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The problem of mechanization: Craft, machines, and 'centering' in a Japanese *Mingei* pottery village

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Abstract

This article provides a conceptual basis for 'centering' the relationship between artisanship and mechanization as one would in pottery making. Critical theory dichotomizes handwork from machine-work, emphasizing the division between non-alienated and alienated labor, authenticity and inauthenticity, and experiential resonance and capitalist fetishism. The author demonstrates the theoretical shortcomings and social repercussions of these dualisms through a study of Onta, a Japanese pottery village associated with the *mingei* folkcraft movement. Tied to ideals of cultural authenticity predicated on the refusal to mechanize, Onta's reputation came into question during the 'Problem of Mechanization' debate, when craftspeople announced a request to introduce modern machinery into their craft making patterns. Reflecting on the ways artisanal and industrial technologies have been imagined, this article poses the question: Do certain mechanical systems exert too much force to enter into centered relationships with humans?

Keywords

artisanship, craft, cultural property, Japan, machine, *mingei*, pottery

> The potter has to prepare his body as he does that of the clay. Because the wheel is center-oriented, the ball of clay will take a centered position naturally if we create the necessary support and influence … [Centering] is a marriage of forces. It is a continuous dialogue. (Richards, 1989)

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Centering

Every encounter between the potter and his wheel begins with the basic procedure of centering, the positioning of clay in the middle of the wheel's revolving platform. Immersing the potter in deep contemplation or otherwise silent war, centering is a concert between the centrifugal motion of the machine and the balanced push and pull of the craftsperson's hands. It is only this marriage of forces as the continuous dialogue between the artisan and the machine, to use ceramicist Mary Caroline Richards' words, that elicits the symmetry of the built form.

The relationship between the machine and the craftsperson poses a perplexing theoretical conundrum. There is a vast array of popular and academic literature by craft idealists, philosophers, industrial historians, and political economic theorists that dichotomizes handwork from machine-work, emphasizing the division between non-alienated and alienated labor, authenticity and inauthenticity, and experiential resonance and capitalist fetishism. While diverse in scope and focus, its rhetoric has either posited the inevitable teleological shift from one form of production to the other, or otherwise rallied for the purification of both sides in the name of cultural authenticity.

Gilbert Simondon opened his classic thesis *On the Mode of Existence of Technical Objects* (1980) with the same reflection: 'Culture has become a system of defense designed to safeguard man from technics. This is the result of the assumption that technical objects contain no human reality' (p. 1). Through analysis of a public conference called 'The Problem of Mechanization' held in the Japanese folkcraft village of Onta Sarayama, I discuss the theoretical shortcomings and social repercussions of bifurcating culture from technical systems. Taking from Simondon (1980) and Pierre Lemonnier (1986, 1993), this article provides a theoretical basis for 'centering' the relationship between craftsmen and machines as one would in pottery making. Against craft idealist rhetoric that has sought to repress machine-work under the banner of cultural authenticity, I argue that it is imperative to acknowledge the intertwining relationship of craftsmanship and mechanization not as surrender to the inevitable alienation of this late capitalist moment, but as open reception to the possibilities they create.

As a novice ceramicist, I spent a year in Japan learning the craft under the tutelage of a 16th generation craftsman. Afternoons at the wheel were profound moments of discovery and encounter. I was often struck by the fact that, however clearly I imagined the shape I intended to throw, the clay seemed to possess a mind of its own, so to speak. Certain types of clay, I learned, would only take certain shapes and not others. The craft of the potter was to learn how to engage in conversation with the material Other. I came to know the mechanical wheel as intimately as the clay I threw on it. Hunched over its steel body with elbows on knees and foot on the pedal, I spent many hours in the wheel's mechanical embrace. Memorizing its clockwise and anti-clockwise rhythms, I learned that body movement and effort on the part of the potter in tandem with the machine gave the body of clay life. The machine's regular speed, matched with the swiftness of throwing, gave texture and lively movement to the pot being formed. On productive days, I felt that the wheel and my body had become a single seamless unit, and the boundaries between my energies and the machine's blurred.

Reflections while crouched over the wheel, throwing clay, handling tools, and taking to heart the motions of the materials and the machine opened up a series of questions: If the marriage of forces between craftsman and machine was so fundamental in the potter's studio, through what philosophical and historical traditions had they become so ideologically opposed?

Studies on material culture have welcomed the contributions of theorist–practitioners describing how the craftsperson's tactile engagement with the material world offers new ontological and epistemological entry points into this question (Bunn, 1999; Keller, 2001; Schiffer, 2001). Inspired by craftsmanship, Tim Ingold (2013) for example introduced the notion of 'correspondence' to refer to human–material engagement that is more interlaced, more feeling, and more sentient than mere linear 'interaction' (p. 107). Ingold's concept highlights the need for scholarship that not only 'describes or represents', but 'responds and opens up perception' (p. 7). Together with a burgeoning scholarship in New Materialisms, his idea has taken up an important place in theoretical work challenging the modernist categories that shape post-Enlightenment thinking. However, beyond opening up new modes of anthropological inquiry, it is unclear how to take the notion of correspondence beyond the material encounter. On this note, Alf Hornborg (2014) observed this literature's conspicuous detachment from matters of political and economic importance (p. 128). By introducing the notion of centering and adding into the discussion the issue of cultural politics, my hope is to transform Ingold's observation into an imperative. That is to say, the concept of centering is meant not so much to describe the experience *when* human and material *are* centered, but to argue how and why they *must be*.

To explain my point, consider the decentered mound of clay on the spinning surface of the wheel. With left hand stationary against your knee, your right hand pushes against the mound slightly harder than it should. Perhaps you had an idea of an object in mind and the clay was not doing what you wanted it to do, so you assert yourself. The grit of the wet clay starts to dance and wobble against your palm, and the speed of the revolving surface suddenly becomes apparent to you in ways it was not before. As the forces lose their symmetry, your afternoon of quiet contemplation devolves into a moment of panic and frustration. When the clay was centered, it became for you an animated canvas, a material collaborator enabling your free expression. Decentered, it became an alien thing unrecognizable and oppressive, inhibiting you from the work you set out to do. If for Ingold (2013: 7) what was lost in the lack of correspondence was the creativity of the productive process, the generative current of materials, and sensory awareness, what is lost in the decentered relationship between human and machine is a matter of freedom.

The concept of centering grows out of an idea Simondon (1980: 1–2) has emphasized in his writing: that the most powerful cause of alienation in modern industrial society today is not caused by machines, but by a misunderstanding of the machine's nature and by its omission from the world of meaning and value – that is, a decentered human relationship with mechanical systems. For him, in the same way that ignorance and resentment had engendered the history of slavery, so too had machines become victims to a type of xenophobia that denied their internal human quality (p. 3). Simondon's call for philosophical work on technical objects was certainly a call for new modes of scholarly inquiry, but he imagined the stakes as explicitly political.

Figure 1. Onta, with a view of the stream and climbing kiln. © Photograph: Simone Armer. Source: http://www.simonearmer.com/ontayaki-pottery-village/#more-4868. Reproduced with permission.

To work through the notion of centering, I turn to an historical and conceptual study of Onta (see Figure 1). I was drawn to the village for its close association with the *Mingei* Movement, a folkcraft movement of Japan's interwar period, and its reputation of cultural authenticity predicated on the refusal to incorporate modern machinery. Tucked away in a shallow valley in the foothills of the Hiko-Gakumei mountain range of Oita prefecture, Onta no Sarayama, literally 'the plate mountain of Onta', is home to 14 households, of which 10 have been producing *ontayaki* pottery for the past 300 years. Characteristic glaze and slip styles such as *tobiganna* chattering, *hakeme* brush strokes, and *uchikake* trail glazing, ball and coil forming techniques, and manual kickwheels define Onta's identity in the craft world. Newspaper clippings, tourist advertisements and scholarly articles on Onta celebrate the village for a tradition of handwork, rural family living, and communal social organization.

I made several field visits to Onta between 2011 and 2012 for site surveying, observation, and archival research at the local museum, while continuing to pursue the craft in several pottery studios outside the village. For ethnographic details, I remain indebted to the work of anthropologist Brian Moeran (1997) who began fieldwork in the village in 1977. I have supplemented Moeran's observations on the social structure of Onta's village life with my own reflections from the wheel and conceptual analysis.

In my own experience turning clay, I came to understand centering as a two-sided process: first, learning the nature of the forces at play; and second, reflecting on the reasons for asymmetry. With this analogy in mind, I begin with an introduction to Onta,

describing how the mechanical system of the *karausu* clay crusher is central to the village's socio-economic organization. Challenging the separation of culture and technics, I demonstrate how it was in part a machine that gained the village its special place as a home to *mingei* folkcraft idealism. I then introduce the 'Problem of Mechanization' debate of the 1970s, revealing the disparate ways the human–machine relationship has been understood. An important moment of technological choice, the debate opens up the question of how symmetry between those cultural and technical forces might be affected. I continue with a brief discussion of Yanagi Sōetsu's *mingei* theory, formative to the problematic intellectual heritage surrounding the issue of mechanization in Japan. In the following section, I pose the question raised by the Problem of Mechanization debate: Do certain technical systems exert too much force to enter into centered relationships with humans? Through a theoretical discussion of animism and fetishism, I reflect on the dichotomies between artisanal and industrial technologies to open up the possibility of a new conceptual relationship with machines. I conclude by returning to the concept of centering, arguing how the need for theory on machines also necessitates renewed ways to understand culture and cultural life.

The technical system of a cultural village

To get to Onta, visitors ply up a single winding road flanked by two flowing mountain streams. The narrow street courses through a quiet valley lined with houses made of wooden frames and giant climbing kilns with brick chimneys. Most houses are attached to a workshop and a gallery where *ontayaki* pottery is laid out on display. Inside the workshop, a lone potter sits cross-legged on a flat *zabuton* cushion. Crouched over a wooden kickwheel, he goes about his work in studied, trance-like silence punctured only by the static of an analog radio. By his side are handmade metal and bamboo trimming tools, a murky water pot with hanging chamois leather strips, and a line of perfectly identical freshly formed bowls atop a long drying board. Everything between the windows and the dirt floor – the sinks, toolboxes, wedging tables, and glaze buckets – is covered in a film of reddish brown dust and piles of clay shavings. The mountain hamlet echoes with the sound of rushing water and the characteristic *gatan, gatan* pounding of *karausu*, Onta's water-powered wooden clay crushers, which dominate all sound in the valley. The *karausu* is a relic of the past and has gone out of use in every pottery village in the country except Onta.

The *karausu* is a 14 foot-long water-powered clay crusher that operates like a seesaw (see Figure 2 and 3). Stream water is channeled into a hollowed-out scoop on one end, the weight of which causes the shaft to tip down at a point about 5 to 6 feet from the scoop. This empties the scooped-up water back into the stream and releases the shaft with a heavy thud onto a pile of uncrushed clay sitting underneath the opposite end. Clay prepared in such a way is then processed by hand, dried out in the sun, thrown on a kick wheel, and fired in a large communal kiln.

At first glance, the *karausu* appears to be a purely functional assemblage, almost primitive in its simplicity and meaningless in its apparent lack of aesthetic consideration. Onta potters merely needed a means to crush heavy stone into clay and so they harnessed the force of running water and the weight of a large slab of wood to accomplish the task.

Figure 2. The *karausu* wooden clay crushers. © Photograph: Simone Armer.
Source: http://www.simonearmer.com/ontayaki-pottery-village/#more-4868. Reproduced with permission.

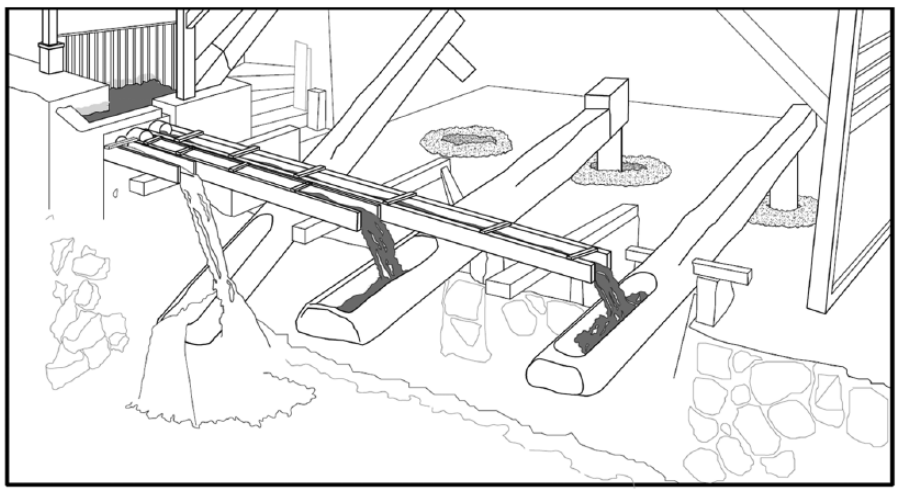

Figure 3. Onta's *karausu* harnessing the natural force of water. © Diagram: Adrianne Ong. Reproduced with permission.

In his volume *Technological Choices*, Lemonnier (1993) was wary of such forms of understanding that flattened the mental schemas behind technical selection into a matter of answering purely physical problems alone. His observation is significant for locating

the human reality in the machine and restoring technical realities to the cultural realm. Far from being an object of pure utilitarian function, the mechanical system of the *karausu* is central to the larger social cosmology of Onta, creating the very qualities that garner the village the title of home to *mingei* idealism.

In his ethnography *Folk Art Potters of Japan*, Brian Moeran (1997) observed how the use of *karausu* continues to influence the social landscape of the village. It shapes Onta's demography, the productive capacity of workshops, the anatomy of family life, and work practices of its craftsmen, and patterns of craft making that then became associated with the *mingei* values of traditionalism, communalism and natural equilibrium. Moeran explains that for the clay crusher to pivot effectively, each wooden mill must be set about the same distance above the bed of the stream from which it receives waterpower. Because each crusher or set of crushers must be located a certain distance away from each other to maximize the waterpower available, and because the space along the streams between the cultivated land on the top and bottom of the community is fixed and has already been maximized, the number of pottery households that require the clay crushers for preparing their materials is also set and cannot increase. This has two important implications for the demographic constitution of the village. It means that no additional pottery-making families can move into the village. It also implies that already existing households may not create additional branch households for their descendants. Because of the continued reliance on the technical system of the *karausu* Onta's Sarayama has remained uniquely micro-scale and strikingly intimate. While the machine simplified the laborious process of crushing hard stone, it has in fact, perhaps ironically, prevented speeding up the production process and inhibited expansion. The fame and demand for *ontayaki* pottery notwithstanding, the number of its pottery households has remained fixed at 10 for the past 3 centuries.

The continued use of wooden clay crushers in Onta has also tended to stabilize the social makeup of families and work patterns in the workshop. Because the *karausu* can only prepare enough clay for about two full-time potters to work with comfortably, studios can only support two workers on the wheel at any given time. This means that in addition to a father and one of his sons, it is virtually impossible to hire additional help or the service of any other son. Only being able to provide for the livelihood of one son, each pottery household is therefore required to request all other sons who have come of age to move out of the village and seek other sources of income. The coherence of the family unit over generations is as much a social product of a technical system of pottery production as it is a function of 'adherence to tradition'. This explains another important feature of the community: unlike most other pottery-making regions in Japan, Onta does not take in rotating workmen or apprentices from within the country or abroad. The outcome is that the traditional styles and techniques of *ontayaki* maintain a sense of integrity, largely remaining within the confines of this particular valley.

Importantly, Moeran (1997) has also described how the reliance on the mechanism of the *karausu* both encourages dependence on natural resources and engenders socio-economic egalitarianism within the community. Because the clay crushers owned by each of the 10 potting households are by nature powered by the flow of water from a singular source, each *karausu* crushes just as much clay as any of the others, providing every household with close to uniform amounts of clay powder. In the winter when water from

the streams freezes and the crushers stop functioning, this affects each and every pottery household. In the spring, however, when ice and snow from the mountains melts and water flow is particularly heavy, all kilns are able to prepare a greater volume of crushed clay. With approximately equal amounts of clay to work with, each pottery family ends up producing just about as many pieces as any of its neighbors. The reliance on the flow of water to power the *karausu* directly ties the production process of *ontayaki* to the often slow and steady rhythms of nature. This makes it virtually impossible to speed up the productive capacity of the community beyond its current rate. It also democratizes the distribution of raw materials in a way that subsequently equalizes the overall earnings of each pottery household. The collective assigning of prices on products helps to stabilize this egalitarianism, and generate the image of disinterest in individual profit.

Technological choices

When Lemonnier (1986) proposed an anthropology of technology, he framed it not simply as the 'study of relations between material culture and society', but rather the 'study of the *conditions of coexistence* and of *reciprocal transformations* of a technical system and of the socioeconomic organization of the society in which it operates' (p. 154, emphases added). At first, Onta seems to be the perfect example: its tightly knit community with largely egalitarian practices, its demonstration of disinterest in economic profit-seeking, and practiced communalism with the surrounding natural environment frame it as an ideal picture of a symmetrical coexistence. Contrary to this picture of a quintessential Japanese pastoral landscape, however, folkcraft villages like Onta are in fact primary sites where the politics of cultural authenticity play out. Lemonnier's concept hints at but does not fully explain how the symmetry of reciprocal transformations might be realized – that is, what kinds of technical systems allow for conditions of coexistence, and what kinds of machines enable 'centered' relationships. Nor does it mention the forces that set that symmetry off-center, be they material, ideological, or theoretical. Further, and importantly, his mention of 'society' provokes the question of tensions that arise when different people have different ideas of what coexistence means.

In Onta's history, these tensions came to the fore most clearly in January 1971, when representative Onta potters, members of the Hita City Ministry of Commerce and Industry, the Hita Tourist Association, the Hita Cultural Property Preservation Commission Board, and the *Mingei* Association gathered for an 18-day consultation conference to discuss what was called the 'Problem of Mechanization', or *kikaika mondai* in Japanese. Inspired by observations of their neighboring ceramics village, Onta craftsmen presented to a board of 20 members a formal request for permission to install mechanical clay crushers and other modern devices into their work studios. The appeal was based on the following complaints: first, old techniques required too much labor, making production particularly demanding on households with fewer family members; second, it was not possible to meet the current demand for pottery with the current production practices; third, while prices of the products were kept constant in keeping with *mingei* ideals, the costs of living continued to rise; and fourth, what used to be a per capita business tax until the preceding year had been turned into a fixed tax imposition, creating greater competitive demands on potters to sell their goods (Ōita Gōdō Shinbun, 1971a).

The 'Problem of Mechanization' was an emotionally charged debate that divided the community and the general public into two opposing halves: those who identified themselves as 'for tradition' versus those 'for mechanization' (Ōita Gōdō Shinbun, 1971c). For others, the problem revolved around deciding whether *ontayaki* was bound for a future as a 'commodity' or a 'cultural property' (Mainichi Shinbun, 1971). The vast majority of the public engaged in Onta's *kikaika mondai* issue remained opposed to the idea, predicting that mechanization would 'kill the flavor' of traditional crafts. Posing the debate as an issue of the 'simplification of labor', critics claimed that mechanization could only lead to the loss of highly valued production skills. A critical opinion article entitled, 'Simplification of labor must be avoided: Anxieties over Onta's kilns', stated:

> Within the last ten years, Onta potters no longer own cattle, they have quit agriculture and have left their chores in the mountains to hired work. Family life is becoming increasingly modernized to look no different from city life. The trend towards the simplification of labor brings about tumultuous consequences. (Utagawa, 1971)

One opinion columnist from the Oita Press described the simplification of labor as a result of a 'contemporary Japanese *feminine* tendency towards "*amae*"'. The term was theorized by sociologist Doi Takeo and referred to an emotional system of hierarchical dependence as that between a mother and a child (Asahi Shinbun, 1971). The Oita columnist strongly urged not to spoil craftsmen who were duty-bound to uphold the precepts of tradition, saying, 'only easy-going results come of easy-going means.' Instead, he reminded potters to take on the 'masculine willpower to confront hardship and turn their aspirations into realities'. This is the only way to truly 'know' the heart and soul (*kokoro*) of ceramic arts.

Supporters of the change, on the other hand, claimed that it was high time to prioritize Onta's 'rationalization'. In addition to addressing Onta's labor insufficiency, the choice to mechanize symbolized a new openness to the changing times and improving product quality. Akisada Kanji, head of Hita City Prefectural Industrial Art Institute, wrote, 'I think that tradition is something that belongs to both the past and the present … The No.1 most important thing to remember is that quality improvement is the most effective means towards preservation' (Akisada, 1971). Another opinion writer posed the question, 'Does being called a "cultural asset" necessitate the protection of production methods that are irrational?' (Mainichi Shinbun, 1971).

These proponents of mechanization questioned why it was necessary for pottery to be made laboriously to qualify as 'handmade'. 'From what point in the production process does mechanization have an actual effect on the final product?' asked another opinion writer. Many of those who had been against mechanization reasoned that machines would erase the charm of handwork. However, others argued, 'Though the effects of glazing, throwing and firing procedures were indeed demonstrated on the actual pot, *clay is clay* whether or not it is collected and processed by hand or by machine' (Akisada, 1971, emphasis added).

Miyake Chūichi, founder of the *Mingei* Cooperative, was invited to participate in the discussion for 7 of the 18 days. His suggestion was either to construct 10 more *karausu* in the village hamlet with the financial assistance of the national and prefectural governments,

or to introduce clay-crushing machines and mix mechanically crushed clay with that crushed by the *karausu*. Unsatisfied by these solutions, the congregation decided after 18 days of consultation that Onta would abandon the idea of installing new mechanical implements and adhere to the old procedures. Terakawa Yasuo, head of the Hita City *Mingei* Cooperative and longstanding patron of *ontayaki*, concluded in a newspaper interview that although mechanization could potentially benefit the village temporarily, there was more to be lost than to be gained (Asahi Shinbun, 1971).

Today, exhibits lining the Onta Ceramics Museum echo the importance of purifying machine work from craftwork. A blown-up image of a newspaper clipping reads:

> Onta pottery has value precisely because from the digging up of the clay to the opening of the kiln its villagers make them with exactly the same techniques as in the years of past. If Onta were to rationalize (i.e. mechanize) … eventually [it] would become purposeless. (Ōita Gōdō Shinbun, 1971b)

Mingei theory and the age of the machine

The *kikaika mondai* debate was a watershed moment that revealed the unspoken assumptions and ironies underlying Onta's identity as home to *mingei* folkcraft idealism. Both factions argued relentlessly for the preservation of Onta as a cultural village, but neither had a clear idea of what culture was: Was it the product of artisanship, or the process of production? While it was the threat of mechanization that destabilized the status quo, no one seemed to think it ironic that much of that stability was in fact enabled by the mechanical system of the water-powered clay crushers.

The *karausu*, kick wheel, and climbing kiln, and their mechanical equivalents had come to represent polar ends of a technical spectrum of threat. In many ways, this was the result of a particular historical and ideological legacy surrounding the issue of mechanization in Japan, where the 'age of the machine' had become entangled in rhetoric of Westernization and cultural loss. Historian Carol Gluck (1998) called attention to the rupture that pervades writing on the transition from the pre-industrial Edo period to the Meiji industrial revolution. She points out the grand syllogism that had formed in history and literature: 'Modernity is Westernization. Japan is now modern. Therefore, Japan is Westernized: Japan is no longer Japan' (p. 272).

The *Mingei* Movement, which championed folkcraft villages like Onta, was one of several nativist responses to the perceived 'crisis of culture' born of Western mechanization. Established by the aesthetic philosopher Yanagi Sōetsu in the interwar period of the 1920s, the movement identified itself as a pushback against modern industrial capitalism in support of a culturally rich folk-life based on handwork and craftsmanship. Like its predecessors in Great Britain, the movement was catalyzed by sentiments of dissatisfaction with the spread of mass-produced goods and the consumerist hedonism and labor alienation it had brought about. To counter these frustrations, advocates of the movement promoted the revival of handcrafted objects called *mingei*, a contraction of *minshūteki kōgei* or 'crafts of the people', which were positioned in opposition to capitalist commodities (see Brandt, 2007, Kikuchi, 2004; Yanagi, 1972).

By promoting a return to hand production and craft making, the movement joined efforts at the time to rebuild a nation-wide community free from the social ills of a 'religiously, morally or even economically untenable' system of Western industrial capitalism (Yanagi 1972: 209). Fueling the Western capitalist system they sought to reverse was the sweeping mechanization of the production process and the widespread implementation of machinery that took the rightful place of skilled handwork. To this, Yanagi wrote, '[We] must curb the unlimited spread of that mechanization that brings with it loss of beauty, bad products, and bad conditions of life' (p. 207). The shift from the 'Age of the Hand' to the 'Age of the Machine' in Japan had brought about a 'disastrous effect not only on the crafts but also on the way of natural life in which they had their roots' (p. 103).

Yanagi was deeply moved by what he had seen in Onta when he had 'discovered' the village in 1931. His reflections are documented in a 1955 essay called *Hita no sarayama*, which celebrated the village as the epitome of *mingei* idealism. The essay described how the narrow and winding dirt roads that funneled into the mountain village had 'cut it off from the flow of time', making the village a special place 'against the natural laws of contemporary society' (p. 14). Here, 'Tradition was all anyone had' (p. 13).

The symmetry of clay, wood, and steel

Mingei theory was a product of a particular historical moment in Japan, but its tenets are not unfamiliar to Western theory. Bryan Pfaffenberger (1992) described what he calls the 'Standard View of Technology', a mythical 'master narrative of modern culture' describing the view of Man's descent into a state of inauthenticity in the Age of the Machine:

> The result of the explosion of technological knowledge has been a massive expansion of Man's reach, but with lamentable and unavoidable social, environmental, and cultural consequences: We live in a fabricated environment, mediated by machines. Technology was more authentic when we used tools, because we control them. Machines, in contrast, control us. Thus, one can identify a Great Divide or Rupture when Man lost his authenticity as a cultural creature, his Faustian depth as a being living in a world of cultural meaning, and handed himself over to a world ruled by instrumentalism and superficiality. (pp. 494–495)

Pfaffenberger's Standard View points to the flattening out of the diversity of socio-technical experience into a fatal rupture between culturally authentic, tool-based, traditional forms of craftsmanship and a superficial, purely functional, modern mechanization.

Contrary to Onta's preservationists and *mingei* ideologues, my contention here is that it was not in fact mechanization per se, but a problematic and essentialized understanding of mechanization that fueled the anxieties behind the *kikaika mondai*. Breaking down this 'Great Divide' forces theorists to confront the stereotypes in how the human–material relationship has been imagined in artisanal versus industrial settings. The very materiality of craft objects and industrial objects seems to replicate the dichotomy. It is not hard to imagine conversations between the craftsman and clay to be melodious, egalitarian and free flowing dialogues – a centered relationship where human, material, and machine approach each other as equals, perhaps even companions. Clay before firing is malleable, moist to the touch and generally compliant. Ingold (2000) in his own reflections on weaving compared the agentive resistance of basketry to the suppleness of

pottery, saying, 'The potter may have to contend with the force of gravity … but the clay does not exert any independent force' (p. 342). While Ingold overlooks the forcefulness of clay's grit, weight and obduracy (clay is ground-up stone after all), he does call to mind an important point: certain materials like clay, wicker, fiber and cloth lend themselves more easily to theories that understand the human–material relationship as centered and mutual rather than unidirectional. This raises questions explored by several theorists (see Gibson, 1979; Kockelman, 2013) but seldom in the particular symbolic terrain of craft: Is there an agentive hierarchy of materials? Are certain objects more moving, more animate, or more threatening than others, as a mechanical clay crusher might be over the wooden *karausu*? Do certain technical systems exert too much force to enter into centered relationships with humans? And how can we address these questions without resorting to universalizing and transhistorical ideas of materiality?

When compared to clay, wood, and fiber, materials like stone, coal, iron, and steel seem to have acquired fetishistic proportions of obstinacy. They seem to refuse conversation not only through their recalcitrance and inflexibility, but also the speed and rhythm of the industrial machinery employed to work with them. The image of the potter's lazy pace working on a kick wheel stands in stark contrast to the oppressive tempo of a steel conveyor belt. The rushed pounding of a mechanical clay crusher could not seem more alien to the slow and irregular thud of the *karausu* echoing throughout the valley. Slowness and silence takes on an almost spiritual quality, while industrial machinery implies a world order of instrumentalism leaving no room for spirituality. These brutish mechanical systems appear to disrupt theoretical attempts to reimagine the human–machine relationship as somehow reciprocal and mutually constitutive.

In cases of both artisanal technologies and industrial machinery, there is an experience of matter as lively rather than inert. However, this liveliness has been understood in strikingly contrasting ways. Consider, for instance, the three following reflections: the first by Kawai Kanjirō, a celebrated Japanese potter and founding member of the *Mingei* Movement; the second by Leila Philip, a writer and apprentice to a kiln in Miyama; and the third by John Ruskin, the prominent English social thinker of the Victorian era whose thoughts influenced the British Arts and Crafts Movement.

> Man can make a bowl of clay. He can make it round and smooth, but until it is fired it cannot be used. Man can lay the fire and light the flame, but still it is the fire itself that really completes the bowl. And that fire is something bigger and more wonderful than any man. (Kawai Kanjirō, cited in Uchida, 1973[1953]: 14)

> I hold my hand up to the light and look at it slowly. The skin is cracked in places, winkled and dry from daily contact with clay, the nails filed down past the fleshy tip. It looks more like a tool than a hand … What did this hand look like a year ago? … My hands have been molded too. (Leila Philip, 1989: 255–256)

> And observe, you are put to stern choice in this matter. You must either make a tool of the creature, or a man of him. You cannot make both. Men were not intended to work with the accuracy of tools, to be precise and perfect in all their actions. If you will have that precision out of them, and make their fingers measure degrees like cog-wheels, and their arms strike curves like compasses, you must unhumanize them. All the energy of their spirits must be given

> to make cogs and compasses of themselves … The eye of the soul must be bent upon the finger-point, and the soul's force must fill all the invisible nerves that guide it, ten hours a day, that it may not err from its steely precision, and so soul and sight be worn away, and the whole human being be lost at last … (Ruskin, 2009: 162)

All three reflections recognize the transformative quality of something other-than-human, but where the first two imbue a sense of awe over the spirit or life-source made to reside in matter, the third expresses fear of matter's autonomous ability to overpower and dehumanize. In the first, Kawai recognizes himself as a free actor and offers his work up to the material Other willingly, almost in prayer. With a similar sense of wonderment, perhaps even pride, Philip witnesses the conversion that has taken place between her hands and her tools. But Philip's calm reverie is dramatically upended in Ruskin's reflection, despite the fact that he is describing a strikingly similar moment of transformation. Ruskin's workman emerges disfigured, his body contorted into a tool against his will by a thing of steel and brass.

Alf Hornborg (2014) might have identified the difference as that between animism ('pre-modern forms of fetishism') and capitalist fetishism. He states:

> There is a crucial difference between representing relations between people as if they were relations between things, and experiencing relations to things as if they were relations to people. The former is an ideological illusion underpinning capitalist political economy, the latter is a condition of phenomenological resonance. (p. 127)

There is an assumption about embodiment and immediacy at the heart of the division Hornborg tries to draw. Where animism is a direct and embodied experiential reality, fetishism is a discursive creation referring to a relationship that is essentially disembodied (see Pels, 1998).

To Hornborg (1992, 2001, 2014), extending the Marxian concept of fetishism, commonly used to analyze money and commodities, to the domain technology exposes machines as another form of contemporary mystification, instruments of unequal global exchange and the appropriation of space-time. Analyzing technology as capitalist fetish renders it an object of political critique, revealing 'how we tend to be deluded by modern technologies' (Hornborg, 2014: 121). His project is undoubtedly crucial to the cultural analysis of capitalism. Indeed, the concept of the fetish has been spectacularly useful in illuminating, as Marx intended, the reversal that occurred with the onslaught of capitalism: 'It is now no longer the labourer that employs the means of production, but the means of production that employ the labourer' (see also Samuel, 1977). However, the notion also lends itself to the kinds of overzealous critique that become cause for decentered human–machine relationships. Marx's commodity fetishism makes clear that because capital and commodity are from the beginning social powers, it is a mistake to equate the mystical substance with the actual fetish object. But in typical Marxian fashion, one might flip that statement back around to express a different idea that is no less true. It is also a mistake to equate the actual object with the mystical substance – in this case, the machine with the capitalist world order for which it is often instrumental but not causal.

Thus, while Hornborg's (1992) turn to the concept of the fetish is key, his focus on industrial technology as a 'phenomenon of systematic appropriation and accumulation of order' (p. 14) makes it easy to forget two important possibilities. First, that the potter firing his clay pots, whose animistic, 'pre-modern' engagement with the material world is so highly valorized as a guard against the ills of capitalist industry, is also in fact caught up in the demands of the modern capitalist system in which he lives. Second, that interactions with the machine as material Other can also be phenomenologically resonant.

Return to center

On 14 April 1995, the Committee for the Preservation of Cultural Properties in the Agency for Cultural Affairs designated the community of Onta as one of Japan's Important Intangible Cultural Properties. Since then, regulations have been put in place to formalize the commitment to retaining only 'traditional technologies'. The designation requires that: (1) clay should be taken from around Ontayaki Sarayama, crushed using the *karausu*, sifted by hand, and dried in the sun; (2) when forming pots, a technique called *nerizuke* or 'coil and throw' must be applied on a kick wheel, and not a mechanical or electric wheel; (3) decorations must include *tobiganna, hakeme, uchikake, nagashikake* and *yubigaki* as has been done in the past; (4) the glaze materials must consist of only natural materials in accordance with the traditional recipes; and finally (5) potters are required to fire their wares in the climbing kilns 'as handed down of old' (Moeran, 2008: 41; see also Hamada, 1998, 2006). The guidelines streamline the understanding of an unfixed culture into its most legible form. Through the regulations, cultural life in Onta begins to make sense as a form of 'property' belonging less to the potters than to the state.

Reflecting on Onta's designation as a cultural property brings to mind Simondon (1980), whose call for new philosophies of technology was in fact also an appeal to amend the ways we think about culture and cultural life. To *mingei* enthusiasts, visitors to the valley and the craftspeople themselves, Onta pottery with its trademark *tobiganna* skip chattering (see Figure 4) abounds with cultural significance. Its disciplined simplicity and lack of ostentation is a symbol of the humility of folk life and a commitment to egalitarian, communal living. Its warm glaze colors and subdued decorative patterns are a gesture to the comfort of daily life, as well as a reminder to find beauty in the everyday. Yet while most will appreciate *ontayaki*'s characteristic skip chattering motif as a symbolic 'decorative style', few might recognize that it is also the rhythm of the machine materialized. The perfect measure of its undulating strokes is the manifestation of the symmetry of humans and machines, the transcript of the continuous dialogue of which Richards (1989) spoke.

A glimpse into technical and cultural life in Onta reveals the moral difficulties and social costs of purifying craftwork from machine-work. Today, 40 years after the *kikaika mondai* discussions, the 'Problem of Mechanization' is no longer an issue of heated debate. Nevertheless, its rhetoric, echoed in the Intangible Cultural Properties designation, reveals the particular ways in which the relationship between culture and technology has been imagined and constrained. The insistence on the Great Divide between artisanal and modern technologies creates a moral double bind for the craftspersons

Figure 4. *Ontayaki* pottery with skip chattering, or *tobiganna*. © Photograph: Alyssa Paredes.

because they are so often enmeshed in narratives of cultural authenticity. The artisan producers become both marginal and essential in the story of cultural transformation: they are both a remnant of a romantic past destined for eventual stamping out by a more forceful industrialization, and gate-keepers to the imagined moral perfections of that imaginary Golden Age.

It is imperative to move beyond the 'all-or-nothing' and 'either-or' rhetoric of debates in cultural politics. Absolutist demands for uncompromising adherence to the small-scale, the de-mechanized and the all-natural in the search for alternative economies are problematic in practical terms in addition to philosophical ones. They encourage social repression in the name of fantasy. Narratives that pose an essential difference between the 'artisans who use craft tools' and the 'machines that use them' deny the human reality in technical reality. As is clear in the practice and concept of centering, human and machine both use each other. The theoretical and political project, as I have expressed here, is to think about how to make that relationship symmetrical. If craftsmanship does indeed sit at the heart of an alternative to mass production, then the future it seeks is not a social landscape where mechanization is wholly repressed or denied, but rather one where human and machine are centered in an intertwining marriage of forces and a continuous dialogue.

In his ethnographic work on Onta, Moeran (1997: 220) explained that the potter affirms the existence of his community by continuing to use the kickwheel. But to argue the converse and claim that the potter denies the existence of his community by using a

mechanical wheel instead is to subscribe to an anemic idea of cultural life. Matthews Hamabata described how even industrial machines can become a means to affirm the self and the community. In his ethnographic work with factory workers of a Japanese liquor company, he shares:

> All three managers felt that there was a special spiritual presence in all of their machines; and they stressed over and over again that their major concern was the maintenance of their machines … but it wasn't a love for machinery as machinery, but of machinery as some kind of spiritual extension of themselves: *kikai wo migakeba, kokoro wo migakimasu* (if you polish the machines, you polish your heart) … at any rate, there is a connectedness between men and machines, not only between men and men; there is a constant transcending of the self to create a beautiful product, a community product. (Hamabata, cited in Kondo, 1990: 245)

Hamabata's observation is an intriguing, if regretfully unfinished, foray into the gray area between animism and fetishism, and artisanship and mechanization. To the managers, there is no doubt that the machines continue to be an instrument of capitalist production. Nevertheless they emerge from the encounter with their mechanical counterparts with a sense of spirituality, an extended understanding of self, and an affirmed social connection – a centered human–machine relationship in a context where we might not have expected it. In what ways can theorists take seriously such experiences without dismissing them as false consciousness born of capitalism? Importantly, what accounts for the difference between Hamabata's workmen and Ruskin's? How do the forces at play come together to encourage symmetry in one and not in the other? The concept of centering opens up these questions for further research, inviting the anthropology of technology and its allied disciplines into the middle ground where humans fold into nonhumans, machines and hearts are entwined, and hands become tools become hands.

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