

Container Technologies

ZOË SOFIA

This paper goes beyond critiques of western philosophical notions of space as passive, feminine, and unintelligent by reconfiguring containment as an (inter-)active process. The author draws on work in the history of technology, on a cybernetic epistemology that emphasizes the interdependence of organism and environment, and on intersubjectivist psychoanalytic theories of the maternal provision. A more unexpected ally is found in Heidegger, whose writings on holding and supply are read in ways that contribute to the development of an urgently required philosophy of container technologies.

Since the birth of early modern science, Nature has been imagined in the west as a Big Mother full of treasures (material, land, knowledge) to be plundered and re-sourced. Through world-spanning technological and industrial enterprise, another "Super Mother" has been created in the matrix of mobile resources. We greedy metropolises (and many others besides) want a facilitating environment that smoothly provides year-round access to seasonal foods; we want 24-hour access to hot water, gas, supermarkets, banking services, etc.; and we want technologies that help access other goods and services, such as cable TV, phones, fax, mobile phones, and e-mail (though these latter also have the effect of turning their supposed "users" into mobile resources themselves, accessible almost anywhere, any time). Yet in the midst of all this abundant supply, homelessness is rising both for humans and the non-humans whose habitats are destroyed or polluted. The specter of resourcelessness looms ever larger on the horizon as we reach the limits of a planet that had once been imagined as an infinite container of resources, now revealed as a finite resource itself. In such a context, focusing on questions of containment and supply in thinking about technology can help draw our attention to the assumptions we make about supply in our own lived world, and to larger questions about sustaining the planetary "facilitating environment" and avoiding an exhaustion of its supplies, including supplies of future biological diversity in the gene pool.

This paper outlines elements of a framework and several directions for a feminist approach to the history and philosophy of technology centered around containers and supply, or, more generally, re-sourcing. Artifacts for containment and supply are not only readily interpreted as metaphorically feminine; they are also historically associated with women's traditional labors. And just as women have traditionally been neglected in history and philosophy in general, so, as historian of technology Lewis Mumford observed in the 1930s, the utensils and apparatus typically associated with women have been overlooked in the history and philosophy of technology. So far it has been largely up to feminist social studies of technology to rectify this imbalance (for example, Cockburn and Fürst-Dilic 1994, Cockburn and Ormrod 1993, Wajcman 1991); it is hoped my contribution might encourage more theoretical work and historical studies on these topics.

To help unsettle habitual assumptions that space is merely an unintelligent container, or containers dumb spaces, the introductory section activates ideas from the epistemologist Gregory Bateson, whose cybernetic ecology stresses the interdependence and dynamic co-evolution of organism and habitat, and from the psychoanalyst D. W. Winnicott, who depicts the infant as an entity emerging from a maternally facilitated environment. Then, with the aid of historian Mumford, I survey container technologies in my own domestic lifeworld and argue that neglect of containers and containment functions is not only the result of anti-maternal bias in western thought, but is encouraged by the unobtrusiveness of containers and utensils, traces of whose productive roles are not necessarily evident in the final product. Finally I turn to Martin Heidegger, whose later writings on technology (in the 1950s and 1960s) offer some key insights into the importance of containment and supply in the late modern period.

SMART CONTEXTS, OR "NO ENVIRONMENT, NO ENTITY"

The unit of survival is *organism plus environment*
(Bateson 1972, 483).

Bateson's intellectual contributions from the 1930s to the 1970s spanned anthropological studies, cybernetics, psychology and family therapy, biology, and communications. His epistemological perspective on the unit of survival, developed in *Steps to an Ecology of Mind* (1972), is a cybernetic one based around a notion of the *immanence* of mind and subjectivity. It is concerned with a subject or organism whose survivability, agency, receptivity, and intelligence extend "beyond its skin" (one of Bateson's repeated phrases). The organism cannot be considered apart from the habitat that houses it—a point made in a current save-the-koala campaign slogan "No tree, no me"—and "the organism which destroys its environment destroys itself" (1972, 483). Mean-

ing circulates through organism/environment in the form of transformations, translations, and transmutations of difference (that is, information, "the difference which makes a difference" [1972, 315–17]). Thus: "The individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a subsystem" (1972, 461). In this perspective, best summarized in Bateson's lecture "Form, Substance, and Difference" (1972, 448–65), intelligence is not confined to the deliberations of the intending ego or *cogito*, but can be found in the changing patterns of mutual adaptation and co-adaptation undergone within and by the organism-environment ensemble (1972, 460–61). The environment itself is a bearer of intelligence (see also Bateson 1979).

This Batesonian notion of cybernetic intelligence can be contrasted with a popular notion of cybernetics as top-down digitally mediated control if we compare the prototype "smart house" with the GaBe house. The smart house (as discussed by Berg 1994) is wired and electronically programmable for control of the things many men are interested in: information flow and control of security, lights, entertainment, communications, and garbage disposal. By contrast, the GaBe self-cleaning house—designed over 30 years ago by a woman architect Frances GaBe (Zimmerman 1983, Wajcman 1991, 102)—makes clever use of container technologies to minimize the domestic drudgery still required for the so-called "smart" house, whose programmable washing machine still has to be manually loaded and unloaded, and the washing dried, folded, etc. The GaBe house has specialized cupboards using water, steam, and air and a series of pipes and sprinklers for cleaning, allowing dirty dishes to be cleaned and left in cabinets where they are ready for next use, clothes to be washed, dried, and left hanging *in situ*, and the floors to be cleaned automatically. Whereas the wired house seems smart because of digitally programmable components, the GaBe house's intelligence is immanent in the way it is adapted to minimizing drudgery: its "smartness" is emergent in the dynamic mutual adaptability of environment to organism, organism to environment, home and homemaker.

Resonating strongly with Bateson's point about the unit of survival, or the "no tree, no me" relation, is the provocation by the object relations psychoanalyst Winnicott:

There is no such thing as an infant. (Winnicott 1965, 39n)

Or, as U.S. psychoanalyst Thomas Ogden has helpfully expanded it:

There is no such thing as an infant [apart from the maternal provision]. (Ogden 1992, 620)

In other words, aside from its facilitating maternal context, the infant is not. This is not simply physically true—humans are born very immature—it is also a statement about ontology: without the (m)other's activity in creating a "fa-

ilitating environment" for the nurture, emergence, and exploration of the self, the person cannot come into being. For Winnicott and more recent "intersubjectivists" (such as Stern 1985), the baby is seen as part of its environment—the maternal provision. It leaves its primal container technology (the womb) to enter an extra-uterine matrix, a space where, all going smoothly, its needs are unobtrusively supplied by what it experiences as an "environment mother." It ruthlessly exploits this seemingly personless entity whom it only gradually comes to know in a relationship of mutual love and concern.

Ogden's review of Winnicottian approaches highlights the important early personality mechanism of *projective identification*, in which "aspects of the self are not simply projected onto the psychic representation of the object (as in projection), but 'into' the object" (Ogden 1992, 617), setting up a dialectic of container and contained that in W. R. Bion's words "makes it possible for . . . [the infant] to investigate his own feelings in a personality powerful enough to contain them" (Bion 1959, 314). Ideally, the mother both identifies with the infant (through Winnicott's "primary maternal preoccupation" and Stern's "affect attunement" [Stern 1985, 138–61]), yet is sufficiently separate to serve as the container and interpreter for its experience, "thereby making her presence felt, but not noticed" (Ogden 1992, 620).

In this view, the infant's subjectivity is immanent within and emergent from the context of intersubjective containment:

Paradoxically, the subjectivity of the individual presupposes the existence of two subjects who together create an intersubjectivity through which the infant is created as an individual subject. The infant as subject is present from the beginning although the subjectivity exists largely within the context of the psychological-interpersonal (containing/contained) dimension of the relationship of the infant and mother (Ogden 1992, 619).

Other spaces experienced by the infant are the inner world of fantasy and outer world of sociotechnical reality, bits of which become caught up as "transitional objects" in a third space, called "potential space" by Winnicott (1971, 107). Being able to play safely in this potential space, negotiating between inner and outer worlds and self and (m)other, is an essential part of infantile development, and moreover, Winnicott argues, it is the foundation for later creative experiencing and cultural production which plays (or works) on the borders of fantasy and reality.¹

In the intersubjectivist model of subject formation, the self is understood as an entity given shape through various dynamic relationships of containment that both construct and occur in spaces that are interpersonal, imaginative, real, active, the products of conscious efforts as well as unconscious or auto-

matic labors. How might these insights be applied to container technologies? The following inventory suggests some possible directions:

- *Facilitating environment*: an adaptive intelligence is at work to ensure smooth functioning; space and container technologies may not be as dumb or as static as we traditionally assume.
- *Containment*: is not just about what holds or houses us, but what we put our stuff into, and thereby identify with; what of ourselves we can and cannot contain.
- *Primary maternal preoccupation and attunement*: this lets infant and caretaker get in sync with each other; its corresponding technological phenomenon concerns the degree of adaptation of the environment/space/container to us; the more a technological object is adapted to respond to or even anticipate our own wishes and capacities the more "user-friendly" it seems.
- *Ruthlessness of infant*: just as we don't notice or acknowledge the active giving of the (m)other, so too do we take for granted containers and the resources they supply; they are merely spaces to get stuff out of or put stuff into.
- *Toy or tool as transitional object*: from this we might understand that the tool is never a purely material object, but always has its partial origin in the inner world, which is to say that it is always meaningful, part of a narrative or set of human purposes.
- *Potential space*: corresponding to the infant's play space—an imaginative space between inner and outer worlds—are work spaces for discovery and invention: the workshop, the lab, the studio, the library, the study. Hence one might transform Winnicott's "There is no such thing as an infant" into "There is no such thing as a discovery/invention [apart from the potential space]."

THE TECHNICS OF THE UNOBTRUSIVE

The technological forms associated both with traditional labors of women, and with metaphors for female organs of storage, transformation, and supply, have been and continue to be vital to technics and human development, but are regularly overlooked in histories and analyses of technologies. Like noisy and disruptive boys in class, aggressive tools and dynamic machines capture more attention than the quietly receptive and transformative "feminine" elements of container technologies. This is the perspective outlined by Lewis Mumford in the following quotes, the first from his account in *Technics and Human Development* (1966) of the emergence of settled agricultural communities:

Many scholars who have no difficulty in recognising that tools are mechanical counterfeits of the muscles and limbs of the male body—that the hammer is a fist, the spear a lengthened arm, the pincers the human fingers—seem prudishly inhibited against the notion that woman's body is also capable of extrapolation. They recoil from the notion that the womb is a protective container and the breast a pitcher of milk: for that reason they fail to give full significance to the appearance of a large variety of containers precisely at the moment . . . that woman was beginning to play a more distinctive role as food-provider and effective ruler than she had in earlier foraging and hunting economies. The tool and the utensil, like the sexes themselves, perform complementary functions. One manipulates, assaults; the other remains in place, to hold and protect and preserve. . . .

Cooking, milking, dyeing, tanning, brewing, gardening are, historically, female occupations: all derive from handling the vital processes of fertilization, growth, and decay, or the life-arresting processes of sterilization and preservation. All these functions necessarily enlarge the role of containers: indeed are inconceivable without baskets, pots, bins, vats, barns. . . .

Protection, storage, enclosure, accumulation, continuity—these contributions of neolithic culture largely stem from woman and woman's vocations. In our current preoccupations with speed and motion and spatial extension, we tend to devalue all these stabilising processes: even our containers, from the drinking cup to the recorder tape, are meant to be as transitory as the materials they contain or the functions they serve. (1966, 140–41)

Mumford had earlier made similar points about the devaluation yet continuing importance of containers in *Technics and Civilization* (1962 [first published 1934]), in which he distinguishes machines and tools from technologies of containment and supply, categorized as utensils (like baskets or pots), apparatus (such as dye vats, brick kilns), utilities (reservoirs, aqueducts, roads, buildings) and the modern power utility (railroad tracks, electric transmission lines):

[S]ome of the most effective adaptations of the environment came, not from the invention of machines, but from the equally admirable invention of utensils, apparatus, and utilities. . . . But since people's attention is directed most easily to the noisier and more active parts of the environment, the rôle of the util-

ity and the apparatus has been neglected. . . . [B]oth [tool and utensil] have played an enormous part in the development of the modern environment; and at no stage in history can the two means of adaptation be split apart. Every technological complex includes both: not least our modern one (1962, 12–14).

It is worth noting here that since the female body provides our first sheltering container and source of supply, containers tend to be interpreted as generically feminine, as they are by Mumford. But although I am also interested in exploring the feminine and maternal dimensions of container technologies, it is important to remember that men's bodies as well as women's comprise many natural "container technologies" besides sex-specific organs, including skin, mouth, stomach, bladder, bowel, blood vessels; even the penis is an expandable container of sorts, and eyes and ears are experienced as receptive organs. Actual container technologies are associated with men as well as women (indeed some men may be particularly interested in technologies of containment as compensations for their own relative deficiency in the reproductive container department).

Mumford's laments about the neglect of utilities, utensils, and apparatus—which he refers to generally as "utensils," and which I am generally calling "container technologies"—in the history of technology can also be made to some extent about the history and philosophy of technology, where the prototype tool on which philosophers meditate is not usually a cup or bowl but typically some kind of probe or stick. Two important exceptions are Martin Heidegger (discussed below) and Don Ihde. Ihde's phenomenological program for interpreting varieties of human–technology–world relationships includes containment as one of its four basic categories (1990). In what Ihde calls "background relations," the technology functions as a shelter, cocoon, or a world; it can also be a cultural "atmosphere," such as nuclear fear (1990, 112–15). This category includes a huge range of technologies and relations, from intimately wearable containers like clothes, shoes, or condoms, to walk-in partly-automated spaces like houses, cinemas, shopping malls, or cities, floating or submersible containers like boats or submarines, nuclear reactor containment vessels, as well as the virtual worlds of computer/video games.

If Mumford is right that utensils or apparatus and machines or tools have each been "enormously important" then an analysis of technology which emphasized the utensils/containers side could be a useful corrective to approaches like Ihde's which finely differentiate amongst tools and machines, but lump all the utensils and spaces together as background. And if it is so that "at no stage in history can the two means of adaptation be split apart," it might be possible to investigate not only containers, but also hybrids of tool and utensil, as well as the container-like aspects or functions of a range of technologies and technological ensembles, including those (over-)readily interpreted as masculine

or phallic. Examples here include the skyscraper, so obviously phallic but from the inside a "womb with a view"; the car, advertised in terms that emphasize on the one hand its phallic/excremental "grunt," and on the other its womby comfort and storage space; and the computer, which is basically a storage technology for data, yet which has often been represented as a kind of flying vehicle, even before widespread networking allowed internet "surfing."

Why are container technologies relatively neglected in histories of technologies? Mumford suggests there is a prudish embarrassment about naming or interpreting technologies in the feminine, and a bias towards technologies that are dynamic and somehow masculine. One might propose this neglect has less to do with modesty than with a misogynistic metaphysics that has represented space as a passive, neutral receptacle (Plato, *Timeaus* [1971]), and the mother as a personless nutritive vessel (Aristotle, *The Generation of Animals* [1979]). The problem with this representation, as Irigaray has pointed out (Irigaray 1985; see also Grosz 1995, Best 1995), is man's failure to grow up and acknowledge indebtedness to the spatial/maternal environment and the labors of those who sustain this facilitating space. These labors are almost always considered "menial" because they do not produce some dynamic and heroically discovered object to be wondered at, but reproduce an unobtrusively and incrementally ordered space which can be taken for granted as a background for other activities.

This is a persuasive line of critique, but it is not the full story. The problem is not just bad metaphysics or misogyny but the structure of production and reproduction itself. The container is a structurally necessary but frequently unacknowledgeable precondition of becoming. For example, when you eat a cake, you might wonder about the recipe and ingredients, but you do not usually think about the sieve, bowls, or beaters which operated on the raw materials, or the oven in which it was cooked, or the power supply to that oven. At the practical level of tool use, if even thrusting, dynamic, pounding objects like the hammer, as Heidegger has famously described it, tend to "withdraw" from the user's awareness (Heidegger 1962a, 98), how much more readily can containers withdraw from attention, exploited but not noticed: the humble jars or plastic bags where nails are stored, the battered tool box where the hammer is kept, not to mention the shed or workshop where the activity goes on. To keep utensils, apparatus, and utilities in mind is difficult because these kinds of technological objects are designed to be unobtrusive and, like the environment mother, "make their presence felt, but not noticed" (to paraphrase Ogden 1992, 620). Thus, the analyst of container technologies must constantly work against the grain of the objects and spaces themselves—not to mention the ingrained social habit of taking for granted mum's space-maintaining labors—to bring to the foreground that which is designed to be the background.

Working with the idea that our relations to containers are something like

our relations to the environment mother, we could speculatively interpret Mumford's categories of container technologies as follows:

- *The utensil*: the generic container, a basket or bowl, perhaps corresponds to the mother as a container into which we dump our excess stuff, and which we come to consider as an extension of ourselves.
- *Apparatus*: the specialized container, like an oven or a vat, in which something may be created or transformed. The apparatus, as well as the specialized space that houses it (the kitchen, the lab, the workshop), could be interpreted as equivalents of the potential space where inner and outer worlds are negotiated in the course of discovery/invention.
- *Utilities*: these can include buildings (from humble cottages to huge environment-controlled spaces like shopping malls or airport terminals) as well as various channels for dynamic flows (like pipes, cables, reservoirs). These technologies reproduce something like the "environment mother" who works unobtrusively to ensure "smooth functioning" and continued supply to the infant whose bodily states and feelings she regulates.

FOREGROUNDING CONTAINERS: A DOMESTIC SURVEY

To add to my understanding of the role of container technologies and the containment dimensions of a range of technologies in my own lifeworld, I conducted a survey of the kitchen/dining/living area of the shelter technology I inhabit, from the vantage of a "machine for sitting in" at my dining table. Containers in the kitchen included sauce bottles, salt and pepper shakers, pots and pans, vases, sinks, dish-rack, cups, glasses, bowls; drawers and cupboards (themselves containers with shelves for holding other containers and apparatus); a cloth tube stuffed with plastic shopping bags, and the garbage bin, lined with one of these bags. Then there were apparatus with specialized container functions for heating or preserving foods, like an electric kettle, the oven, the microwave, and the refrigerator, with its own set of containers inside. Some containers are strategically inefficient: sieves, colanders, sink drain covers, paper coffee filters. Towels and dishcloths are also kinds of containers for liquids. This traditionally "feminine" domain of domestic equipment was not devoid of tools or machines used to perform sadistic actions on plant, animal, and mineral matter—implements for chopping, whipping, skewering, grinding, shredding, mashing, liquefying, etc.

The container technologies at the living room end included some comfortable body-holding technologies (the largest of which concealed a fold-out apparatus for sleeping) and a table with a letter rack, files, and envelopes. Books, photographs and albums, telephone directories, the television, the stereo,

cassettes and CDs: all these media technologies, I decided on reflection, had their container-like aspects. Working analogously to the holding functions of memory, and with some similarity to the kind of poetics of space Bachelard identifies with the miniature, which “deploys to the dimensions of a universe” and where “large is contained in small” (Bachelard 1969, 157), these electronic and print media are storage technologies for other spaces and experiences. A CD or tape can open up a whole concert or an aural landscape of feelings; a book can disclose another world. My handbag and satchel slouched in a corner near the laptop. Velcroed and zipped into its nylon case, this virtual storage technology works in dimensions unperceivable by me. I have a projective identification with this small dense gray box, an indispensable prosthetic brain in which (via keyboard and mouse) I have embedded much of my professional life.

Behind the scenes of living and kitchen/dining areas, and essential for making the apparatus functional, were the utilities: the gas pipes and valves, the electricity conduits, the plumbing—all so many containers for channeling dynamic flows and ensuring supply, unobtrusively linking this domicile to vast grids of energetic and institutional power (so long as I keep paying the bills).

One point revealed by this domestic survey is the variety of types of containers, even within the home. Some of my equipment is close to the “classic” container or utensil, the basic bowl-shaped holding vessel. But containment can also be performed by flat surfaces and wire racks, as well as by silicon-based storage devices like the CD or computer. Some of the containing technologies are machines or include mechanisms, like the extending table or the fold-out sofa bed. The food processor is basically a bowl with a rotating blade driven by an electric machine, a combination of “static” bowl and “dynamic” machine-driven bladed tool.

Mumford’s distinction between “dynamic” tools and machines versus “static” containers or utensils is not one that can be ultimately sustained. If, in his words, “The essential distinction between a machine and a tool lies in the degree of independence in the operation from the skill and motive power of the operator: the tool lends itself to manipulation, the machine to automatic action” (1962, 10), then the container technology, even in its most basic form, has something machinic about it. Unlike the tool, which needs manipulation to perform its function, the container can perform its holding-function automatically: a jar can simply sit there, full, on the shelf and be working to capacity. The distinction between tool or machine and utensil or apparatus hangs on the dynamic/static distinction, but it could be debated whether holding or containing is simply to be considered as a passively inhering property of a shaped space, or whether containing is rather to be thought of as a form of action in itself.² I favor the latter interpretation, following intersubjectivist accounts of the subject formed in a space whose holding and supplying are

understood as the result of maternal labors, actions requiring effort and care. As we shall learn from Heidegger’s analysis of a container technology in the next section, containing is not as simple a function as we might first think.

HEIDEGGER AND THE JUG/THING

A significant counter-example to the many historians and philosophers who neglect the containment aspect of technology is Martin Heidegger, who paid quite a lot of attention to location, things, spaces, containers, and technologies of holding and supply.

His essay on “The Thing” (1971c [first published 1962b]) begins with a discussion of nearness and distance in the modern age and includes wonderful meditations on a jug, some of which are relevant for a more general analysis of container technologies. First, Heidegger takes pains to argue that the jug for him is not a mere object of vision or thought, but a thing in itself which has been created through a process of making, so that “as a vessel [it] stands on its own as self-supporting” (1971c, 167). The jug’s character as a *thing* “resides in its being *qua* vessel” (1971c, 169), that is, its capacity as a container. Heidegger inquires into the holding function of the jug, arguing that it is not the impermeable sides and bottom of the jug which do the holding. When we fill it we pour into its emptiness, and “The emptiness, the void, is what does the vessel’s holding. The empty space, the nothing of the jug, is what the jug is as holding vessel” (1971c, 169). The maker of the jug does not so much shape the material as shape this void.

Posing the question “How does the jug’s void hold?” (1971c, 171), Heidegger answers that holding is active and ambiguously two-folded, comprising the actions of taking and keeping. Moreover, this dual activity of holding as taking and keeping only comes to fulfillment via a third action, “the outpouring,” whereby the container’s contents gush out: “The taking of what is poured in, and the keeping of what was poured belong together. But their unity is determined by the outpouring for which the jug is fitted as a jug” (1971c, 171–72). Noting that the word “gush” had as its earliest meaning “to offer in sacrifice,” Heidegger distinguishes a generous, sacrificial, and sacred gushing from “mere pouring in and pouring out” or the “mere filling and decanting” of liquor in a bar (1971c, 173).³ The outpouring he valorizes is by contrast a gift: “And in the poured gift the jug presences as jug. The gift gathers what belongs to giving: the two-fold containing, the container, the void, and the outpouring as donation” (1971c, 173–74). The outpoured gift is thereby interpreted as a gathering together of the various dimensions of containment Heidegger has discussed.

What can Heidegger’s ideas about the jug as a vessel contribute to the project of analyzing and interpreting container technologies?

Firstly, it is significant that Heidegger does not assume holding is passive; for him it is a complex action.

Secondly, it is interesting that Heidegger's analysis of this container technology should ultimately celebrate spilling out. This shifts the emphasis from holding to supply. (In the light of Mumford's remarks about the relations between female organs and container technologies, it is tempting to interpret Heidegger's emphasis on sacrificial and generous outpouring as a kind of homage to the maternal, whose breaking birth waters and overfull breasts are prototypes of life-giving gushings.)

Thirdly, bearing in mind how the container's functions of taking and keeping are fulfilled in "the outpouring"—or, more generically, supply—we might interpret a holding vessel like a jug or urn as a technology of re-sourcing: it can be filled from a source, then itself becomes a source of what it has kept and preserved. Note that this function of basic container technologies involves not only the spatial dimensions I am emphasizing here, but also entails temporality: the container takes in during times of abundance, and it keeps and preserves its contents over time. This was, as Mumford (1966) fully appreciates, the most powerful discovery of the neolithic, when container technologies proliferated as means to even out natural fluctuations in supplies of food, materials, water, and so to free up more time for other cultural pursuits.

Fourthly, it is important to note some of the limits of Heidegger's jug example for a more general analysis of containers. Not all containers are designed to be impermeable or like the jug capable of outpouring: some are for slow leakage, some for soaking up drips, others for what we hope will be permanent containing. An extended analysis of containers would have therefore to examine "incontinence"—various deliberate (as in a colander or coffee filter), catastrophic (like the Titanic or Chernobyl), or merely embarrassing (!) failures of containment.

The jug is a container technology that has its being as a piece of equipment in domains of equipmentality such as the home, the church, the restaurant, or bar. But these sites are themselves varieties of container technologies, containers which constitute (or co-constitute) environments and locations in themselves. This order of container technologies is thematized in Heidegger's 1954 essay "Building Dwelling Thinking" (1971a), whose examples include houses, ships, temples, a peasant hut, an old bridge. It begins with an exegesis of how the notion of "dwelling" is at the root of German words for building (*bauen*) and existing (*bin*). The sense of dwelling as a basic, habitual, and inhabited condition of human life tends to recede in normal notions of building (*bauen*) as a kind of productive activity (1971a, 147). Heidegger wants to bring to the fore the sense of humans as dwellers and building as a letting-dwell. Dwelling means "to remain, to stay in a place" (1971a, 146) and also, in Heidegger's exposition, "to cherish and protect, to preserve and care for": "Real sparing is

something positive and takes place when we leave something beforehand in its own nature, when we return it specifically to its being, when we 'free' it in the real sense of the word into a preserve of peace" (1971a, 149).

There is a notable resonance between this idea of a safe preserve for humans or other entities to become themselves, and the intersubjectivist account of the maternal function as one of actively containing an emergent subject and letting it play safely in potential space, so it can become who it is. The emphasis in both instances is not on the singular entity (the subject, the thing, the organism), but on belongingness to and interactions in an actively containing and preserving environment shared with entities, both human and non-human: "dwelling itself is always a staying with things" (1971a, 151). In parallel with Heidegger's notion of holding as both taking and keeping, his notion of making room for involves both admitting and installing: "The location admits the fourfold and it installs the fourfold. The two—making room in the sense of admitting and in the sense of installing—belong together. As a double space-making, the location is a shelter for the fourfold or, by the same token, a house" (1971a, 158).

In "The Thing" essay, had Heidegger wanted a really good example of a container technology for outpouring, he could have chosen a bucket. But the choice of a jug, like the chalice in the earlier essay "The Question Concerning Technology" (Heidegger 1977b), first published in 1954, emphasizes a container that might be used for ritual libations. This is a way for Heidegger to bring in reference to a sense of the sacred in the gathering of elements into artifacts as "Things." In various essays Heidegger writes of "the fourfold," the union of earth and sky, divinities and mortals, within which humans dwell, and which in his interpretations are seen to come together through things and spaces like the jug, the bridge, the hut, or the chalice. Although I am not comfortable with some of the religious overtones of this notion, the ecologically-minded part of me does appreciate the necessity of a concept something like that of the fourfold as a way of thinking about how even everyday objects are condensations of many factors which come together in a specific context or network and have no existence or "standing" outside that context. So I have personally translated Heidegger's fourfold into a shorthand way for thinking about the way things are a gathering together of many elements, forces, purposes, and dimensions, both human and extra-human. This is the essential point of the analysis Heidegger makes in "The Thing," where he deploys an old German meaning of "Thing" as a gathering (1971c, 174–77). Things do not simply represent such a gathering, as might signs or tokens: they only exist as that gathering of materials, that particular location and shaping and conjunction of space(s), that historical and cultural set of projects and purposes which the thing serves and of which it is an outcome. Or as Bruno Latour pithily expresses it: "Every entity is an event" (1993, 81).

The key motif for me here is *emergence*: the thing emerges in a “nearness” or rather a process of “nearing” that gathers remote elements into itself; thus a local and specific object is also a manifestation of its macro-context, a part of the world’s worlding (1971c, 177–81). Doreen Massey makes a similar point about the sense of place in globalized cultures: “places are processes, too” she writes, and any particular place is a “*meeting place*,” a gathering and manifestation of local and global social, economic, and communications relations (Massey 1993, 239). Thus the uniqueness of a place is defined less in terms of some “authentic” history of a single, inevitably fictionalized and homogenized local community, than by “the fact that each place is a distinct *mixture* of wider and more local social relations” (1993, 240).

There is a significant parallel between Heidegger’s notion of allowing the thing room to emerge as part of the world in its relation of nearness, and the notion of the emergent subject in Winnicottian and intersubjectivist psychology. Elsewhere I would also like to draw out the connections between these ideas and the notion of the contingent character of the technoscientific object as an entity emergent from an actor-network.⁴ The thing, the emergent subject, or the sociotechnical actor (Latour 1993, 1994) are to be understood in their specificity, characterized not in terms of the entity’s peculiar properties examined in isolation, but rather as spatially and temporally contingent manifestations that are part of a whole environment, field, or network.

Thus we could add to the conjugations of Winnicott’s dictum “There is no such thing as an infant” a Heideggerian inflection:

There is no such thing as a thing [apart from the fourfold];

as well as an actor-network theory variant:

There is no such thing as an actor (human or non-human)
[apart from the network];

and perhaps also a geographer’s transformation:

There is no such thing as a locality [apart from its globality].

MACROCONTAINMENT: THE STANDING-RESERVE

The global ordering of containment and supply in the modern technoscientific era is a key theme in Heidegger’s essay “The Question Concerning Technology.” As part of his effort to show the limits of modern instrumental notions of causality, Heidegger conducts an Aristotelian causal analysis of the making of a container technology similar to the jug: the sacramental chalice. The artisan making the chalice is involved in a practice of *techne*, a way of revealing the world in a creative and reverential “bringing forth” of the thing, that brings together the four causes (1977b, 6–12). Heidegger contrasts this

to the modern modes of aggressive use of resources and mass scale production and supply (1977b, 14). In contrast to the artisan-dominated modes of production in antiquity or pre-modern Europe, where art and technique came together in *techne*, stands the modern epoch with its large power plants, airplanes, nuclear reactors, and industrialized science. Heidegger’s analysis of this epoch in “The Question Concerning Technology” and related essays (especially “The Age of the World Picture” [1977a, first published 1950] and “Science and Reflection” [1977d, first published 1954]) draws connections between the exploitation of the Earth as a calculable resource, the demands of profit-driven development, the character of modern research, apparatus-dependent science, and the mathematization or “informatization” of the world. “Bringing forth” has been reduced to something like imposing upon and ripping out, via an aggressive technoscientific “challenging-forth” of the world to reveal itself in the form of resources and information for consumption, the process Heidegger calls *Herausforderung* (1977b, 14). Now the Earth or a river is revealed as a source of extractable resources (such as ore or hydroelectricity) whose extent and yield are already mapped and calculated in advance (1977b, 21).

The outcome of this challenging-forth is a macro-technology of re-sourcing that Heidegger calls the *Bestand*. This “standing-reserve” is a mobilizable stockpile of resources available for instant supply: “Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering” (1977b, 17). The plane on the runway, ready for take-off, epitomizes this on-call orderability of resources: the plane might look like an autonomous machine, but it only exists “to ensure the possibility of transportation” (1977b, 17). Another image might be rows of stacked large containers ready equally for transport by road, rail, or sea. In this modern formation, making resources available predominates over appreciating the unique qualities of the thing. The object loses its qualities as the *Gegenstand*—that which resists and stands against—and the machine loses its standing as an autonomous tool, dissolved into the *Bestand*, where it is just another “completely unautonomous” element in the abstract and global grid of the resourced world (1977b, 17).

So we might add another Heideggerian variant to the Winnicottian conjugations:

There’s no such thing as a technology [apart from the standing-reserve].

Popular culture celebrates each new machine or commodity as a revolutionary wonder. But it is easy for the macro-apparatus of supply (the *Bestand*) to keep supplying new tools/toys out of the resources on hand to it. What is harder to alter, and what continues to give contemporary lives and inventions their particular stamp, is the macro-apparatus itself and the logics of re-sourcing and supply that order it. Heidegger names as *Gestell* (enframing) the

dangerous modern technological mindset that calls on the world to reveal itself as available resource. One danger of this framework, as Michael Zimmerman explains, is that it turns everything, even ourselves, into the same: neither thing, object or subject, but raw material, standing-reserve, human resource: "While humanity itself can never be transformed completely into standing-reserve, technological humanity has become in effect the most important raw material in a process which no longer makes basic ontological distinctions among different kinds of entities" (Zimmerman 1990, 215-16).

Heidegger's description of how the standing-reserve is created by challenging the world to make itself available as a pile of mobile resources implies processes that not only involve "dynamic" machines, such as bulldozers and drills, for extracting and unlocking resources, but also utensils, apparatus, and utilities for storage and distribution of these unlocked treasures:

That challenging happens in that the energy concealed in nature is unlocked, what is unlocked is transformed, what is transformed is stored up, what is stored up is, in turn, distributed, and what is distributed is switched about ever anew. (1977b, 16)

The quote could almost equally well apply to the decoding, recoding, storage, and distribution of information over computer networks as it does to Heidegger's example of a power plant on the Rhine and its attendant web of distributor lines. But aside from such world-spanning utilities as the internet or the power grid—each a network carrying dynamic flows (of energy or information)—there are many other technologies involved in the distribution and switching about of resources, from wagons to coal trains, trucks to cargo ships, and roads, railways, and ports, not to mention the Mother Shop of the suburban shopping mall (Sofia 1996), the humble supermarket trolley, or the ubiquitous plastic shopping bag.

The *Bestand* might be created through the process of *mathematically efficient calculation* and *ordering* of unlocked resources, but what it also and importantly achieves is the objective of *securing abundant supply*. As much as this objective answers our primal demands for an environment-mother smoothly and unobtrusively to supply our every need, it also fits neatly with consumer society and profit-driven development. Processes of containment and supply, and the utensils, apparatus, and utilities that help extract, store, and distribute resources from the standing-reserve, are not relics of pre-modernity but continue to define a fundamental aspect of what technology is in the late modern epoch: it is about supply, securing access, rapidly making resources available for distribution and consumption.

The list of "conjugations" of Winnicott I have been building now includes the following:

There is no such thing as a thing [apart from the fourfold];

There's no such thing as a technology [apart from the standing-reserve].

These two ways of interpreting artifacts are usually contrasted by Heideggerians, with the Thing and the fourfold being appraised as richer and more open ways to apprehend our being with things, while technological resources and the *Bestand* are held as impoverished ways of revealing, fed by an anthropocentric instrumental rationality in the service of power and greed. But my emphasis here is on the similarities: both the jug/Thing and the standing-reserve have to do with gathering, containment, and supply. The artisanal Thing (the jug, the chalice) appears a better choice through which to apprehend the gathering of entities and elements it "stays" and is "stayed by" in the fourfold, not only because of the reverential sense of mutual indebtedness of humans and non-humans it invokes, but also because Heidegger conveniently elides the messy and unpleasant aspects that sustain supply even for the artisanal mode of production.

Heidegger's discussion of causality in the relation to the chalice (1977b, 6-13) leaves out the question of where the silver for making it came from. Yet the appearance of materials within the smithy's workshop—the ore, the coal for heating and smelting it, the apparatus and tools used for refining and working it—is only possible through a prior set of techniques and technologies for extracting, moving, and storing resources, for securing or coercing human labor power (for example, the slave miners of antiquity), and for tunneling, digging, gathering, carrying, storing, trading, shipping, and delivering. Heidegger's elision of this activity of extraction, transport, and provisioning in respect to artisanal mode of production allows it to be more dramatically contrasted with modern intensities of macro-containment and mega-supply. However, my emphasis here is on the dependence of both modes on resource supply, a dependence that becomes elevated to a governing principle in the modern age. I would suggest, moreover, that not only sacred things in ritual use, but any mobile resource of the high-tech standing-reserve might also be apprehended in terms of its connections, if not with a cosmic fourfold, then at least with a global multifold of sociotechnical being. Indeed, it is often the task of material semioticians of technology in the academy (like Donna Haraway and actor-network theorists), and of environmentalist and consumer groups in society at large, to unravel contemporary technofacts into their local and global networks of actors, relations, and effects (not always intentioned or desirable).

CONCLUSION: THERE'S NO SUCH THING AS . . .

In this paper I have (with Mumford's help) inventoried some of the container technologies significant in technological history and in my own domestic lifeworld, and gathered up some theoretical resources which could be de-

veloped in a more sustained analysis and interpretation of the unobtrusive technics of containers and containment. The perspectives of Bateson and Winnicott (and the actor-network theorists, not discussed here) can contribute to this project with their emphasis on the background or context containing the evolving or emergent entity. I have argued that neglect of containers and containment functions is not only the result of anti-maternal bias in western thought, but is encouraged by the unobtrusiveness of containers, traces of whose productive roles are not necessarily evident in the final product. And yet, as I have suggested by way of both Mumford and Heidegger, the functions of containers (utensils, apparatus, utilities) to ensure supply loom large in the modern technics that mobilizes resources to be on call as standing-reserve.

The container technologies project is conceived of as a corrective to phallic biases in the interpretation of technology and as a way of getting beyond critique of traditional western notions of space as passive, feminine, and unintelligent, and towards exploring and developing more recent ideas about what counts as smartness, and where it is located, in an entity-environment complex. Unless we pay better attention to questions of containment and supply, we will misrecognize the technological character of the everyday metropolitan lifeworld, which is reliant on large utility grids and includes many tool-utensil, machine-container hybrids (the phallic womb skyscraper, the bladed bowl food processor). Although I hope the idea that some technologies are metaphorically or functionally feminine might increase feminist interest in studies of technology and help dislodge the idea that technology is intrinsically masculine, I do not intend to enshrine a framework that poses the tool or machine as masculine, phallic, and "bad" against the redemptive utensil or container as inherently feminine, maternal, or "good." Of more interest is Mumford's point that tool and utensil are inseparable means of technological adaptation. The dynamic machines for penetrating secrets and unlocking resources have helped set up a world-spanning grid of storage and distribution, containment and supply: both "means of adaptation" are intimately interconnected in the late modern technological complex.

Winnicott's provocation "There's no such thing as an infant" has become for me an injunction to learn to think of emergent entities as contained in a facilitating environment. Let me end by gathering together the various "conjugations" I have made of this idea (plus a couple I have only been able to hint at here), presenting them not so much as a conclusion but as a basis for further inquiry:

- There is no such thing as an **infant** [apart from the **maternal provision**]
- There is no such thing as an **organism** [apart from the **environment** (Bateson)]
- There is no such thing as an **actor** [apart from the **network**]
- There is no such thing as a **discovery/invention** [apart from the **potential space**: lab, studio, study, etc.]

- There is no such thing as a **tool** [apart from the **workshop**, domain of **equipmentality** (Heidegger)]
- There is no such thing as a **thing** [apart from the **fourfold** (Heidegger)]
- There is no such thing as a **technology** [apart from the **standing-reserve** (Heidegger)]

NOTES

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1. The significance of this potential space to language, poetics, aesthetics, and philosophy has been explored in Julia Kristeva's work around the notion of the chora. See Kristeva (1981, 1984).

2. For further discussion of the relation between containers and machines, including the subordination of machines to the purposes of containment, see Sofoulis (1999).

3. Of course someone interested in container technologies per se would not be obliged to make the same evaluations. Technologies of "mere filling and decanting" would not be of lesser interest than those of pouring and gushing, and in comparing and contrasting them we could specify different kinds and purposes of containers, different patterns of relations between filling and spilling.

4. On actor-network theory, see Bijker and Law (1992), Bijker, Hughes, and Pinch (1987), and Pickering (1995).

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