

# Practicing Practice

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“There is nothing so practical as a good theory.”

—Kurt Lewin (ca. 1946)

The fact that practice is the new location for discourse on innovation is striking. “The new,” once associated with theory or form, used to find its home in academia. Now, the emergence of digital fabrication, virtual modeling, building information modeling (BIM), integrated project delivery (IPD), outsourcing, and just-in-time delivery is all the talk. Moreover, the economic crisis that makes getting a job a driving concern either for the graduate or for the office puts emphasis on practice’s viability. The concern for ecology, likewise, turns our attention away from theoretical speculation toward the “best practices” and the sharing of professional knowledge. Even the move toward post-criticality within academia is a nod to the primacy of making, producing, and practicing over speculative thinking.

This is good thing. Nothing is more provocative than reality, whether economic or environmental, and nothing has a more tangible impact on those realities than applied practice. But the concept of “practice” itself should not go unexamined. “Practice” should not be equated with “the profession” and all it connotes: proper, codified behavior; contractual limits to risk; efficiency of production; fiscal responsibility; and economically prudent activities. Instead, practice can be understood in its other context: the act of rehearsing a behavior; a method of learning and acquiring experience; and a strategy for accomplishment.

What follows is a speculation on how architects might view practice at this moment of “practical” intensity, a speculation that is at once utopian and reasonable; impractical and hyper-practical; left-leaning and right-nodding. It assumes that the current situation, in both the global economy and the practice of architecture, is in a state of exuberant disarray. As Mao said, “Everything under heaven is in utter chaos; the situation is excellent.”<sup>i</sup> The speculation examines what other disciplines—philosophy, sociology, business management, art—have to say about practice as an arena of innovation, in a manner that is both biased and utopian, theoretical and (post-post) critical. The aim is to put theories of practice in a historical context, thereby offering not an argument per se, but a tool set for revisionist thinking.

Architectural practice has ignored the fact that it is a site of structured production analogous to other forms of production. This ignorance is partly the result of the schizophrenia regarding the type of producers architects are. We think of ourselves as “piece” laborers relying on the sale of individual goods even as we increasingly recognize that we produce, like doctors and lawyers, services. Feeling equally in and out of place in either mode, we ignore the issue of structuring architectural labor altogether. For those trained in assigning singular value to the aesthetics of the object, it is an adjustment to assign creative thought to the efficacy of process. The ignorance also results from the fact that, while the cost of procuring and managing labor takes up close to 50 percent of the office

budget, its implications are rarely discussed.<sup>11</sup> The result is an inability to both grasp and actually control an organization that can produce architectural work, and to determine fair wages for fair work. As salaried laborers, we have no protection under the AIA; we can be laid off at any time, we have no regulation of hours and no minimum wage.

At this transitional moment in the profession, when design responsibility and financial savvy are shared amongst various players, the constitution of a new model for architectural practice is entirely up for grabs. Now is the time to think expansively about what we want this new practice to look like and how its organization might be linked to larger social, political, and economic formations. As new players in the management game, architects are free to move directly toward an imagined ideal.

The organization of practice is divided into two different discussions: practice in general and management in particular.

## **Practice**

The most effective theories of practice are those linking organizational procedures to their social and political outcomes. Here the work of Pierre Bourdieu is central. In *The Logic of Practice* (1990), Bourdieu concentrates on the phenomenon of “cultural capital,” the educational and skill-set advantages that impart higher status and material gain on certain individuals. It is distinguished from “economic capital,” control over monetary resources, and “social capital,” access to group memberships and networks. Cultural capital has three subcategories: embodied, objectified, and institutionalized. “Embodied” comprises behavioral competencies; “objectified” is purchase power; and “institutionalized” is credential recognition. He also links the concept of cultural capital to that of habitus and field, where habitus is the persona worn by a certain individual in a field, and field is the contested area in which individuals compete for the right to establish the rules regulating prestige and honor. All of these terms became the vocabulary of subsequent theories of practice.

Bourdieu’s description of practice puts the institutionalized nature of a practice such as architecture into a much wider context of social structures; it identifies the manner in which the architectural discipline enjoys “cultural capital”; and it describes how this wider context operates within a framework of capitalist hegemony. The first of these is essential in rethinking what an emerging, dynamic, and relevant (architectural) practice might be—it is not something that we go to from nine to five (or, worse, nine to midnight). The second identifies what architecture has to do to break out of its marginality; that is, rethink its cultural capital in an arena not characterized by aesthetic superiority. The third, Althusserian position, projecting as it does an inevitable Marxist defeatism, is what the following formulations are meant to overcome and rewrite, by way of architectural practice’s particular spatial character.

Michel de Certeau’s work is important in this enterprise. Redirecting a critique of capitalism toward a more empowering, potentially transforming agenda, he describes how “practice” in everyday life offers a space for resistance to hegemonic power. Distinguishing between “strategic” and “tactical” practices, where the first applies to a stratified ordering of social reality and the second to a

disruption of the schematic ordering of society, de Certeau saw that certain people, though lacking a space of their own, can tactically subvert acquiescence by engaging in their everyday operations. Opposing Bourdieu's position that "habitus" is imposed structurally by the logic of capital on individuals, everyday practices—walking in the city, for example—constitutes a method by which the individual can assert autonomy and agency. The spatial practices that he analyzes were blueprints for taking control of one's environment.

The repositioning of practice as a framework for personal acts of resistance is continued in Actor-Network Theory (ANT). ANT, as described by Bruno Latour in *Reassembling the Social: An Introduction to Actor-Network-Theory* (2005), complains that sociology has too long presumed knowledge of what the social is. We cannot assume, he says, that the fundamental question of "who counts" has to be answered. The social is "a precarious gathering of associations" continually in need of reassessment and reconstitution.<sup>iii</sup> Who counts, Latour argues, are all the "actors," all the entities, animate and inanimate, under investigation. The actors form networks, and the ever-evolving actor-network exchanges guarantee the instability of the enterprise. Actor-networks have to be repeatedly performed in order not to dissolve.<sup>iv</sup> Observers have to "catch up with [the actors'] often wild innovations in order to learn from them what the collective existence has become."<sup>v</sup> The actors are not heroic in their autonomy, but offer "slight surprises." The researchers/managers are not omniscient in their authoritative position, but follow the actors in their wayfinding.

While not spatial in the literal, de Certeau-ian way, this social form of practice takes the activity of practice-as-investigation into a topological framework, where the research is understood as a treasure hunt, the prize being nothing more or less than the vulnerability and daring of the search itself. Practice here is not only equated with research, and research with resistance to hegemonic hubris, but both to a mapping of the personal networks that practitioners, consciously or unconsciously, operate in. This can be applied generally to the changing context of the architectural profession, indicating an openness to the differing skills that are demanded of us. It can be applied specifically to BIM use as well. BIM can be understood as one of the "inanimate" entities determining a network of other entities and actors; indeed, acting as *the* network organizer.

This idea has not been lost on people like Henrik Linderöth, a business professor at the University of Skövde in Sweden, whose "Understanding Adoption and Use of BIM as the Creation of Actor Networks," examines this point. After quantifying the multiple benefits of using BIM, as well as its lack of general acceptance, he argues that for BIM to succeed, a shift in focus must occur from the cost/benefits for individual stakeholders to the cost/benefits for the project. He suggests that different actors use BIM for different reasons and are not open to the other actors' agendas; indeed, it is often the "lesser" players, the sub-contractors, who are most adept in their use of BIM, but they lack a position of power in the network. The issue of power restrains the sharing of innovation among actors, even when the benefits for all are obvious. Likewise, a network set up for one project is, given the changing actors and changing context, rarely replicated on another; one starts from zero most every time. Linderöth concludes in the end that it is relatively easy to enroll actors in the network, but that this is not enough. As the one "actor" which can remain constant in shifting network alliances, BIM should

be mandatory for all AEC projects.<sup>vi</sup>

Isabelle Stengers, a colleague of Latour and a fellow ANT theorist, offers, in her, “Ecology of Practices and Technology of Belonging,”<sup>vii</sup> a “non neutral tool” for saving practices (in her case, physics) from the insistent devaluation, homogenization, and flattening of capitalism.<sup>viii</sup> The practitioner, always exposed as she begins research where both the outcomes and the context are uncertain, must approach the task at hand with humility and function in “a minor key”; that is, without “grounding definitions,” without “disentangl[ing] something from its particular surrounding.” Exchanging an ethos of role-assigning “cause and effect” for one of “belonging” and “challenging,” she insists that “nobody can speak in the name of a situation”; that the activities, people, and tools for which you *might* speak as a “professional” have been empowered by your invitation to address them, and they in turn empower you to speak on their behalf. As she says in *Power and Invention: Situating Science* (1997), those who risk effecting what they are speaking about are simultaneously “poets-fabricators-scientists,” and, as such, willingly concede claims to singular authorship. The practitioner must pursue work that is not merely productive in the traditional sense (or “unproductive” in Stengers’s sense, for it is doing capitalism’s self-fulfilling busy work) but “dissipative” and “shocking,” putting a mark on the machinery of scheduled work.<sup>ix</sup> Practices must operate in the context presented, understand their precariousness, and accept the practitioner/fabricator’s lack of authority in it. Accept it, and yet empower all actors at the table to perform at their best.

This reiterates the general “operate in the territory of the unknown” assertion that characterizes ANT theory in general, but gives it a more radical directive, demanding not just vulnerability on the part of the practitioner, but a creative “calling into being” without the rewards of authorship and without the aid of standard work practices. Here, the architectural implications of Stengers’s analysis are not abstract, and they can be applied to two levels of the “social.” The first is a structure of an architectural office that is entrepreneurial without being market driven; the second is the social context in which one offers one’s creations. The practice of Kennedy & Violich Architecture (KVA) is a provocative example of both. In 2000, Kennedy established MATx, a materials research unit of KVA engaging applied production across the fields of design, electronics, architecture, and material science. Working collaboratively with manufacturers (DuPont, Siemens, Osram, Herman Miller, Saint-Gobain) and public agencies (the City of Porto in Portugal, the Federal Republic of Germany, and the United States Department of Energy), MATx advances the widespread implementation of sustainable digital materials. MATx’s *Portable Light* project (Fig. 1), a nonprofit global initiative that enables people in the developing world to create and own portable energy-harvesting solar textile kits, is exemplary as a product that engages the social world beyond just the paying client. So too is the work and office of Alejandro Aravena’s Elemental. Elemental, a partnership supported by Copec, a Chilean oil company, and the Pontificia Universidad Católica de Chile, depends, as their website says, “on a team highly enabled in the development of complex initiatives, that require coordination of actors public and private.”<sup>x</sup> In this collaboration, public projects—affordable housing, emergency shelters, community centers—that would otherwise be contested or unfinanced not only get built but succeed in serving a population otherwise without access to shelter, let alone design. The Quinta Monroy housing project (Fig. 2), in which they

assessed that they could build twice as many houses if they built half as much house, provided the core elements of the house—bathroom, kitchen, stairs—while allowing space for do-it-yourself simple room construction.

These offices offer a kind of architectural practice that succeeds, in Stengers's terms, for "approaching it as it diverges, that is feeling its borders, experimenting the questions which practitioners may accept as relevant, even if they are not their own questions, not insulting ones leading them to mobilize and transform the border into a defence against their outside."<sup>xi</sup>

Stengers, in "Ecology of Practices," makes a rallying cry for practices. If there is to be an ecology of practices, individual practices must not be defensive about their comparative weakness. Rather, they should foster their own force and "make present" what causes their practitioners to think, feel, and act. As a collective, all practices must produce an "experimental togetherness," a common conception of works and how they might shock. This fostering milieu of practices is needed to demonstrate their power to redirect work from mindless production to relevancy.<sup>xii</sup> This, too, can be applied directly to architecture, for our oddly coupled hubris/paranoia makes us seek authority over others in the building industry, while being jealous of medicine and law but failing to learn any of their service-industry, professional tricks.

## **Management**

On its website, Elemental says, "To formulate the question well: identify the variables of the equation. ELEMENTAL offers assessments to accurately identify the opportunities and restrictions associated to the development of a specific initiative."<sup>xiii</sup> This might seem either obvious or professionally self-serving, but in fact it is rooted in specific theories of management that are relatively unknown to architects, who, for the most part, imagine their profession to be creatively unmanageable. Indeed, "management theory" does not automatically conjure up utopian connections for either society or for architecture. But practice cannot be realized without the sound management of its organization. Current trends in architectural practice, such as moving from the production of goods to that of services, put new pressure on management. As architecture firms now must share design and financial expertise with other professions and reassess their own internal office operations, management is required not only to organize vast amounts of data but also to structure the operation of the organization. We may rightfully fear being over-managed and valued according to output, but as "scientific management" (for better or worse) has shown us, the efficient worker, unable to both do work and manage her time, requires systematic management. It is necessary to consider management in a nontraditional light, one in which strategies for effectiveness are matched by, if not equated with, strategies for flexibility and social attentiveness.

Management theory is not foreign to architectural utopian thinking. Many utopian planners spend significant energy describing exactly how to manage work. On the more laissez-faire (and, we might say, naïve) side we have William Morris, who believed the happy worker can self-organize based

on choosing pleasurable activities. Frank Lloyd Wright thought that the county architect/planner, responsive to the spatial needs of the society, would replace the need for unions and government.<sup>xiv</sup> On the moderate side, Robert Owen managed a work schedule that allowed for education of the young and forced leisure time for the adults. Charles Fourier assigned jobs according to the individual's desires; those who chose unpopular jobs received higher pay. On the more aggressive side of management theory, Le Corbusier developed his *Ville Contemporaine* (1922) and his *Ville Radieuse* (1930 in direct relationship to his espousal of Taylorization and syndicalism, respectively).

Corb is normally presented as apolitical, but he saw both his utopian projects primarily in the socio-political context of work management. When developing his *Ville Contemporaine* (Fig. 3), Corb, like many European thinkers, was interrogating the possibility of American production processes—Fordism, Taylorization, “scientific management”—to usher in a postwar society.<sup>xv</sup> Increased productivity would benefit all, and traditional politics would be replaced by a technology of economics. Accordingly, in the *Ville Contemporaine*, each social stratum and cultural function is segregated and arranged hierarchically. As Mary McLeod, in her writing on Le Corbusier's politics, describes it, “The urban plan, as rationally determined as the Taylorist plant, does embody a new social order, but inequities in income, habitation, and work conditions remain. For the Taylorists, efficiency—not equality—was the means of social renewal.”<sup>xvi</sup> When, after his visits to Moscow, Le Corbusier became disillusioned with Taylorism and scientific management, he turned to syndicalism and the *Ville Radieuse*. The federation of collective trade unions (the “soviets” of the Soviet Union) that replaced both capitalism and state socialism was appealing for its emphasis on the necessities of consumption, rather than the limits of production, for its starting with the worker and by-passing the owner. This form of organization that avoided the state and organized the individual according to need and desire formed both the governance of *Ville Radieuse* and its means of being produced.<sup>xvii</sup>

Today, certain sociological figures are at the center of new management strategies that redirect Corb's ambitions and prefigure, if not implement, ANT practices; they offer examples of management that is networked, not hierarchical; creative, not efficient; and social, not profit-driven (although getting the former right often means getting the latter right as well). Certain figures in the early 20<sup>th</sup> century management theory, lay the ground work for the contemporary ANT alliance. One central thinker is Kurt Lewin (1890–1947), a leading figure in social psychology associated with the early Frankfurt School, who fled Nazi Germany and applied himself to studying the nature of group dynamics.<sup>xviii</sup> He is primarily known for “action research,” a process of problem solving emphasizing the examination of the “community of practice” in which problems arise and need resolving. He examines two concepts of organizational motivation, each emphasizing the necessity of evaluating the fluidity and complexity of the social context. The first is “force field analysis,” a technique of analyzing the forces—beliefs, expectations, peer pressure, and cultural norms—within a “life space” of the individual or society that instigate change. When evaluating the potential for change, one must identify and contrast the “driving forces” versus the “restraining forces” (echo Elemental). Though it may seem that the most direct way to produce change is to increase the driving forces, in fact, the most effective and rewarding approach is to lessen the resisting forces. The second concept is “unfreezing-change-

refreezing,” a process of change that is necessarily fragmented and nonlinear. After resistance is determined and overcome, a period of “refreezing” or stabilization of the new norms is necessary before more change can occur. To effect change, the manager must account for all of the forces, often motivated by peer pressure, that make people want to stay within their existing norms. Change in Lewin’s hands is informative and necessary. As he said, “If you want to truly understand something, try to change it.”

Another management theorist, Donald Schön (1930–1997), influenced by Lewin, also emphasized the value of activity-embedded knowledge in forward-thinking operations. “Problem setting” rather than “problem solving” requires what Schön calls “knowing in action” and, more importantly, “reflection in action.”<sup>xix</sup> The latter is characterized by improvisation within a schema that gives coherence to that performance. In his book, *The Reflective Practitioner* (1983), he explains how reflection on the normal boundaries that lead to repetitive experiences helps make sense of new experiences. For the organization, this implies the creation of conditions in which the individual is committed to an action because it is intrinsically satisfying, not because it provides external rewards. For the manager, reflection in action implies performing not as a technician in control of organizational rules but as a “craftsman,” a practitioner of the art of management.

Peter Drucker (1905–2005), also fleeing Nazi Germany and developing his ideas in America, was a management consultant known as “the man who invented corporate society.” A forecaster of late capitalism’s decentralization, privatization, and marketing, he reminded industry that it should prepare for “planned abandonment” and not cling to yesterday’s successes. He became internationally renowned for urging corporate leaders to agree with subordinates on objectives and goals and then get out of their way; the worker, being the most flexible and intelligent component of the system, is the most valuable resource in an operation. Drucker was a proponent of streamlining corporate operations, arguing that companies often hire too many employees (as opposed to outsourcing), produce too many products, and unnecessarily expand into economic sectors that offer no benefits. This is not only the means by which the customer and the worker will be best served but also the manner in which management will keep its eye on the prize. As Drucker wrote in his 1973 *Management: Tasks, Responsibilities, Practices*, “The fact is that in modern society there is no other leadership group but managers. If the managers of our major institutions, and especially of business, do not take responsibility for the common good, no one else can or will.”<sup>xx</sup> As he also said, the real business of business is “not how to do things right but how to find the right things to do.” Later, as it became clear that competitive pressures were keeping businesses from embracing guaranteed wages and lifetime employment for industrial workers, issues he advocated, he became increasingly interested in nonprofit groups.<sup>xxi</sup>

In the ’60s and ’70s, fascination with corporate management affected architectural practices such as Kevin Roche John Dinkeloo and Associates. While Kevin Roche denies knowledge of Drucker’s work, his simultaneous engagement with big corporations indicates the same concern for a culture of corporate innovation. Indeed, KRJDA’s work demonstrates an update of utopian management thinking, in which projects such as the Ford Foundation Headquarters in New York City (1964) and the Cummins

Engine Company Headquarters in Columbus, Indiana, (1972) (Fig. 4) are the result of detailed analyses maximizing the individual worker's situational and psychological position in the community. Roche then took these theories into the structure of his own office, where production was streamlined in favor of maximum knowledge exchange and utilization.<sup>xxii</sup> While it has become fashionable lately to decry such seemingly dry, quantitative, homogenizing capitalist agendas, in the hands of Roche and Dinkeloo, this practice actually lead to radical, unorthodox work.

But lest we think that this interest in management and Drucker's contribution to it is a thing of the past, Michael Speaks, in his 2002 "Design Intelligence and the New Economy," points out the prescient nature of Drucker's work for contemporary architecture's new concern with "doing" (read: post-criticality). He writes:

Management pioneer Peter Drucker has pointed out that the transformation of modern capitalism into a world system was enabled by a fundamental change whereby knowledge was no longer centrally concerned with being (philosophical questions about what is), but with doing. Knowledge was applied to tools in the first, industrial period of capitalism, the period in which American Pragmatism emerged. But, Drucker suggests, a second phase of this transformation occurred after World War II in which knowledge is applied not only to tools but also to intangible things—ideas, information, and relationships. This transformation ushered in the management revolution and signaled the emergence of "the knowledge society," as Drucker terms it, of which the new economy is only the most recent incarnation.<sup>xxiii</sup>

Knowledge society is not merely the equivalent of the "information age"; rather, it emphasizes the agency that motivates information and turns it into innovation.

The "knowledge worker" in this society is also a new type, one associated with late twentieth-century "capital." In the eighteenth century, the worker's knowledge was applied to tools; in the nineteenth and early twentieth centuries, it was applied to productivity (Taylorization); today, it is being applied to knowledge itself. As a result, a new breed of "knowledge workers" is appearing who owns the means of production: that is, knowledge. For this new worker, alternative, specialist-based models of organizations need to be constructed. Picking up on Drucker, former Secretary of Labor Robert Reich characterizes this new breed of knowledge workers as "symbolic-analytic" workers, "value-added, problem-solving" experts. Because the skills held by these workers—research, product design, fabrication, marketing, advertising, customer consulting, financing, contracting—allow technical insights to be linked to marketing strategy and financial acumen, the traditional distinction between goods and services breaks down.<sup>xxiv</sup>

Such a worker is recognizable in present-day architecture—now, producing services, not goods. As described in Urs Gauchat's "The \$300,000/Year Architect" (2009), this worker is defined by her judgment, teamwork skills, technical skills, innate knowledge of design and procurement, general knowledge, and the ability to share, not just lead, the design process.<sup>xxv</sup>

As applied to the architectural office, this approach to management assumes different things



at different levels. Internally, the newer, younger workers—hired for technical and entrepreneurial expertise not shared by the older, entrenched employers—can be seen as “knowledge workers” who are not managed from above but rather from within. Likewise, if design has moved from the shaping of the object to the shaping of the organization, the manager is still a designer, but one who has the privilege of making sure the right questions are asked. This is not the Taylorization of design; it is its cultural empowerment. Externally, the equality of the “knowledge workers” at the consultants’ table—engineers, software consultants, fabricators, owners, etc.—needs only the one player willing to be that “manager” amongst them. In both, we cannot ignore that role that BIM and IPD play. Not only does it provide the technical means for managing networking, but it is precisely the new index of demarcation between the “old” and the “new,” where older offices and older partners find the need to re-imagine their practice and their own dependence on workers educated in a software they will surely struggle to grasp, if they attempt it at all. It might be a stretch, but one can’t help but think of Polshek Partnership Architects’ change to Ennead. It is not only an acknowledgment that the creation of Ennead Lab as “a private foundation dedicated to expanding the ... relationship between practice, education, advocacy and research” changes the nature of their practice, but that the identification of that practice can no longer be identified with a single authorial figure.<sup>xxvi</sup> Again, BIM is not the cause of this, but it must be listed as one of its symptoms. More will surely follow.

## **Conclusion**

The foregoing is a momentary suspension from the requirements of present practicality. Theories of practice suggest procedures that invite risk and structure flexibility; that avoid assumptions about outcomes; that demand a willingness to put your money, expertise, and reputation on the table. Theories of management tell us that structuring flexibility is not about control but about openness; not about leading but following. All of these implicate the various levels of architectural production—the individual, the office, the AIA, the discipline of architecture itself. Each demands a form of practice motivated by what is hoped for, not by what is feared.

Many of the examined concepts are reminiscent of those introduced by BIM: collaboration; ad hoc, decentralized associations; the sharing of risk; the tracking of multiple players and schedules; nonhierarchical associations within and across disciplines; the complexity of authorship. The fit between the organization of work invited by BIM and the organization of work proposed by utopian thought is enticing. Ultimately, however, it is less BIM per se that activates this enticement than the fact that, as an over-determined symbol, it propels speculation about a totally reconfigured profession. In this amazing period—one in which partners look to younger staff for direction, in which fabricators and software consultants become in-house employees, in which the architect’s control of the as-built virtual model supersedes the knowledge of the on-site project manager, in which the AIA is being forced to revise its model contracts monthly—we have every opportunity to try to get it right. We just need to start practicing.

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<sup>i</sup> Quoted in Slavoj Žižek, “A Permanent Economic Emergency,” *New Left Review* 64 (July–Aug. 2010): 87.

<sup>ii</sup> See Paolo Tombesi in *Take 5: Looking Ahead: Defining the Terms of a Sustainable Architectural Profession*, ed. Paolo Tombesi, Blair Gardiner, Tony Mussen (Manuka, Australia: Royal Australian Institute of Architects, 2009) for an excellent discussion on architecture’s confusion over its labor practices.

<sup>iii</sup> Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005). As he says on pp. 232–33, “The very metrological power of the social sciences is just what makes it difficult for them to encounter the social as associations. It’s precisely because it is so good at calibrating and benchmarking stabilized definitions of the social that it finds so impractical the sizing up of newcomers that are constantly imported in the course of controversies. The better you are at defining the ‘older’ social, the worse you are at defining the ‘new’ one ... It’s as if we could not stand meeting face-to-face the puzzling phenomena that keep proliferating whenever we feel that collective life is breaking down.”

<sup>iv</sup> ANT is related to ideas of “symbolic interactionism,” which takes as its departure point the assumption that people act toward things based on the meaning that those things have for them, and these meanings are derived from social interaction and modified through interpretation. This theory is derived from American pragmatism and hence builds on the work of John Dewey (once again), who believed that humans are best understood in relation to their environment. Dewey and American pragmatism offer a parallel set of theories to all of these conversations regarding work, management, and practice, and warrant their own tracing in another paper.

<sup>v</sup> OpCit., 12

<sup>vi</sup> Henrik C. J. Linderoth, “Understanding Adoption and Use of BIM as the Creation of Actors Networks,” *Automation in Construction* 19 (2010): 66–72.

<sup>vii</sup> Isabelle Stengers, “Ecology of Practices and Technology of Belonging,” *Imbroglia*, 23 June 2005, <http://www.imbroglia.be/site/spip.php?article43>. This is a preliminary version of a later article, Isabelle Stengers, “Introductory Notes on an Ecology of Practices,” *Cultural Studies Review* 11, no. 1 (2005): 183–96.

<sup>viii</sup> *Ibid.* “The ecology of practice is a non neutral tool as it entails the decision never to accept Capitalist destruction as freeing the ground for anything but Capitalism itself.”

<sup>ix</sup> She suggests that this notion of the worker, indeed the creating of the concept of the “worker,” along with that of the “clock,” is a nineteenth-century invention requiring as much time for construction as for its supposed goal of material production.

<sup>x</sup> See Elemental’s site, <http://www.elementalchile.cl/do-tank/que-somos/>.

<sup>xi</sup> Stengers, “Ecology of Practices.”

<sup>xii</sup> Not a wimp about what her work means for women/feminists, Stengers concludes “Ecology of Practices” with this paragraph: “I started with the problem of ecology of practices as a tool for thinking, the need of which I felt while working with physicists. Physicists feel weak and they protect themselves with the weapons of power, equating their practice with claims of rational universality. But the tool, as it is not an instrument to be used at will, co-produces the thinker, as shown by the very fact that it led me from physics to the art of the witches. Doing what I did, my own practice was that of a philosopher, a daughter to philosophy, thinking with the tools of this tradition which excluded magic from the beginning and which, rather unwittingly, gave their weapons to physicists and to so many others presenting themselves in the name of universality. Maybe it is why I had to go back to this very beginning, since as a daughter, not a son, I could not belong without thinking in presence of women, not weak women as weak or unfairly excluded women but women whose power philosophers may have been afraid of.”

<sup>xiii</sup> <http://www.elementalchile.cl/category/vivienda/iquique/>; “services”; “consulting”

<sup>xiv</sup> See Fishman, “Prophetic Leadership,” *Urban Utopias*, especially 142–43.

<sup>xv</sup> Mary McLeod, “‘Architecture or Revolution’: Taylorism, Technocracy, and Social Change,” *Art Journal* 43, no. 2, “Revising Modernist History: The Architecture of the 1920s and 1930s” (Summer 1983): 132–47. This essay is largely taken from a chapter in McLeod’s unpublished dissertation, “Urbanism and Utopia: Le Corbusier from Regional Syndicalism to Vichy, volumes 1 and 2, (Ann Arbor, MI: University Microfilms International, 1985).

<sup>xvi</sup> *Ibid.*, 139.

<sup>xvii</sup> For a full description of Corb’s political theories as they relate to management, architecture, and governance, see McLeod’s unpublished dissertation, “Urbanism and Utopia.”

<sup>xviii</sup> Initially associated with the Center for Group Dynamics at MIT in Boston, he moved on to establish the National Training Laboratories.

<sup>xix</sup> It is interesting that Schön first studied the practice of architecture as his model for innovative, at-the-moment thinking/knowledge.

<sup>xx</sup> Peter F. Drucker, *Management: Tasks, Responsibilities, Practices* (New York: Harper Business, 1973), 325.

<sup>xxi</sup> Another noted management theorist advocating similar flexible systems of change and innovation was Arthur Koestler (1905–1982), a Hungarian who moved to France and England to avoid persecution for his Communist Party affiliation and developed the notion of “holons,” organizational attributes/conditions that

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are autonomous and cooperative, self-reliant and contingent. Holonic Manufacturing system (HMS), which advocates moving from mass-production to mass customization, from a “made-in-house” to accelerated and team-based product development, advocates for the need for multi-agent systems of technology, saving cost on software by its facility to reconfigure. HMS is in turn associated with “Lagrangian relaxation”, a mathematical optimization technique whereby a complicated problem is decomposed into smaller sub-problems. The larger, complex problem is addressed by iteratively solving the subproblems.

<sup>xxii</sup> See the forthcoming book by Eeva-Liisa Pelkonen, *Kevin Roche: Architecture as Environment*, with contributions by Kate John-Alder, Olga Pantelidou, and David Sadighian (New Haven: Yale University Press, forthcoming). Pantelidou introduces her section, “Designing for the Workflow,” with elaborate quotes from Drucker, whose seminal *The Practice of Management* of 1954 was revolutionizing corporate culture away from “scientific management.”

<sup>xxiii</sup> Michael Speaks, “Design Intelligence and the New Economy,” *Architectural Record*, Jan. 2002, 72–79.

<sup>xxiv</sup> For Frank Blackler, discussing the work of both Reich and Drucker, this implies rethinking the essential component of this changed work/worker. Wanting to move past the old trade paradigms of worker knowledge as “embodied,” “embedded,” “embrained,” “encultured,” and “encoded,” he thinks of it now in terms of “socially-distributed activity systems.” Because of the changes that are occurring in capitalism—the globalization of markets and finance, new information and communication technologies, post-Keynesian governmental policies, and new approaches to strategy, management, and organization—activity systems are changing. As Blackler says, “Rather than asking ‘what sorts of knowledge are needed in contemporary capitalism and how may organizations harness them?’ the question ... becomes ‘how are systems of knowing and doing changing, and what responses would be appropriate?’” In place of knowledge, “knowing in action”—mediated, situated, provisional, pragmatic, and contested—is advocated. In this context, management is asked less to structure worker response than to follow its lead. Key consequences of these developments are the following: “activity systems which were previously segregated are becoming interlinked and ... are growing larger and becoming more complex”; “people improvise, communicate and negotiate within expanded activity systems”; “tensions (arise) within expert-dependent and knowledge-routinized organizations;” emphasis is placed on “the ease with which they (knowledge workers) transform themselves into symbolic-analyst dependent and communication-intensive organizations”; and “conflicts are to be expected within and between the new generation of symbolic analysts and problem-solvers, and established professionals and managers.” Frank Blackler, “Knowledge, Knowledge Work, and Organizations: An Overview and Interpretation,” *Organization Studies* 16, no. 6 (Nov. 1995): 1021–46. doi: 10.1177/017084069501600605.

<sup>xxv</sup> Urs Gauchat, “The \$300,000/Year Architect,” in “Closing the Gap: Information Models in Contemporary Design Practice,” *Architectural Design*, April 2009, 36–37.

<sup>xxvi</sup> On their site, see “Ennead Lab,” <http://ennead.com/#/lab>.