survived their uncertain economic beginnings: flax straw is highly flammable, and everything from bundles being stored alongside machinery to cigarette-smoking mill operators posed a hazard. (Wyatt 1994)

Government funding supported the fifth attempt at establishing a flax mill during that early period (pre-WWII), and it would prove the longest lasting—due, in large part, to free prison labor compensating for the inefficiencies of the costly, labor-intensive flax process. This retting and scutching mill at the Oregon State Penitentiary (the one inspired by Mrs. Lord’s 1890s campaign) stayed in operation for forty years, from 1915–1955.

The sixth and seventh mills were not for retting and scutching, but for spinning, opening in 1925 in response to the steady availability of viable fiber from the State Penitentiary mill. B.C. Miles established Miles Linen Mill, which contracted fiber from the penitentiary but shut down in insolvency by 1928. A Canadian company, Dominion’s Lines of Toronto, opened Salem Linen Mill,

¹⁵ Records of mill dates are patchy, and have required extensive cross-checking across historical records to uncover best estimates. High levels of uncertainty remain, especially for the earliest mills (mid to late-19th Century) and the closure dates of mills. I account for this uncertainty in the illustration via error bars, and hope that it is understood by the reader to be implicit (when inexplicit) in my written text.

Inc., which I mentioned at length in the earlier section on flax fever and government action. Unlike the other five private mills before, it stayed in operation beyond its first few years.

Heightened government interest in the Oregon flax industry surrounding wartime, in part motivated by Mrs. Gabriel's 1930 campaign for political attention to Oregon flax, brought thirteen new mills into operation within a period of eight years, between 1936–1943. These mills were heavily or entirely supported by public funds and government loans, and otherwise received strong support. For instance, the three mills built in 1936—in the Eugene-Springfield area, Mt. Angel, and Canby—were sited on donated state land, supplied with \$5,000 each to cover the first year of operating costs and salaries, locally raised \$11,000 to fund construction materials and processing machinery, and the mills were deeded to the state but leased to the mill cooperatives at \$1/year (WPA 1939, 6-7; Wyatt, 165-166). Harry Hopkins, the main architect of the Federal New Deal, even visited the opening of the Mt. Angel plant which was simultaneous with the State's first annual flax festival. In his congratulatory speech, he played at the promise of the industry: "Instead of building three plants, [it] should have been fifty!" (Wyatt 1994, 167).

Labor sources varied, both according to people versus machine-power and by social class of laborers. In the 1870s, before harvesting equipment, "it took an average laborer eight days to pull one acre of flax" (Wyatt 1994, 154); it would be 1923 before the mechanical Vessot flax puller would arrive in the Willamette Valley, which reduced labor costs associated with flax harvest from \$20 to \$3.65 an acre (Wyatt 1994, 159).

The State Flax Industry mill at the penitentiary was a crucial source of labor. In 1915, \$50,000 were allocated to building the processing plant by the Oregon legislature; for a prison population of about 200 prisoners, "by 1931 the pay scale varied from 12 ½ cents a day to 37 ½ cents per day, depending on the type of flax-processing work the inmate performed" (Wyatt 1994, 159). Between 1915–1936, Oregon's flax-to-linen production depended entirely on the penitentiary mill for fiber processing. When the Hawes-Cooper Act passed in 1929, and went into effect in 1934, the ban on prison-made goods scared the speculative market but did not shut down the mill.

Historian Steve Wyatt reveals the ethnic composition of laborers at some of the points in industry history. The Jefferson mill of 1876 employed a primarily Chinese work-force (Wyatt 1994, 154)—Wyatt communicates this information without explanation, suggesting it was either difficult to find or absent from historical records. Such information matters to better understand the racialized politics of labor, then and now. In 1900, the campaigning Mrs. Lord (remember she initiated the idea of a processing mill at the penitentiary), financed by a family member, hired the Belgian flax merchant, Eugene Bosse, as an industry manager. It was mentioned earlier that Bosse attempted to start his own mill, but his expertise also led to remarks on the industry's labor.

With regard to labor, more generally, Wyatt reports: "Bosse quickly ascertained that the flax farmers of Marion County had too little experience in the growing and harvesting of flax..."; it took them eighteen months to process flax from raw flax to processed fiber (p. 168). "The processing of flax was labor intensive and involved many disagreeable tasks, laborers willing to work the flax were in short supply from the beginning of Oregon's flax industry to its end in the 1950s. To meet the Salem mill's requirements, Eugene Bosse hired Japanese laborers for \$1.50 a day, a move unpopular with many non-Japanese workers." (Wyatt 1994, 157) Later on, in 1939, at the start of labor shortages associated with WWII, "Hispanic workers...were recruited by flax industry officials to provide replacement labor when white workers joined the war effort" (p. 170). What must stand

out from his review is this: the labor system of flax-to-linen production was dreamed up by an elite class and reliant upon available migrant labor.

Collapse: Oregon's position post-WWII relative to U.S. and international markets

Government investment swelled Oregon flax production during World War II. In early war years, the surge was exciting: prices skyrocketed as the U.S. military bought up processed fiber and flax acreage soared higher than ever. "The upward surge in fiber-flax prices for 1938," wrote two Oregon State College professors in 1942, show that "an increase in demand and a decrease in supply have definitely established a seller's market for the flax-grower and the processing plant...directly related to the present war conditions" (Rada and DeLoach 1942, 67).

Wartime conditions led the U.S. government to invest in rapid development of mill infrastructure and flax acreage; then, in 1941 flax was declared an essential war product and, in 1943, the War Production Board banned the purchase of flax for civilian nonessential uses, effectively making the military the sole buyer of Oregon flax. The fiber was of military interest for multiple uses: "parachute harnesses, bomb slings, linen laces for army shoes, signal halyards, and packing for marine engines, but perhaps its most important use was for fire hoses" (Wyatt 1994, 170; C.I.A. 1957, 4). But market conditions would drastically change with the end of WWII in September, 1944, and the Oregon flax industry that had boomed overnight was unprepared to weather a post-war economy.

Oregon had become the leading producer relative to other states in the domestic U.S. market, but remained a negligible player and price-taker in the global market. In 1942, Rada and DeLoach published an analysis of data from the previous year: Oregon flax production in 1941 was at 11,300 acres, an estimated 98 percent of U.S. production (this would peak in 1942 at over 18,000 acres); the only other states sowing flax were Michigan and Washington, each producing approximately 100 acres (Rada and DeLoach 1942, 81). Consider these amounts relative to international production: "in 1939 the U.S.S.R. produced more than 80 percent of the world's production of 5,178,000 acres of fiber flax" (p. 81), a global figure not even accounting for the longstanding production in Europe, especially France, going dormant during occupation by Nazi Germany.

During the war, some European producers hoarded their unprocessed bundles of flax fiber (Fishler 1949, 404; Wyatt 1994, 171). After the war, this flax flooded the global market. In the years just following the war, there was some hope that further federal support would help the industry adjust. Donald W. Fishler wrote: "The release of this large stockpile of European fiber had an adverse effect on the price of Oregon fiber immediately following the war...alleviated to some extent by a federal price support program for all fiber flax produced in Oregon prior to 1947...to help the processors become adjusted to peace-time production. Additional federal support has been sought in order to allow the industry time to further adjust itself to foreign competition" (Fishler 1949, 404). But there were no more investments, and the government withdrew their price support program shortly after. Prices dropped from the U.S. government's guaranteed 58 cents a pound in 1941 to 41.5 cents a pound in 1944 (see Table 1), leaving Oregon growers throughout the Willamette Valley who had sown crops between 1942-1944, assuming the higher price, with thousands of pounds of flax straw. It was too much for the processing mills to accommodate, now

challenged with little to no private buyers in the domestic market and no connections for entrance into the global market.

Table 1

Flax For Fiber: Acreage, Yield, Price in Oregon 1939–1953*						
Year	Planted	Harvested	Abandoned	Yield	Production	Price**
	1,000 Acres		Percent	Ton/Acre	1,000 Tons	Dollar/Ton
1939	3.9	3.9	-	1.44	5.6	35.70
1940	7.3	7.3	-	1.18	8.6	55.50
1941	11.0	11.0	-	2.17	23.9	65.00
1942	19.0	18.0	5.3	2.05	36.9	52.50
1943	14.0	12.0	14.3	1.67	20.0	47.50
1944***	11.0	8.5	22.7	1.65	14.0	41.50
1945	9.5	8.0	15.8	1.50	12.0	46.00
1946	8.3	7.6	8.4	1.90	14.4	46.50
1947	5.7	4.9	14.0	1.90	9.2	40.00
1948	2.4	2.0	16.7	1.70	3.4	39.00
1949	3.4	2.3	32.4	1.80	4.1	42.00
1950	1.0	0.8	20.0	1.85	1.5	49.00
1951	3.3	2.1	36.4	1.60	3.4	41.00
1952	1.3	1.2	7.7	2.00	2.4	48.00
1953	1.0	0.9	10.0	3.30	3.0	40.00

Table 1 is excerpted from a more extensive one belonging to Fibrevolution and reproduced with permission. Original source is under investigation and at the time of this publication remains unknown.

* Data were surveyed and/or published in this form for these years only.

** Weighted average price.

*** After 1944, Oregon flax ceased to have a domestic market, and failed to compete in the global market. Records indicate that processing facilities mostly shut down, while spinning houses that survived were importing processed fiber from abroad.

Two remaining factors compounded the challenges already mentioned: the lack of a fiber-flax grading system and the commercialization of synthetic fibers.

The surge in military purchase for nondescript use disincentivized the practice of a grading system to sort the fiber by quality. Standards would have supported Oregon flax producers to properly market their high-quality fiber-flax for competitive buyers in a post-war global market: “During the war when the demand for fiber was so great, Fishler reflected, “a seller’s market existed and efforts to establish grade standards were of little interest. The industry is now feeling the bad effects of the poor standards created during the war...The grading method placed emphasis on

length, and no significance was attached to fiber strength, fineness and spinning properties...” (Fishler 1949, 404-405).

A decade into the post-war downturn, another publication summarized the conditions: “The inadequate grading and sorting, high returns from competitive crops, competition from synthetic fibers, the absence of a sales organization for orderly marketing of flax products, and adverse weather conditions during the planting season for several years have all had a depressing effect on the U. S. industry since the termination of World War II. These adverse factors caused the Oregon fiber flax acreage to drop from 18,000 acres in 1942 to less than 1,500 acres in 1952 and the number of active processing plants to drop from fourteen in 1944 to four in 1952” (Hurst et al. 1953, 6). Grading would mean distinguishing lower-quality fiber from long-line fiber good enough to produce high-quality linen textiles. Oregon produced high-quality fiber (in large part due to the region’s optimal growing conditions) but that the combination of a boom driven by military purchases and the continued absence of folks with flax-to-linen expertise, as was the case in Europe, led the Oregon market to fail to grade their flax for competition in a post-war, global market.

The rapid uptake of synthetics in the U.S. apparel market was the last straw. Rayon had been in the market since the early 20th century (Myers Breeze and Kehoe 2013) and nylon, synthesized in 1935 in the research lab of U.S.-based chemical company, DuPont de Nemours, Inc., was brought to market in 1940 (PBS.org; C.I.A. 1957, 4). Both rayon and nylon were popularized as substitutes for silk—visible, for instance, in how silk ladies’ stockings gained a new shorthand, “nylons”, from their replacement.

Synthetic fibers made up ten percent of the U.S. textile market in 1940, but quickly overtook natural fibers. By the mid-1980s, cotton had fallen from eighty percent of the market to twenty-five, and synthetics had risen from ten to nearly seventy-five percent (Special Report 1987, 37). Professors Rada and DeLoach made sense of flax’s position in relation to synthetics in their 1942 report: “per capita consumption [of linen] declined from .8 pound during World War I to .2 pound in 1940. This is due to substitution, principally of cotton for flax, and the preference of new buyers for fibers other than flax. The average per capita consumption of cotton and rayon is increasing; the average per capita consumption of wool has remained fairly steady; and silk consumption is slowly decreasing.” (Rada and DeLoach 1942, 82-83)

Remembering that flax in Oregon was historically motivated by elite interest, relied fully on government support, and faced a number of challenges, including declining use alongside the development of synthetics, we can turn our attention to the contemporary efforts at flax revival.

Part II: Hope for industry revival

Chapter 4: By hand

Flax where the yard once was

Thud. Thud.

“The braking initially helps separate them: the phloem and the xylem of the plant,” Kyla explains to me between pounds of a neon orange rubber mallet. “Instead of using a flax brake, I found this really cool video from 2013 where this guy—I commented a couple times, he still hasn’t gotten back to me—had a wood mallet. I can’t find a wooden mallet, but I’ve been braking. I’m just gonna keep going forward, I’m not going to worry too much. I haven’t been using traditional tools.”

She pauses to brush a lock of light blonde bangs from her eyes and rests her mallet.

“I’ve really had to take this process one step at a time. It’s meditative, like weaving. You have to focus on the process at hand and you can’t take it too far ahead. I like that something is dictating that for me. Because I do, I just jump to things too fast, and I think that’s why I like weaving...that’s why I like all fibers.”

Readying the mallet again with her left hand, Kyla eyes the next un-broken section of the flax sheave in her right hand, and thwacks the flax again.

Thud.

Thud.

“It demands respect.”

Thud.

Kyla Sjogren is a skilled textile artist with a rich sensitivity and a wry sense of humor. She and her husband live on the Oregon coast in a rented cottage where their gatherings and makings—driftwood and buoys, his surfboards and pottery, her quilts and weavings—fill their walls, and their old dog wobbles to and fro in search of soft pats on the nose. For income, but less than inspiring work, she says, Kyla commutes four days a week to the Portland area designing plaid fabrics at the headquarters of Columbia Sportswear (an outdoor clothing company). Kyla condenses her work week to get three-day weekends for rest, outings, and time for the rejuvenation of hands-on textile process: a world of possibilities at the seat of her loom.

Kyla has been focused on natural fibers for the last decade. Around the same time that Rebecca Burgess launched the non-profit Fibershed, in 2010, Kyla was pursuing a graduate degree in textiles with a connected vision. After extensive practice with wool and other natural fibers, fiber flax has more recently taken her curiosity.

We step out to the front deck at the edge of her small yard, and she begins to explain. “I rent this place and this was all landscaped. There was no corn here. I just planted the corn; it’s very overgrown. So, what I did was I dug up all these plants; they’re not doing well right now—”

I interject, “Wait, you just put these back in!?”

“Yes,” she responds, humored, “because my landlord came about a month ago. Um, I feel insane, but—yeah, I planted flax in this 7x4 plot,” she motions to the small front yard. There are lavender

bushes, a small cypress of sorts, bulbs—but now that I know what was just here, I see evidence of the recent cover-up. To my gardener’s eye, the lavender appear startled. And the bulb vegetation is a wet wilted yellow, not the dry summer yellow usual for this time of year. And there are flax volunteers (what we call plants that self-sow from seed) popping up all over, not four inches tall.

“Huh,” I joke to Kyla and motion to the opportunistic flax, “it looks like you need to weed your yard.”

Linen has historically been a homespun fabric. In North America, it was a common backyard crop of settler homesteads, where the labor of producing linen textiles for the home—by hand, from seed to fabric—fell to women. Similarly, varieties endemic to North America supported indigenous livelihoods (Hoskins 1997). Up until very recently, flax-to-linen production in present-day Egypt—near the historical epicenter of the domestication of flax 10,000 years ago, and thus a region with longstanding relationship with linen fabrics—was all done by hand.

Fiber-flax production has only succeeded at industrial scale in Northern Europe. Shannon reports that in her visits and conversations with European flax purveyors, they remark, “you all are doing it like the pioneers!” when they hear of the fits and starts of American fiber-flax production. Colonial connotations aside, they’re not wrong: because of the complexity of the flax-to-linen process, it’s remarkably resistant to scaling up.

Historian Steven Wyatt points out that it may well have been the multistage flax-to-linen process that amounted to the historical Oregon flax-to-linen industry repeatedly failing to stabilize. Though the Pacific Northwest Willamette Valley and coastal regions continue to offer ideal growing conditions, Wyatt writes, “the flax industry’s detractors...argued that flax cultivation would not succeed because it conflicted with such established American industrial values as efficiency and mechanization. In particular, flax industry critics pointed out, labor-intensive flax processing had traditionally occurred in countries where wages and the standard of living were lower than in Oregon.” (Wyatt 1994, 151). “When textile production in the United States passed from a common household industry to large-scale, mechanized factory operations in the 1840s,” he continues, “the production of linen in the home was likewise abandoned in favor of relatively inexpensive, factory-produced cotton and woolen goods. Processing flax is far more complex than processing cotton or wool, and...By 1900 the use of flax for fabric in the United States had declined to a mere 1 percent of all textile production” (Wyatt 1994, 152-153). It seems the tale of flax/linen has been one of displacement by more commercially scalable fibers—more so, even, than by the displacement of industrialization, alone.

Kyla’s relationship with fiber-flax, a home experimentation process, is at once a truthful representation of fiber-flax in Oregon and North America today and also a limited picture. Kyla may be one of the few folks producing and handling fiber-flax in Oregon today, motivated enough to experiment through the full fiber-flax process on her own. But she doesn’t tell me she’s doing it for the sake of scaling up. “I did this,” she shared, “because, just like the wool, I want—there’s something about being tactile with my materials, and I just want to be present with them...just knowing or reading something is not enough for me. I don’t feel like I fully know what I’m working with and that’s why I decided to grow it.” Hers is a labor of love.

Along with other avocational flax enthusiasts, Kyla finds a learning community in digital spaces such as the Flax to Linen Facebook group, on YouTube do-it-yourself instructional videos, or on other social media. On her Instagram profile, Kyla shares photographs, videos, and textual explanations of her process, alongside her other fiber work. These representations create stories beyond themselves.

“The single constitutive choice of a photographer differs from the continuous and more random choices of someone who is looking,” write visual critic John Berger and photographer Jean Mohr. “A photograph quotes from appearances but, in quoting, simplifies them...appearances in themselves are oracular. Like oracles they go beyond, they insinuate further than the discrete phenomena they present” (Berger and Mohr 1995, 118-119). As a viewer of Kyla’s Instagram images, I can’t help but seek to carefully incorporate her story of flax production into the complex weaving made up of its many stories, its many historical and contemporary truths; but it is also her images themselves, even the flax itself, tells me a story: flax is with us today, alive and well.

“Hands-on exploration of Oregon-grown linen”

Sauvie Island was glistening cool with morning dew when I crossed the bridge early one September morning. Shannon had given me directions to Vibrant Valley Farm and invited me to meet a bit before 9a.m. to help unload her Volvo wagon.

Vibrant Valley Farm is a small operation run by Kara Gilbert and her husband. Kara is a strong and bright personality, one of those able to win over just about anybody. She and her husband rent their farmland, selling diversified food crops and flowers directly to forty restaurants in the area. But Kara is becoming more and more enthusiastic about growing dye and fiber crops, and Kara’s enthusiasm is big; it’s led the farm to have an estimated third-largest indigo crop in the United States going into only their fourth growing season, and making up processing infrastructure as they go along. Admittedly, the competition isn’t yet too strong, but momentum is growing, in large part due to Fibershed.¹⁶

It was now just past nine, the island fog hadn’t lifted for a second, and folks would soon be arriving. Shannon lay tarps down to collect the seed and shives that would fall during the hand-breaking process, then we unpacked her impressive hand tools: a custom-built flax brake, a scutching paddle, and a series of tools for hackling (combing) the fiber to segregate the shorter tow fibers from the long-line fiber. Shannon also unloaded a rippling tool that would later go out with participants to the field: a metal fine-tooth comb, along with an old plastic grocery basket and black trash bag to catch the falling seed pods.

At the greeting area, Shannon set up her demonstration table along the barn wall with samples of the refined end products of a flax-to-linen process, cones of linen thread and swatches of fabric.

Folks visited for the event from all over. One couple was visiting from an urban farm in Los Angeles. Another pair of friends were visiting from Japan. Other individuals had their own small

¹⁶ One of the first introductions I had to Fibershed in 2018 was witnessing Rebecca Burgess invite Japanese indigo masters with a group buaisou (<https://www.buaisou-i.com>) to lend their expertise to tending indigo vats (then in Rebecca’s garage). They had also consulted the construction of a traditional indigo fermentation house, which a rancher John Wick had built on his ranch. With their lead, Fibershed started a fermentation pile with 300lbs of indigo leaves saved up by Northern California farmers over the course of 3-4 years. Natural dyes remain an important aspect of Fibershed’s vision.

textile-related businesses: a linen bedsheet company, a felting school, an Etsy shop selling naturally dyed garments. Two professional photographers attended the event — Shannon’s husband, John Morgan, who works via his independent business as a videographer for Fibershed, and the director of Textile Hive, Caleb Sayan, the organization hosting the event.¹⁷ This was the first time many participants had comprehended the flax fiber process through direct experience.

Shannon led them out into the field for a short lecture, then guided participants through the first steps. Fifteen or so folks spread out along one row of flax, stooped to hand-pull, and chatted about fiber. They carried stalks back to the end of the row where the rippling station was set up, folks rippled the seed pods off the tops of the stalks, then collected them up in armfuls to lay out on the cleared bed. From there, the stalks would be left to field-rett, a process the participants wouldn’t end up seeing, one that Kara and Shannon would take care of in about six-weeks time.

Back at the barn, Shannon had prepped last year’s retted flax for the remainder of the process. Participants worked with the hand tools to break the stalks, scutch and hackle the fiber through finer and finer toothed combs; the results had an unfinished resemblance, alongside the flax on the display table.

Circling in reflection, with samples in hand, one person connected their hands-on experience with inciting a natural fibers revolution—as if such a gathering of textile-curious folk, many times over, could bring about a world of accessible high-quality linens from an ecologically renewable textile economy. Kara and Shannon provided affirmation: “it takes a village!”

Just a couple weeks earlier, in late August, I had been visiting Kyla, her cottage-grown flax and make-shift tools. She’d set up a rubber tub for retting, borrowed a comb from her loom for rippling, and found that neon plastic mallet for breaking.

I wrote her excitedly via email about the event, and specifically Shannon’s hand tools.

“Have you worked with them, or seen them?” I asked.

No, Kyla said, she hadn’t even met Shannon in person yet, but “a coworker friend attended and she was able to brief me on some of the tools. I feel like there should be a tool library for these things!”¹⁸

I mentioned the tool library the next time I saw Shannon. She was quick to make clear that machinery and farm labor are the true requisites for commercial production—it’s not going to happen by hand. Participants use hand tools to get more familiar with flax as the material basis of linen, but the inspiring hands-on experience can too quickly cause an imaginative leap to industry revolution.

The relationship Shannon and Kara have with hands-on demonstration events must be complex.¹⁹ While they affirm the leaps participants make between their experiences and the path toward Oregon-grown linen (“Yes! It takes a village!”), they each work with the day-to-day rigor of producing a livelihood and business from a nonexistent market. A revitalized linen industry and market for flax seems to be what they are fighting to make real, and that is beyond—but somehow, believably enhanced by, hands-on experience. The fiber projects are supported by other incomes: Vibrant Valley Farm leans on its vegetable sales direct to restaurants; Shannon has been managing

¹⁷ See www.stereoeyeproductions.com (John Morgan) and <https://textilehive.com> (Caleb Sayan)

¹⁸ Sjogren, Kyla, in email correspondence with the author, September 11, 2019.

¹⁹ I did not conduct an individual interview with Kara.

to make enough over the last few years, though was looking for a job over the summer; and Kyla, who isn't directly involved in efforts to scale linen production, but carries public influence as a textile artist, works a corporate job to pay her way.

Shannon remains convinced that linen would be a viable industry in the region. It didn't amount to success in past, she figures, because of the converging factors that shut industry down post-WWII, particularly the failure to grade for high-quality fiber. Today, entrance into the global market will be different. "With long-line linen you do get paid," she says, referring to the European market, "but it's gonna scale up slowly because if you want to be competitive in the world market you have to have good quality." She also tells me Kara is eager to grow flax as a cash crop "down the road, once we get harvesting equipment," she says, "*you can plant out here if you have machinery!*"

Months later, at another morning interview over coffee at the Albina Press, I ask Shannon to expand on what she's gleaned from working with farmers like Kara of Vibrant Valley.

"Well, we're not hand-pullin'," Shannon says, and proceeds to tell me more about what prior seasons were like, trialing flax with no equipment. "We did small plots—we haven't even gone over a half-acre. Last year we did get it finished; the year before we didn't even finish it, it was too hot. It took us so many days, with so many people, we just didn't finish."

"We stored all that fiber, it's still all fresh off the field, we did a couple hand-processing days with these grand plans and visions, and then after one day it was like...forget it. You end up with a tiny mound of...no! We were all looking at each other like...no. No!? No. Like, no one's gonna do this. I'm not doing it! We were laughing about it, how much of that we'd have to do to create anything. It gets kind of comical, it gets like, hm, we spent 20 months on that shirt."

"But no," I add, reflecting Shannon's humor.

"But no, exactly! I even had grand plans. I was like, oh yeah, I'll get out there...I'll come up with something. It was kind of discouraging. You're like, no. Never mind."

Chapter 5: Fib(re)volution

“I really want to see bast fibers happening here—not just hemp. Flax, too. It’s prettier.” Shannon’s laugh lightens the gibe. “I would grow flax, it’s a pretty field. As plant fibers go, [in North America] we just have cotton. And that needs to change, we can’t just use cotton. And we have the potential—it’s like why not, why not use something else.”²⁰

Shannon and Angela have an unwavering passion for getting bast fiber processing infrastructure up and running in North America. Since 2015, they’ve been making slow and steady progress: they’ve received a few grants from Patagonia’s philanthropy wing, extensively networked with farmers in the PNW region and beyond, and traveled abroad to Europe to shadow the contemporary linen industry. Coordinating with Jenny and a few willing farmers, Fibrevolution has been conducting field trials, tested field-retting, and is growing out a seed bank anticipating the need to supply more North American farms with seed, in future.

Their efforts follow in the footsteps of multiple previous attempts at reviving flax agriculture and linen production in the Willamette Valley—all of which failed in various ways.

Previous revival efforts

It’s mid-morning in the bustling Albina Press coffee-house in Portland, and Shannon is talking me through revival attempts preceding Fibrevolution.

“First there was Daryl Ehrensing at OSU in the ‘90s,” she tells me.

For two decades, Daryl Ehrensing researched the history of Oregon flax production, made connections throughout the valley, organized farmers, and traveled overseas to meet linen manufacturers in Ireland, Belgium, the Netherlands. He got 200 or so acres growing, successfully brought harvesting equipment to the U.S. from Europe, but got stuck on building out a scutching facility. He visited Belgium in search of scutching machinery for purchase, it lagged and lagged, and then, in 2008, Daryl died suddenly.

There was no one else to carry out the project, no one who knew what and who Daryl knew. “Farmers had been storing the flax and believing; all the farmers had to destroy their crops. No one got paid, everything got boxed up, and Jenny at OSU has some of it,” Shannon recounts. “The harvesting equipment—we went in search of it—nowhere to be found. Went to scrap.”

Shannon describes the precedence of both Daryl’s organizing as well as a feeling of uncertainty in the memories of farmers as ghostly presences. “I can’t tell you how many people we’ve talked to, ‘Oh this guy Daryl has been here.’ Most of the places we’ve traveled to, he had been there; most of the people we’ve met had met him. He accomplished a lot. But we want to be cautious. When he passed away, farmers just destroyed crops and nothing happened. Most of those farmers are still here, and would probably be the people who would grow flax again, but we have to prove we have a scutching mill. Without it you can’t get to market. We don’t blame farmers. They are the ones who have really lost out in these [historical] scenarios, and we don’t want to put them in that position. Or ourselves in that position.”

²⁰ Welsh, Shannon, semi-formal interview with the author, audio-recorded, Albina Press coffee-house, Portland, OR, July 25, 2019.

Shannon takes a sip of her mocha before she continues. Simultaneous with Daryl's work, in the early 2000s "there was a facility set up at Clemson University (South Carolina) that got pretty far. They had all the infrastructure to deal with bast fibers for textiles—we dug into that, we even had OSU help us because that whole thing shut down. I think the funding went away." This effort, like a few scattered others throughout the U.S., doesn't seem to directly affect the potential for PNW revival so much as the failures specific to this region do—risk taken with no reward lives on in farmers' memories. Still, Fibrevolution takes interest in the efforts beyond their region as part of a strategic visioning of textile fibersheds set up throughout North America (as will be discussed later) and for leads on harvesting and processing equipment to get at least one regional operation started. "We thought, well, the equipment must still be around," Shannon tells me, "but when we finally got through to whoever was managing the equipment they said, no, it had all been scrapped."

Then, "in 2010-ish, a group I think called Crylar, based in British Columbia, got a growers group in Oregon to grow seed for fiber-flax. Seed would be grown here and then the fiber would be grown in South Carolina and processed in a mill they had built there." But this group wasn't interested in retting as it had been done before, either by dew-retting out in the field or by accelerated industrial tank-retting. "As I understand it," Shannon tells me, "they had developed an enzymatic process to handle the flax that could then be cottonized and blended. The enzymatic process would replace retting. They got 450 acres growing in Oregon. They didn't have a good plan for pulling—and we don't have machinery here—so we heard it was a disaster because they didn't know what they were doing. They raised a lot of capital, they went bankrupt, and the farmers here did not get paid. And all the farmers remember. It left a really bad taste. When we brought flax up we got a lot of, 'Oh boy. Be careful.' And we did get a lot of people asking if we were part of that group."

More recently, there is Ralph Fisher, a fifth generation farmer in a family that settled one-hundred and fifty or so years ago in the Willamette Valley. "He planted our seed crops last year," Shannon tells me. "He planted 14 acres and it failed due to drought—for the first time ever. It's never happened to him. That was gonna get more seed for us. He's like a big teddy bear, we love him. I just feel kind of bad about how it all played out. Like, we're still working on it Ralph! He got burned by the last group, too. But when he heard we were doin' it, he's like, let's get seed. He'll plant again once we have equipment."

These failures leave lessons. A changing climate and the consequences it has for farmers like Ralph, in weathering crop failures and high irrigation costs, is one reason Jenny is focusing her seed-breeding on selecting for winter-hardiness. And the repeated failure to compensate farmers in the history of attempts at commercial fiber-flax revival directs Fibrevolution's priorities.

"It's been a question from so many people," Shannon recounts. "'Why don't you just get it growing, and then have [farmers] store it?' Well, that's what people in the past have done. And because farming is in my blood, I'm not gonna put farmers at risk. They're not gonna be the group I risk, which is usually what happens. Like, 'eh we'll get it growing and if we can't pay 'em, we can't pay 'em.' I'm not doin' that. The farmers have been taken advantage of, for lack of a better word."

Seed breeding

Early on, Shannon put me in contact with Dr. Jennifer Kling ("Jenny"), a part-time instructor in the Department of Forestry at Oregon State University, donating her expertise as an experienced

seed breeder toward developing new varieties of fiber-flax best suited for the Willamette Valley. Breeding a variety takes up to ten years, she says, and her work with Fibrevolution is only a few years in. I had heard from Shannon that Jenny was doing the seed breeding out of enthusiasm for the flax-to-linen project, with limited resources.

Jenny and I made plans for me to visit in October for fall planting at Harcombe farm, a privately-owned farm in the Corvallis area happy to host the flax breeding project. Due to her relentlessly busy schedule, it was too much, in the end, to accommodate. When I wrote, I inquired not only into an interview and farm visit, but also about photographing the planting process; Jenny responded, seeming uncomfortable with photography:

“Most breeding programs would have some small-scale equipment that is designed specifically for the crop they are working on. They would also have more regular funding than I do. We are doing everything by hand and I don’t have prior experience in breeding flax, so I am kind of making things up as I go along...I just want you to know that what you will see will not really represent farmers’ production practices or even typical flax breeding methods. I would nonetheless be happy to explain what we are doing.”²¹

To understand Jenny’s important seed-breeding work, I also draw on an interview Shannon and her husband, John, filmed with Jenny in summer of 2018 and published online in early summer 2019 on the Fibrevolution YouTube channel.²² In it, Jenny describes the reasoning behind breeding for a fall-planting variety: “Here in Oregon it gets pretty bone-dry in the middle of summer. If we could get a jump on it with the fall planting then do our field retting, say, in June, we could take advantage of the natural moisture and dew that’s available at that time...rather than having to irrigate a crop in the middle of summer”.

She explains: “There’s a winter-hardy variety that’s been around for years here in Oregon called Lenore and it’s been tested against a lot of other flax varieties and been found to have exceptionally good winter hardiness,” a term meaning genetically acclimated enough to the cold to be viable for fall planting. Jenny points to one of the plots of swaying blue-flowered flax: “These were crosses between Lenore and a seed type from the Midwest. Lenore, being a very old variety, doesn’t produce a lot of seed or a lot of fiber, but it does have that winter-hardiness. So, cross it to a seed crop, with the idea of perhaps getting a better adapted winter-hardy seed variety for Oregon.”

“But then we’re also interested in the fiber types,” she continues, motioning to other plots alongside the Lenore-seed type crosses; “the other crosses I have here are with Agatha, which is a variety from the Netherlands that’s been around for about 20 years, and it’s got very nice fiber production and all of the qualities that we’re looking for in a fiber type but not particularly good winter-hardiness.”

²¹ Kling, Jennifer Gay, in email correspondence with the author, September 22, 2019.

²² “Fiber Flax Seed Breeding with Jennifer G Kling,” published May 22, 2019, produced by Fibrevolution, with Stereo Eye Productions, video, 4:07, <https://youtu.be/9fNVa3wG2ck>.

Finally, she motions to the back fields: “What I have [there] are the crosses between those two groups, trying to incorporate all of those characteristics into a variety: seed production, nice fiber type, and good winter hardiness.”

Jenny is developing high-quality fiber-flax varieties acclimated to the conditions of the Willamette Valley, which requires many years because genetic cross events happen only once with each season’s planting. For winter varieties, plants are sown in fall; at spring harvest, seeds are saved from the individual flax plants in the overwintered crop who demonstrate survival and ideal-type traits. Those selected will be bred again the next fall.

Contemporary interest in developing bast fiber crops in the Willamette Valley is bigger than the flax-specific Fibrevolution project which, at Jenny’s difficulty, copes with limited resources. Oregon State University (OSU) has recently posited itself at the leading edge of industrial hemp research: in 2019, OSU launched a Global Hemp Innovation Center (Happonen 2019).²³ Previously Oregon State College (OSC), the higher-education institution hosted a national hemp research center between 1880–1936 and has since continued to grow into acclaim as an agricultural research university.^{24, 25}

It has become increasingly evident that any flax-to-linen revolution will likely come about by way of fervor surrounding industrial hemp production in North America. “For linen,” Shannon tells me, “[the Willamette Valley/Pacific Northwest] is the place that makes the most sense for linen. Especially with all the hemp we have going on. The infrastructures work really well together. They benefit one another here. OSU’s institute dedicated to hemp will bring a lot of experts and knowledge and they’re gonna be focused on farming and growing quality.”

This contemporary interest is promising, but it’s worth noting that conflation between a climate suitable to flax agriculture and development of industrial linen production is not new. The highly developed, post-industrial political economy of Oregon may remain an unlikely setting for industrial redevelopment (see Wyatt 1994, 151-153).

²³ A note on hemp: just as Jenny is breeding for traits in flax that produce recognizable, even nameable, variance (Lenore, Agatha, and so on), industrial hemp, a non-psychoactive strain of *Cannabis sativa*, is bred for use of its fiber. “Strain” and “variety” are synonyms.

²⁴ See <https://agsci.oregonstate.edu/hemp/about>.

²⁵ Tracing the names of researchers publishing on flax during that era evidences prior cooperation between the OSC Agricultural Experiment Station and the United States Department of Agriculture (USDA) Flax Research Station (e.g., Cooperative Research Project *ca.*, 1957; Hurst et al. 1953)

Chapter 6: Toward a fibershed economy?

Infrastructure...Take two: Mills, machinery, and labor

Shannon and Angela know their history. “The industry was *always* subsidized. And it was *super* labor intensive. Mechanization has improved, but that is something we think a lot about. Yes, throughout history there was always huge community support around it, it was different groups—but also government subsidies.”

Like Daryl before them, Fibrevolution’s goal is at least one scutching mill. “With scutched fiber you can at least have the fiber in a form where you can then send it off somewhere to be hackled and spun. There are spinning houses in the U.S., so if you have the hackled fiber, you can work with existing mills.” The scutching mill they envision would also capture residual fiber from the process of getting long-line linen. Shorter tow fiber, shives and dust could all be captured and sent to markets, many which didn’t historically exist as they do today.

Fibrevolution deliberates private vs. public funding, as in past. In October 2019, Angela traveled with a trade representative from the State of Oregon to negotiate deals on seed and machinery. It became more clear to Fibrevolution, too, that any State support for linen production will accompany that of industrial hemp, because mill infrastructures will be able to handle both fibers. In November, USDA released regulations on hemp; “The states are interpreting them and creating their own plans, then submitting those plans,” Shannon informed me. “Now that the linen is tied up with hemp, there’s been a little lag on wanting to...they’re not really able to deal with it right now. It’s just something they’re told they’re gonna have to wait. The trade representative did meet with the groups, was really impressed, supportive of our vision and mission, and believes the State would want to support this; but they’re really hanging back ‘til these things are figured out.”

In terms of private investment, multiple prominent brands like Patagonia have shown interest in giving grants to farmers, but little interest in infrastructure or machinery. Venture capital investors, too, have shown disinterest due to the long timeline of return.

Scaling up requires harvesting and processing machinery. Planting won’t happen without harvesting equipment. “Trying to convince people why we need equipment has been mind-blowing to me,” Shannon wonders. “What is it about the equipment that people are like ‘Well...’ There’s no way to get fiber out of the flax. You can do it by hand...but it would take me all summer to maybe get enough fiber for a little square. It’s just not viable and we stopped doing that a long time ago. And the harvesting equipment, to get it started, is like 50 grand. To get about 1,000 acres going in Oregon. We already have equipment we could buy sitting in Belgium, it’s been sitting there since last year, and they would sell to us.” In an effort to minimize financial and logistical barriers to getting flax straw, Fibrevolution envisions maintaining cooperative equipment and offering custom-harvest to farmers.

Milling sure won’t happen without machinery, but the question there is more one of making do versus buying new. “The two mills Fibershed has gotten going in Northern California are using super old equipment that was here and they spend their whole day fixing it. ...These are old machines, there’s no parts. There’s no one to call to fix them. So they’re starting to think, we just need to replace all of it; there is something in getting some machinery that can be efficient and

productive.” At one time, Shannon was even thinking of getting the machinery at the Canby Mill up and running, just for the sake of having *something* going. But the relations Fibrevolution is building with manufacturers in Europe, and their communication with the Oregon trade representative, are moving them forward in getting new machinery.

Finally, Fibrevolution considers family-farmers their most likely grower demographic, due to Angela’s long career as a farmer and position with Oregon Tilth, they already have an extensive network.^{26, 27} Shannon considers industrial redevelopment an exciting offer, given the steady rise of service economy jobs. I haven’t heard anything more from her in reference to historical and contemporary North American cropland staffed by migrants who are wildly underpaid and underserved.²⁸

Strategizing Fibersheds

Fibershed assumes that “shed” economies will be developed in coordination, and that there is a place for North American fiber production in the contemporary global market. Shannon has discussed at length the European purveyors showing support for North American linen—a different situation from historical times (when North American, specifically Oregonian, production was outcompeted.

“Europe is struggling, too, with holding on to linen. They want North America in the market, for us to get linen going, because it just lifts everyone up: the market is so tiny, and over there if they have a crop fire—like they have fires going in France now, it’s getting way dry—if their crops fail we won’t have any linen. There’s so little of it in the world that it’ll be gone. So we need to be growing these things here. It benefits the world economy, too. And they would source from here if our quality was comparative, because they don’t have enough over there. So there’s an open door to the market, and we hope Oregon would be the first to make that grand gesture: we’re gonna get this equipment and do this.” European support seems to be available because of the general precarity and displacement of linen.

If at least one North American scutching mill were in place, Shannon figures, hackled fiber-flax could be sold to European manufacturers while textile infrastructure is built.

“There’s a misconception sometimes that people in Fibershed don’t want to work with the rest of the world, and that’s not true at all. We just wanna change the way the system’s working right now and get America back on the map for textiles,” Shannon clarifies. They imagine partnering with some of the biggest spinners for linen right now, in Shanghai. “There’s people who are gonna be like...”—she gives me a blank stare—“the [felt consequences of] off-shoring really did hurt us.”

In addition to considering a potentially more available place for Oregon-grown flax in the contemporary global market, Shannon and Angela, as Fibrevolution, see the value of partnering with other flax and fiber-specific projects. “We’ve been working with different groups around the U.S. that have been working to revitalize flax in their areas, too, because our goal is to create a vertically integrated supply chain for flax and hemp fiber. We definitely want a mill in Oregon, or in

²⁶ See <https://tilth.org>

²⁷ An estimated ninety-seven percent of Oregon agricultural businesses are family-farms (NASS 2017).

²⁸ See, for example, information provided by Farmworker Justice: <https://www.farmworkerjustice.org/resources>

the PNW, and we know there will be one, but it can't be the only mill. And it can't be the only place in the U.S."

As PNW Fibershed director, and a strategic visionary of Fibershed, Shannon tells me that a scutching mill in Oregon is seen to be the most likely starting place—but that, to be successful, must be a coordinated multi-regional and North American effort. Other growing regions they are coordinating within are Colorado, North Dakota, and Canada; optimal mill and textile manufacturing include Minnesota and North Carolina, because of existing industry. She figures that if they could get flax growing in those three states, that would be enough to market to Europe, and that if that was successful, industry will begin to appear in other places, too.

There's a long way yet to go, and very uncertain terrain. We are sitting at the Albina Press, having a morning conversation, dreaming. "Once I go out of this little world I'm living in, people don't even know what their clothes are made of. They don't know where fiber comes from. Fibershed has been trying to story-tell for everyone; but I still have to story-tell at every meeting. Even executives at brands... 'What did linen used to be made of?'" Shannon pauses for dramatic effect. 'It's always been made out of flax.' Stuff like that. They don't get it."

Part III: Material imagination

All photographs are ambiguous. All photographs have been taken out of a continuity. If the event is a public event, this continuity is history...Discontinuity always produces ambiguity. Yet often this ambiguity is not obvious, for as soon as photographs are used with words, they produce together an effect of certainty, even of dogmatic assertion.

...How is it possible for appearances to 'give birth' to ideas? Through their specific coherence at a given instant, they articulate a set of correspondences which provoke in the viewer a recognition of some past experience. This recognition may remain at the level of a tacit agreement with memory, or it may become conscious. When this happens, it is formulated as an idea."

Berger and Mohr 1995, 91 & 122

Earlier times



Three farmers pose with a Vessot puller, showing off the industrious efficiency of harvest. Their faces are blotted out by the shade of their hats. Sun tells the time, close to midday, and it takes a moment to translate the bright image—a hand-painted magic lantern slide—to the heat of the day. Flax bundles are featured in the foreground. An alluring familiarity draws us in to the colorized image, not just a history in black-and-white.

This photograph was taken in the early 1930s. The penitentiary plant was processing flax fiber; Salem Linen Mills had just been refinanced and reorganized as a cooperative. Miles Linen Mill had just gone out of business. Flax was growing at a few thousand acres in Oregon, spurred in part by the 1923 investment by the Portland Chamber of Commerce purchasing twelve of these machines for use by farmers throughout the Willamette Valley. It is reported that introducing this machine reduced labor costs dramatically, from \$20 to \$3.65 an acre (Wyatt 1994, 159).

Shortly after capture, this slide circulated in the Portland Public School system, educating children about the flax industry. It is kept in the Oregon Historical Society (OHS) Research Library, Portland Public Schools Collection. Today it is recirculating, currently on display in an exhibit titled

“Flaxen: From Flax to Linen in the Willamette Valley, Oregon” at the OHS office downtown Portland
October 8, 2019–March 31, 2020.

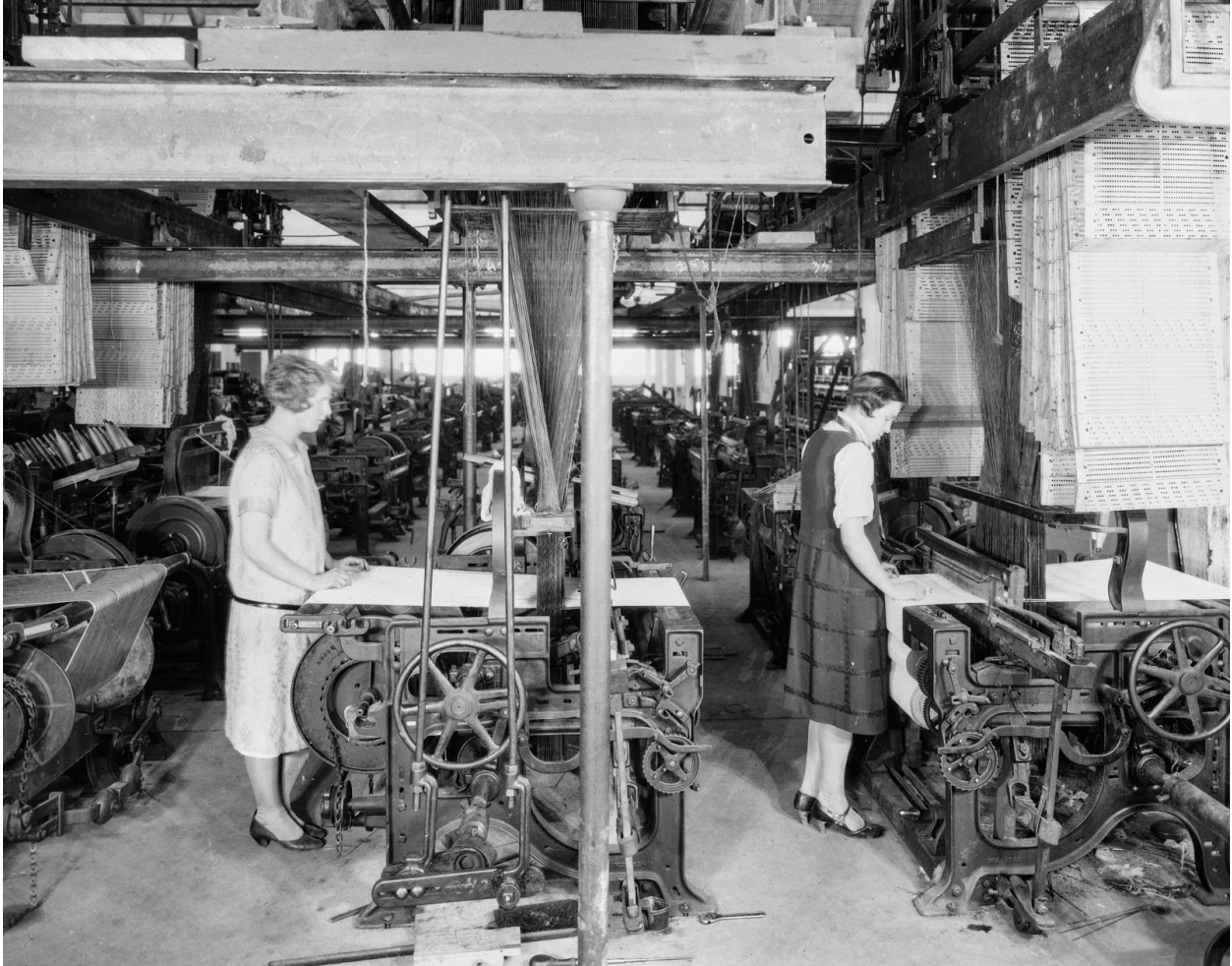
The image is written as both a historicized object and a beacon of contemporary times: “When PPS originally produced the slides, farmers had hoped that flax would become a cornerstone crop of Oregon’s agricultural industry. Despite a fertile growing area and government support...the industry collapsed after World War II. Since that time, there has been continued interest and excitement in reviving the crop in Oregon.”



A State flax festival filled the streets of Salem from 1936 through the early 1950s (Wyatt 1994). Both parade floats promote the State Flax Industry, the formal title for the processing mill at the penitentiary. Bushels in the photograph above are printed “Oregon Pure Flax Seed Meal,” along with another title too difficult to make out. The float pictured below carries a building sculpted with flax straw. Is this a mill? A house? The penitentiary? Somehow, it seems like it couldn’t be the latter. The inmate labor is subsumed by the fairytale Americana of flax.

These photographs are scanned in a digital archive “Hops and Flax: Pride of the Willamette Valley” first made available in February of 2019.²⁹

²⁹ State Library of Oregon, Digital Collections. Hops and Flax: Pride of the Willamette Valley. Accessed September 4, 2019.



It is still the early 1930s and women are posing at the loom. #25 in the Portland Public School Collection, its caption reads: “Weaving towels and napkins, Oregon Linen Mills”.

Oregon Linen Mills, also known as Salem Linen Mills, is five years into business (it opened in 1925). It would be the longest running private and manufacturing mill. Have the women in the picture dressed up for the photograph? Can they have worn these dresses to work? How many mill workers attended to these machines at once? Did these women work them, at all? Whose wives are they?

Looms extend into the background, but all are empty at the time of the photograph. They appear together, clean, but then—look to the floor in the foreground. Next to the mill, at center, there is a wrench on the ground, and another tool laying just beyond the post. Eyes searching the floor, now, the mill at right has dust and debris swept underneath: mill fires, and an industry history.



This is slide #7 in the OHS Portland Public Schools Collection. The caption reads: “Sheds for storing flax, State flax industry”. The sheds look like the one at the old mill site in Canby.

The magic lantern, an optical projection tool of the 19th Century, was known for its use in the film genre of phantasmagoria. Now, among other definitions, the word is used to refer to “a constantly shifting complex succession of things seen or imagined” (Merriam-Webster’s online).

Imagine what the end of industry might have been like, following years of harvesting and storing seven-thousand, then eleven-thousand, then nineteen-thousand acres of flax between 1940–1942 (Table 1). Imagine being left with this flax and nowhere for it to go. *A shifting complex succession of things seen or imagined.*

Contemporary times



Pull. And pull. Pull. Pull. Pull. Pull. Pull.

This 2017 harvest, photographed by John Morgan, shows Fibrevolution folks and volunteers harvesting less than an acre of flax. This is flax in the valley without harvesting equipment, somewhere between Kyla's backyard flax and the few acres of a farmer like Ralph.

The photograph is a powerful tool of imagination because of the flax's presence. Because flax is present in fields and photographs, it extends beyond an instance of volunteers grueling over a hand-pulled trial harvest. It is flax in the valley. It is a vehicle for the narrative of revival: a "sustainable linen movement"³⁰ and "bringing flax back."³¹

³⁰ See <https://www.corvallisadvocate.com/2019/sustainable-linen-movement-revitalizing-flax-hemp/>

³¹ <https://tilth.org/stories/fibrevolution/>



This flax puller sits in the Yamhill Historical Society Museum, and has a name tag (the white rectangle in the center of the photograph).

In part, it reads:

NAME PLATE: machine No. 449?

DATE: unknown

HISTORY: This machine was developed by Oregon State College...and used at the Hyslop Experimental Station, Corvallis in the 1990s doing research for crops to replace grass seed because of the field burning ban. This is the only one of its kind.

Shannon is in the background, visiting the museum with her partner and the photographer, John Morgan. There is something different to the machine, than there is with flax. Whereas this—and the mill sites—can, in disrepair, maintain a historicity in the present, flax, as a living being, is present only so long as it is rejuvenating.



This is a screenshot from a video Kyla shared on her Instagram of her hand-pounding the flax in her backyard in September of 2019.³² There is the neon plastic hammer she used, and a small handful from one of the under ten small bundles of flax she grew this season.

In the caption she explains about what she's doing ("Breaking happens after retting and drying..."), her tools ("There is a special flax brake designed for this process. I couldn't find one in my community so I improvised with a mallet"), and fun facts ("PS Wikipedia says Russia is the largest grower of flax"). On this particular image, commenters remark as much about her new haircut as they do her flax process!

Like Fibrevolution, Kyla is bringing flax into presence, and sharing that publicly. She does not connect it with a "revolution," but with experimentation.

³² Photo used with permission.

Conclusion

That the history of flax-to-linen production in Oregon was characterized by fluctuation, and that such uncertainty leaves contemporary revival efforts with a tantalizing sense of possible revival, has been sufficiently evidenced. What remains is to approach the ghost, and a possible haunting to which it points.

“Between the moment recorded and the present moment of looking at the photograph, there is an abyss,” write Berger and Mohr; “An instant photographed can only acquire meaning insofar as the viewer can read into it a duration extending beyond itself. When we find a photograph meaningful, we are lending it a past and a future” (Berger and Mohr 1995, 87 & 89).

The ghost of flax is made in that abyss, and hope for flax is made in acts extending historical duration beyond itself. Photographs, as we witness in the section above, lend themselves to the transcendent presence of flax across distances made by its absence. But photographs, and our necessary attendance to their contextual usage (e.g., in exhibits today), are a tool for seeing more deeply into the process of imagination, and materialization, that is happening even without a camera or a photograph in hand. The ghost leads us to the haunting.

The haunting at play here may be as old as modernity (quip intended), and then some. “The case of a ghost,” wrote Gordon, “is a case of modernity’s violence and wounds,” found in indescribables and contradictions (Gordon 1997, 25). We have witnessed, for instance, how Kyla labors in her job at a textile company where few employees seem to even know what linen is made of so that she can take a seat at her loom, and learn flax-to-linen by hand. We have witnessed how attempts at reviving industry have hoped for something different, though flax, and its non-intergenerational history in the Willamette Valley, tells us this is remarkably difficult. We witness the Fibershed imagination simultaneously include themselves in bioregional and capitalist ethics, and we have witnessed this as a thread of resistance to a dominant textile paradigm.

Shannon discussed with me belief that underscores her work. “The driving force behind all of it is to care for the earth, and the soil,” she said. “That’s really the driving force behind Fibershed, and of me. To make clothing, textiles and help the planet. Which we can do, we can do it a different way—not 100%. We’ll always have synthetics, and they have a place, and they have a use, but I think a balance would be nice, ya know.”

Robin Wall Kimmerer, scientist, author, and enrolled member of the Citizen Potawatomi Nation, writes in her book *Braiding Sweetgrass* of the work of retrieval of the Mohawk/Haudenosaunee culture after the traumas of Carlisle. “Plants are also integral to reweaving the connection between land and people,” she says as she refers to the resettled place, Kanatsiohareke, an ancestral Haudenosaunee Bear Clan village. “A place becomes a home when it sustains you, when it feeds you in body as well as spirit. To recreate a home, the plants must also return. When I heard of the homecoming at Kanatsiohareke, visions of sweetgrass rose in my mind. I began looking for a way to bring them back to their old home” (Kimmerer 2013, 259).

If we honor Dr. Kimmerer’s words, and let plants be integral to the relationship between land and people, how do we reconcile the worlds apart—and yet worlds overlapping—between stewarding sweetgrass and cultivating flax?

Dr. David G. Lewis, an anthropologist in Salem, Oregon, and enrolled member of the Grand Ronde Tribe, regularly publishes essays on his blog. In late October, 2019, he responded to a new exhibition at Oregon State Archives on industries of boom and bust in Oregon and now-ghost towns “founded by gold mining, logging, farming and ranching” with a critique of it replicating a tired story of manifest destiny and erasure of non-white histories (Lewis 2019).

Shannon has reflected on the symbolic connotations and actual trajectory of her Fibrevolution work, and that of Fibershed, and shared with me take-aways from a conversation she had with Dr. Lewis. “What they see and want is different from what we think it is,” she told me. “We’re kind of like, oh we’re honoring them by doing something like they did—that’s not, no. We talked a lot about a disconnect with people—they can’t help themselves when they talk to...like my sister in-law has a lot of Native American in her, and people misspeak right out the gate. The first thing they say to her is like a slap in the face, and they can’t help it. That’s one thing I’ve been trying to get more involved with, is talk to more of the native groups here. They never farmed like we did; that’s a colonial thing. They have a lot of insight into land management. I would really like them to be at the table as these things are being built. But it’s not gonna be that important to them to change what kind of shirt I’m wearing. Their vision of why they do what they do is different than what I’m trying to build, and what we’re doing.”

“Do they even want to be a part of this?” she asked Dr. Lewis. “He goes absolutely,” Shannon tells me, “if you approach them—he says everyone shows up with an agenda. We talked a lot with him about how he’s viewed this evolution of agriculture in Oregon, and I don’t want to be like that. ... And I’ve heard [people of color] don’t feel they’re part of this.”

There are impossibilities and possibilities that emerge in these acts of seeking to remediate relations with means, and a land, not ancestrally one’s own.

The contradictions embedded in the longing to recover past time, the longings for a better materiality, are made within that haunting. Flax fiber promises a more beautiful weave, a possible retrieval, of honorable ecological relations for people seeking to remediate their sense of place. Flax is one material way, among many, to imagine more honorable ways forward. The wider shed economies, a coordinated network of mostly, but not fully, self-contained regional economies of natural fiber goods, is this heartfelt effort attempting to make a way forward at a greater social scale.

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