There is a great deal to admire in Albert Borgmann’s neo-Heideggerian critique of the ways in which contemporary men and women interact with technology.\textsuperscript{1} His suggestions about how such interactions can be improved are both serious in tone and richly suggestive. He encourages us to go beyond what he calls “the device paradigm” in order to consider “focal things and practices,” about which we are able to communicate by means of what he calls “deictic” discourse.

As I understand it, his device paradigm is more or less what has come to be known as the program of the domination and commodification of nature advanced by Enlightenment rationality, and the crass version of means-ends relationships that Langdon Winner\textsuperscript{2} has called “straight-line instrumentalism.” Focal things and practices, on the other hand, are matters of transcendent importance, or what Borgmann calls “ultimate concern.” What is focal, he tells us, “gathers the relations of its context and radiates into its surroundings and informs them.”\textsuperscript{3} Deictic discourse, is our way of talking about focal
things and practices; its purpose is to express and reveal. Deictic, in Borgmann’s vocabulary, means “to show, to point out, to bring to light, to set before one, and then also to explain and to teach.”

What is deictic is contrasted to what is “apodeictic” or explanatory. Although deictic and apodeictic forms of communication share the trait of being fallible, apodeictic communication is more limited in its scope. It “cannot disclose to us how it gets underway, i.e., how its laws are discovered and how something emerges as worthy or in need of explanation.” It is in this sense that neither science nor technology can furnish the ends-in-themselves that Borgmann thinks lie outside those fields and provide human life with its ultimate meanings.

It is not hard to see what is salutary about this account. Only a few true-believer free-marketeers would want to disagree with his claim that most of us in Western industrialized countries have a tendency to get too tightly locked into patterns of consumption, and this without reflecting on the place of our behavior within the broader picture. This pattern of behavior includes activities such as buying things that we do not really need, that we only briefly desire and soon tire of, and with money that we do not yet have. Such behavior is frequently exhibited at the personal level and at the social and political levels as well.

At the personal level this pattern of commodification is sometimes found even in religious practice. The attitudes advanced by fundamentalist televangelists, for example, seem based not so much on the teachings of the financially insouciant Jesus, who urged a spiritual revolution, as on the agenda of the well-heeled Euthyphro, who was sure he could find the best way of doing business with the gods. In their straight-line instrumentalist worldview, for example, even the heaven of the fundamentalist Christian becomes commodified as the equivalent of a kind of eternal Caribbean cruise: a heavily advertised and expensive commodity that must be purchased well in advance, on the testimony of celebrities, and with the stipulation that all sales are final.
At the social and political level, patterns of consumption distract attention from established ecological problems such as global warming, as well as from the types of engagement that an informed citizenry would otherwise have with pressing local, regional, national, and international issues, such as the growing gap between rich and poor. Once there were citizens who initiated informed debates concerning issues of public importance. Now they seem to have been replaced by consumers who buy and use prepackaged ideas. In all this, something has been lost. Some may want to call it “the larger picture,” others “the aesthetic dimension of life,” and still others “the ground of our Being.” Borgmann calls it “focal things and practices.”

So Borgmann thinks that our view of focal things and practices, or ends-in-themselves, has come to be obscured by the smog generated by the device paradigm. How can we dispel the smog? We don’t need to tinker with the sciences, since even though they cannot tell us anything about ends or values they are at least able to provide information about the “lawful fine structures of reality.” We don’t need to reassess the “deictic” discourses either, since they are our best hope of diminishing the effects of the device paradigm by allowing focal things to shine.

Borgmann’s solution to the problem of obscured focal things and practices is to enter technology under two columns. One is the bad part of technology (the device paradigm), which involves manipulation and transformation and therefore disburdens us from intimate contact with focal things and practices. The other is the good part of technology, which operates in the background supporting focal things and practices. At the personal and familial level, television, stereos, central air conditioners, and dining out are bad, while piano music, wood-burning fires, and eating in are good. At the public level, cathedrals are good and the space shuttle is bad.

This is a matter of crucial importance to understanding what Borgmann wants to tell us, so it deserves to be stated in his own words. In matters personal and social, private and public, the thing to remember is that technology will never be reformed from within the device paradigm. Reform is only possible from the outside, as he puts it, by
means of “the recognition and the restraint of the [device] paradigm.”

Borgmann’s proposed reform of technology, then, intends “to restrict the entire [device] paradigm, both the machinery and the commodities, to the status of a means and let focal things and practices be our ends.” This plan of action would lead, in his view, to a “simplification and perfection of technology in the background of one’s focal concern and to a discerning use of technological products at the center of one’s practice.”

In other words, small is beautiful and big is bad. Hands-on crafts and directly legible texts (such as printed words and musical scores) are good, and machine manufacture and electronic communication (such that machines are required to read the text) are bad.

Borgmann’s program has some interesting similarities with other critiques of technology, past and present. Like Lewis Mumford, Borgmann is concerned that the machine tends to mangle the organic. Like Jürgen Habermas, he is concerned that technology has begun to colonize the lifeworld of communicative action. Like Langdon Winner, he is sharply critical of the idea that ends of production and consumption tend to determine and justify their means. Like E. F. Schumacher and Hazel Henderson, he thinks that small is usually beautiful and that big is usually ugly. And like Amory Lovins, he favors a technology that is decentralized and self-sufficient. As important as these connections are, however, it is in the work of Martin Heidegger that we find Borgmann’s spiritual taproot. He follows Heidegger in complaining that contemporary technological practice (the device paradigm) distracts us from the “great embodiments of meaning.”

He also follows Heidegger in claiming that technology (the device paradigm) has been responsible for a kind of diaspora of focal things and practices. For both Heidegger and Borgmann technology provides the ground for a kind of negative hope. The vacuity of technology (again, the device paradigm) serves as an opening or clearing in which focal things can once more be engaged with clarity and purpose.

To Borgmann’s credit, however, there are also crucial points on which he seems to part company with Heidegger. First, whereas Heidegger seems to want to return to pretechnological enclaves as part
of his romanticized search for poetic meaning, Borgmann recognizes
the futility of such thinly veiled Luddism. He tells us that he wants
instead to go forward toward a reformation of the device paradigm
from the outside in a way that will result in leaner, more appropriate
forms of technology. He recognizes that we can’t live entirely without
devices, such as pianos and wood-burning stoves; he just wants us to
live without the big, complex, distracting ones, such as televisions,
computers, and space shuttles. In other words, whereas Heidegger ap-
parently wanted to go all the way back to stone bridges, Borgmann
says that he wants to go forward by going only part of the way back,
to acoustical instruments and home cooking.

Second, whereas the social dimension of focal things seems to drop
out of Heidegger’s work, especially after his disastrous affiliation with
the Nazis, Borgmann wants to emphasize the political and social con-
texts of such focal things and have them play their part in helping us
develop more sympathy and tolerance for one another. If we can just
strip our devices down to the bare minimum so that we can focus
more intently on matters of ultimate concern, this way of thinking
can begin to permeate our social and political lives.

In all this, then, Borgmann is clearly advancing one of the best
neo-Heideggerian critiques of technology now available. He sup-
plants the romantic Luddism of Heidegger’s later period with a
kinder, gentler form of romanticism that attempts to give technol-
ogy—at least in some of its more limited forms—its due. What’s
more, he attempts to introduce an agenda of social and political re-
form into his analysis of technology in a way that almost makes us
forget the disastrous consequences of Heidegger’s own maladroit
program.

In sum, Borgmann thinks that we need about the same amount of
explanation but much less transformation and manipulation. We
need to be less occupied with the malleability of things, and we need
to downsize our dependence on devices. We need more expression,
more revealing, and more articulation. We need much less big tech-
nology, about the same amount of science, much more small technol-
ogy, and, which he thinks comes down to pretty much the same
thing, much more art.
Even those who are sympathetic with some of Borgmann’s goals, as I myself am, might nevertheless find themselves tempted to tweak some of the details of his program. First, I believe, that he has cast the net of his condemnation of the device paradigm too broadly. He does this by reducing the many and varied functions of certain devices to one essential property. Television, for example, is unequivocally bad because it displaces social relations. But surely television does more than that. Granted, there is much that is stupid on television. Nevertheless, the medium sometimes informs and educates, sometimes serves as soporific or aphrodisiac, and during times of crisis it can even bring people together. It functions in lots of other ways, too. In other words, whether we want to dismiss a particular tool or artifact as contributing to what we think is bad about our technological culture really has more to do with the function of that particular tool or artifact within a specific context than with some property that is claimed to be its essence. My first objection to Borgmann’s program, then, is that it rests on a rigid essentialism. I believe that a flexible functionalism can take us further down the road to understanding the complexities of our technological milieu.

Second, there is the matter of his focal things and practices. The issue here is not so much whether we often discourse about matters that are “transcendent” in some sense, and of “ultimate concern” to us, but whether someone might want to give a different account of what such things are, how they arise, and how they function. Simply put, I believe that Borgmann has given too much weight to the integrity of focal things and practices. He does not seem to be interested in their origins and he does not think that they are amenable to testing. Taken together, these two objections amount to a criticism of his account of means-ends relationships.

Before I get into these matters in more detail, however, I want to take a step back in order to examine the ways that Borgmann characterizes some of the accounts of technology that compete with his own. Several years ago I wrote a review of Technology and the Character of Contemporary Life for the journal Research in Philosophy and Technology. In his generous reply to my review, Borgmann indicated
that his discussion of rival theories was only a “disciplinary aspect” of his work, and subordinate to its “substantive concerns.”\textsuperscript{12} I think he may have been too modest in this regard, however, and that his discussions of theories that rival his own do in fact shed considerable light on some of the more substantive parts of his account.

He thinks that all theories of technology can apparently be fit into one of three boxes—or four, if you count his own. The first three of these boxes are labeled substantivist, instrumentalist, and pluralist. The substantivist view holds that “technology appears as a force in its own right, one that shapes today’s societies and values from the ground up and has no serious rivals.”\textsuperscript{13} Jacques Ellul is cited as a proponent of this position. Borgmann thinks this view unduly pessimistic, and for the most part opaque, too, since it tends to stop the quest for explanation in the face of a menacing, vague, and unalterable force. Anyone who has spent much time reading Ellul probably won’t be moved to quarrel with Borgmann on this particular point.

The instrumentalist view, on the other hand, holds that “there is a continuous historical thread that leads from our ensemble of machines back to simple tools and instruments. We may think of both machines and tools as affording possibilities of which we can avail ourselves for better or worse.”\textsuperscript{14} Borgmann thinks that the several varieties of this position, including those he calls “anthropological instrumentalism” and “epistemological instrumentalism,” have some important elements in common. First, they treat tools as value neutral. Second, they tend to treat matters of ultimate concern as something to be established by efforts that are essentially private.

The worst of the worst in Borgmann’s account are these instrumentalists. In order to go about their everyday business, he suggests, they have to assume and make use of the reality delivered to us by the scientists. But this is the very reality that they fail to treat with sufficient respect. They seem only to be interested in how things can be used. They are not really interested in fundamental reality beyond what is concrete and quotidian, and they think that abstract science is full of “convenient and useful formalisms.”\textsuperscript{15} The instrumentalists are bad because they keep telling us that “whatever works is good.”
Borgmann characterizes this view as shortsighted because it ignores the fact that tools are never mere means, but are instead “always and inextricably woven into a context of ends.” If substantivist views collapse from the weight of their own totalizing ambition, then instrumentalist views suffer from their inability to see the big picture and from their lack of common sense.

The third theory of technology is advanced by those whom Borgmann calls “pluralists.” This view attempts to take the complexity of technology seriously as a “web of numerous countervailing forces,” but it “fails reality,” as he puts it, because it ignores overall patterns, pervasive social agreements, and coordinated efforts. If the substantivist view is a kind of black hole that collapses in on itself on account of its own gravity, and if the instrumentalist view is little more than froth, with no discernable direction of movement apart from what works at the moment, then the pluralistic view tends to go flying into a thousand pieces because there is no force at its center capable of holding it together. As we shall see, Borgmann wants his own view to have the gravity of a good solid center, but he doesn’t want that center to suck in everything around it.

As a working Pragmatist of an eclectic sort, I am obliged to suggest that Borgmann’s taxonomy of theories of technology is at least one short. Several years ago I published a Pragmatic account of technology that has its own taproot in the work of John Dewey. This view, which I will call Pragmatechnics for short, doesn’t quite fit into any of Borgmann’s three categories. It does overlap with some of them, however, as well as with some of the features of his own view, which I will call Focaltechnics. Pragmatechnics is not substantivist, for example, since it holds no brief for reifications or foundations of any sort, whether they be scientific or metaphysical. It doesn’t treat technology as a “thing” or “force” as does Ellul. In fact, it is even less substantivist than Focaltechnics, which appeals to the “lawful fine structures of reality.”

Pragmatechnics does not fit into the box that Borgmann labels “pluralist.” Not content with merely describing experienced complexities, it is instead a thoroughgoing program of problem-solving
that involves analysis, testing, and production: production of new tools, new habits, new values, new ends-in-view, and, to use Borgmann’s phrase, even new “focal things and practices.” Pragmatechnics thus takes up a matter that appears to be absent in Focaltechnics, that is, how we come by focal things and practices in the first place. Like Focaltechnics, Pragmatechnics argues that if technology is to be responsible then it must be socially and politically engaged. But unlike Focaltechnics, Pragmatechnics argues that if technology is to be responsible then it must also be able to test our focal things and practices.

Pragmatechnics is not an instrumentalist view in the sense in which Borgmann employs the term. It holds that a genetic or historical understanding of tools and artifacts is important, and therefore that scientific discourse can in fact disclose how it gets underway. But it also holds that human beings are much more than simply tool makers and users. It holds that there are vast and important areas of human experience that do not involve conscious tool-use since they do not call for deliberation. Like Focaltechnics, Pragmatechnics holds that focal things and practices generally have to do with aesthetic experience, sympathy, and enthusiasm. Unlike Focaltechnics, however, Pragmatechnics holds that we sometimes need to examine our enthusiasms, aesthetic experiences, and sympathies, to subject them to tests of relevance and fruitfulness, and then to honor the ones that serve common goals and reject the ones that are unproductive because they are based on what is merely personal or sectarian.

Although some of the features of Pragmatechnics overlap those of Focaltechnics, then, there are important differences as well. One of the most important differences is that Pragmatechnics holds that value-determination, including assessment of our most cherished “focal things” is an activity of intelligence, and that intelligence is not located outside of human technological activity. For Pragmatechnics, the tools and artifacts of our culture require ongoing evaluation, and such evaluation must be done in context. We cannot say a priori, or even on the authority of some end-in-itself, that small-scale devices are more appropriate than large-scale ones. We cannot say up front
that learning to play the piano is more appropriate or meaningful than learning to play an electric guitar or learning to appreciate recorded music. Pragmatechnics just doesn’t admit this type of reduction: it holds that intelligence demands that what is *techne* be subjected to a *logos*, whether the *techne* in question involves basic activities such as using wood-burning stoves or more complex ones such as building a space station. For Pragmatechnics, the *logos* of *techne* is technology.

So Focaltechnics seems to want to characterize device-technology reductively as an addiction to the disburdenment from attending to focal things and practices, and then to work for its reform from the outside, using science and deictic discourse to achieve a small-is-beautiful “appropriate technology” alternative in which such disburdenments are reversed. Pragmatechnics, on the other hand, characterizes technology more broadly as the invention, development, and deliberate use of tools and other artifacts to solve human problems. It does not distinguish between large- and small-scale devices a priori, or even on the authority of some end-in-itself, but only in the context of problems and issues as they are critically articulated. It holds that technical failures are usually due to a failure of intelligence, and that most devices, especially complex ones, exhibit a whole range of values and functions from which it is the job of intelligence to select the best and most meaningful. Appropriate technology is thus for Pragmatechnics not a question of essence or scale but of function and context. Pragmatechnics argues that when we encounter a problem we can only start where we are, and not where we are not. And where we are is on the “inside” of technology in the sense that our culture uses a wide range of devices, both large and small, both complex and in-complex, some of which are used in ways that enrich human life and some of which are used in ways that are not. This is a distinction of enormous importance. I hope that it will become clear during the course of the next few pages that it is a distinction that makes a real difference.

Borgmann has written that he thinks there are two big differences between our two views. The first difference involves the question of
whether a strong reform of technology is needed. The second and related difference concerns whether matters of ultimate concern are testable.

As regards the strong reform of technology, Borgmann is mistaken when he identifies the type of liberalism that Dewey advocated, and that I advocate, with the type of weak or feckless reform program that ignores excellence, as he puts it, because it is content to settle for progress in the areas of justice and prosperity. Dewey also argued against that type of liberalism. In his book *Liberalism and Social Action* (LW 11), for example, he identified that particular type of liberalism as outdated and called for its replacement by a more robust type that would treat individual excellence as a social goal, and not as something that occurs haphazardly or as the effect of an “invisible hand.” But the point of that book cannot be properly understood without remembering a point that philosophers often tend to forget, namely that Dewey was deeply involved in educational experimentation.

In *Democracy and Education* (MW 9), as well as in *The School and Society* (MW 1) and *The Child and the Curriculum* (MW 2), excellence was precisely what Dewey was after. It is true that he thought that the pursuit of such excellence is facilitated when certain conditions are satisfied, and that these include social justice and a decent level of material well-being. Even though some of our current political leaders seem to want us to ignore the fact, it is difficult to start a school day on an empty stomach. But social justice and a decent level of material well-being do not suffice to produce excellence. The sufficient causes of excellence are many and varied, so we cannot say in advance what they are. But education, both in the schools and in a lifelong curriculum, remains one of the best means of determining such causes on a case-by-case basis.

Borgmann thinks that the type of liberalism that Dewey and I propose is faulty because it leaves the pursuit of excellence to the private sphere. This may be true of some varieties of neopragmatism, but it is not true of the view I am defending here. Pragmatechnics treats learning as a public activity that engages its wider context. Dewey, for
example, did not write about the school or society, but the school and society. And whereas much of current educational theory focuses extraordinary attention on either the child or the curriculum, Dewey emphasized the interrelatedness of the child and the curriculum.

Borgmann also criticizes the type of Pragmatism that Dewey and I propose on the grounds that its program for reform is weak because it is piecemeal. Although he sees some merit in such an approach, because it is sometimes the only type of reform available to us, he is nevertheless afraid that it will lead to a “featureless landscape wherein piecemeal meliorism is the only kind of reform that remains.”

Borgmann contrasts this view with his own, which he says aims at “knowing and revealing, as distinct from making and transforming.” It is difficult to know precisely what to make of this claim, since even the small technology that Borgmann places on the good side of the ledger requires some degree of making and transforming. As near as I can determine, it seems to involve a covert dualism in which ends are separated from means. For Pragmatechnics, knowing and revealing are not separable from making and transforming, since making and transforming are the means by which knowing and revealing are brought to fruition, and it is by treating knowing and revealing as ends-in-view that making and transforming are made meaningful. In other words, the two types of activities are related as means and ends.

This leads directly into the second big difference that Borgmann sees between his own view and mine. It involves the question of whether and to what extent matters of ultimate concern are testable. He thinks that they are not testable, but that they are contestable and attestable. I think that in many or most of the cases in which ultimate concerns come into conflict, which is to say when they become problematic, they are also testable.

Far from being mysterious or ineffable, then, matters of ultimate concern manifest themselves in terms of whether they contribute to the enrichment of the individual and the community. The problem is that what some call matters of ultimate concern are sometimes little more than idols of the tribe or the marketplace. Were matters of ultimate concern not testable, then there could be no systematic reform of any sort, and therefore no progress.
Even though Borgmann denies that matters of ultimate concern, or final commitments, are testable, he does allow that they are “contestable, attestable, and, alas, fallible.” “If my ultimate concern is impoverished or oppressive,” he suggests, “you are to contest it by attesting in your speaking and acting to one that is richer or more generous.”

Focaltechnics thus privileges speaking and acting over experimental testing, and this places it at odds with Pragmatechnics, which treats ends as ends-in-view, or artifactual and provisional, and thus as subject to experimental tests. But whereas Focaltechnics places speaking and acting over against experimentation, Pragmatechnics holds that experimentation includes speaking and acting and much more as well.

There is more than a verbal difference in describing something as testable, on the one side, and contestable and attestable, on the other. It is true that there are times and circumstances when adequate tests are not available, and when all we can therefore do is attest or contest. It is also true that there are circumstances in which there is a subtle gradation in which testing, on the one side, and attesting and contesting, on the other, shade into one another. But it seems to me that if a strong reformer of technology has any obligation at all, it is to seek to develop such tests wherever there are differences of opinion about ultimate concerns. The strong reformer of technology cannot be satisfied with merely attesting and contesting. To fail to take the next step beyond attesting and contesting runs the risk of endless discussion, endless claims and counterclaims, with little hope of reform, either weak or strong. Attesting and contesting, as I understand the terms, have to do with doing, which may or may not be productive, whereas testing has to do with making, or the production of new consequences.

At one point Borgmann mounts a parody of the idea of testing final commitments: “For me to test [a profound mutual commitment] the way the Consumer Union tests cars would be to jeopardize and perhaps to destroy it.” In raising this issue, he has alluded to a matter that is of high importance to the Pragmatist: tests are only appropriate, and indeed only possible, when there is a perceived
problem. Deliberation is only required, and is only possible in any meaningful sense, when there is an experienced difficulty. Further, means and methods will vary according to the nature and context of a doubtful situation. We do not test scientific hypotheses in the same way that we test works of art, and we do not test cars in the same way we test ultimate concerns.

I must confess, then, that I have some serious questions about the way that Borgmann treats the matter of ultimate concerns. As I have indicated, he tells us that they are not antiscientific. “Focal practices,” he writes, “are at ease with the natural sciences. Since focal things are concrete and tangible, they are at home in the possibility space that the sciences circumscribe.” Moreover, “the reform of technology would rest on a treacherous foundation if focal things and practices violated or resented the bounds of science.”

But he also tells us that focal things and practices are “unprocurable and finally beyond our control.” A focal practice is “the resolute and regular dedication to a focal thing. It sponsors discipline and skill which are exercised in a unity of achievement and enjoyment, of mind, body, and the world, of myself and others, and in a social union.”

Technology, on the other hand, at least in the sense of what I regard as his overly inclusive “device paradigm,” does seem to Borgmann to be hostile to focal things and practices. His device paradigm is overly inclusive because it is concerned with things in their malleability, and especially as they become increasingly malleable as a result of our increased scientific understanding of them. I am afraid that I find more than just a hint of a kinder, gentler version of Platonism lurking in the background of this vision: what is transformable and malleable is put on one side, as inferior, and what is an end-in-itself, “unprocurable and finally beyond our control,” is put on the other, as superior. The problem, then, lies not so much in his criticism of his device paradigm (since Pragmatechnics also criticizes reliance on faulty means-ends relationships) but in the fact that he has made his device paradigm include too much. Consequently, Focaltechnics
seems to be anchored in what is unprocurable and finally beyond our control, rather than in what is amenable to tests and evaluation.

It might be objected that by arguing that ultimate concerns are testable the Pragmatist is left with nothing to ground her focal things, that is, her most cherished values. Such an objection would be both correct and incorrect. If asked to ground one of her ultimate values such as her faith in democracy as a method of association in “the lawful fine structures of reality,” the Pragmatist would simply deny that such grounding is possible. She is, after all, a robust antifoundationalist. What she holds most dear is not grounded in this way.

But even if what she thinks valuable is not grounded in this way, that does not mean it is arbitrary or without substance. With Dewey, she would say that what is valuable is constructed, but that it is not constructed out of nothing. It is constructed out of the raw materials and intermediate stock parts that we get from our histories, from our cultural interchanges, and from our personal interactions. It is constructed by common political or social action to solve common problems. And it has been subjected to the tests of long series of experiments that have culled out a good many forms of social and political organization that did not work. In fact, it is subject to ongoing tests.

What is of ultimate concern to the Pragmatist may change over time as new ideas and ideals are generated, and as new methods are found to bring about what is most cherished. Moreover, what one generation counts as ultimate concern may be of little account to the next. There are abundant examples of this phenomenon, from the Crusades to the Inquisition to the institutions that attempted to justify slavery. This is why a Deweyan Pragmatist would argue that democracy is equivalent neither to a set of institutions nor to a set of desired outcomes, but is instead a set of provisional methods (self-correcting as long as they are actually applied and as long as they continue to be tested) for finding solutions to common problems. As Dewey put it in an address in 1939, “Democracy is belief in the ability of human experience to generate the aims and methods by which further experience will grow in ordered richness. Every other form of
moral and social faith rests upon the idea that experience must be subjected at some point or other to some form of external control; to some ‘authority’ alleged to exist outside the processes of experience’’ (LW 14.229).

Now there is a way of reading Borgmann’s program that saves it, at least from the perspective of the Pragmatist. On this reading, the device paradigm would be identified as only those aspects of technology that most informed critics, upon ongoing reflection and experimentation, find to be counterproductive or undesirable. Other aspects of technology—including big-ticket items such as most medical research and most of the space program and small-ticket items such as research into sustainable agriculture in developing countries—that have led to and supported what progress we have been able to make would then be absorbed into or counted as a part of what is outside of the device paradigm. Such items would thus take their place with goals, or ends-in-view, and science on the good side of the ledger, and only the crass straight-line instrumentalism of the device paradigm would be left on the bad side of the ledger.

But I think that Borgmann would object to being read in this way, since what seems to be his preferred dividing line between device-technology, including most of electronic technology, on the one side, and small direct-access technology, science, and focal concerns, on the other, would have been substantially redefined. I think that he would object to this model because it would have the effect of placing what he takes to be questionable, namely manipulation and transformation, on the good side of the ledger where he thinks they do not belong. What appears to be his deep distrust of instrumentalism and his profound devotion to ends-in-themselves seems to militate against this way of looking at matters.

I conclude with a brief example. One of the ultimate concerns that Borgmann turns to again and again involves the family. This type of discussion is, and should be, a part of any discussion of the reform of technology for several reasons. For one thing, the family is or should be a primary place of education. For another, our social and political institutions, including our ideas and practices regarding what families
are and how they should be supported, are themselves constructed artifacts. Discussions of the nature and function of the family are heard today in almost every quarter, and almost all of the parties to these discussions claim to hold the integrity of the family as a matter of ultimate concern. How, then, can there be so much disagreement about what a family is and should be? And more important, how can these profound disagreements be resolved?

Borgmann tells us that we need to demonstrate, to show, to reveal, what a family can be by our practice. If we do so, in his view, we will go beyond any type of technological treatment of the subject and attest to our ultimate values in ways that will move others to action. I believe that there is a great deal of truth in this suggestion. But we must go further. This is only one strategy among many for restoring the family to its proper place as a locus of social intelligence. Other strategies involve demographic studies, longitudinal psychological studies, and other types of experimental tests that can help us determine whether our intuitions about what is worthy of ultimate concern in these matters are warranted.

It is hardly a secret, for example, that many gays and lesbians want to be accorded the benefits that accrue to legitimized family relationships. They want to be able to adopt children, to make decisions about an ill or deceased partner, and to be eligible for the survivor’s benefits normally provided by life insurance policies and retirement programs. In short, they want to be recognized and respected as families in the same way that heterosexual families are. For individuals who are a part of such relationships, these are focal things. They are matters of ultimate concern.

But there are some people whose ultimate concerns run directly counter to such aspirations. Such people tell us that their ultimate concerns demand that they fight such recognition, legitimization, and respect. They see in the ultimate concerns of gays and lesbians the seeds of moral decay, transgression against what they take to be the will of God, and the corruption of the young. In states such as Colorado and Oregon they have mounted ballot initiatives designed to roll back even the civil rights that gays and lesbians currently enjoy.
How are such fundamental conflicts over ultimate concerns to be addressed?

I believe that Borgmann is correct when he says that attesting and contesting constitute a part of the solution to this crucial and urgent social problem. Many gay and lesbian political activists would agree. They attest to their ultimate concern by refusing to conceal their sexual orientation and by bearing the scorn of their neighbors in a public fashion. Since they do not have access to public legitimization for their domestic unions, they attest to their love and commitment to one another in private religious ceremonies. In debates, in discussions, and in the courts they contest the customs, institutions, and statutes that are arrayed against them. They contest what they take to be unfair practices by challenging existing laws, retirement programs, and adoption policies. Sometimes they even engage in civil disobedience and go to jail. It is right that they should do these things, and it is certainly the case that their attesting and contesting constitute a step toward the reform of the social pressures that often serve to stress their family relationships and render them more fragile than they would otherwise be.

Attesting and contesting in these ways is an important step toward the solution of this pressing social problem. By itself, however, it is not enough. The fact is that ultimate concerns such as those associated with family life are testable. Some of the tests involve quantifiable data. It is possible, for example, to quantify the benefits to health and psychological well-being that accrue to individuals living in stable, committed, monogamous relationships. It is also possible to test the effects on children of growing up in a same-sex household. Such studies have been undertaken, and they continue to be undertaken. To any fair and open-minded person, their results are unambiguous. Such tests reveal that in this case, where two widely diverse sets of ultimate concerns are in conflict, one is well founded, promotes health and harmony, and is salvific. The other is uninformed and moved by fear of what is not known or understood.

Such experimental results may fail to convince those whose ultimate concerns render them incapable of accepting objective evidence.
This was certainly the case during the civil rights struggles in the South during the 1960s, and it is still the case during the civil rights struggles of the current decade. But such results do matter to fair-minded people. They do matter in terms of the official positions of professional health organizations. And they do matter when conflicts enter the legal system.

This is only one example of what the Pragmatist means by testing ultimate concerns. I could have discussed any number of equally important matters, such as disputes concerning the direction that our form of democracy should take, or whether wilderness areas should be preserved from development. These matters also involve ultimate concerns, and they are also hotly contested.

I believe that the type of appeals I have just discussed, though they may appear too “instrumental” to some purists, will turn out to have greater positive long-term effects than any appeal to ultimate concerns as ends-in-themselves. This claim, too, is at least potentially testable.

My intuition is that Borgmann recognizes that there is this danger in talking about “final structures,” “ultimate concerns,” and “things in their own right,” and that he tries to temper his treatment of these matters by appeals to science, or “the lawful fine structures of reality.” He does so because he is also a democrat, a pluralist, and a person who believes deeply in the possibility of reform. I suspect that he also knows that public policy decisions are best made on the basis of experimentally informed discussion and open-minded debate, rather than on the basis of appeals to ultimate concerns. This is because what is accepted as ultimate is hardly ever also universal.

As I have tried to indicate, I am in general sympathetic with some of Borgmann’s goals for the reform of technology. We need to move beyond narrow consumption and use-models for living, and we need a new commitment to social intelligence. Further, I think that his emphasis on ultimate concerns will be especially attractive to those whose lives are influenced by the claims and interests of liberal theology and those who already feel strongly about environmental issues.
Nevertheless, I wonder if Borgmann’s suggestions will enjoy wide appeal. Some of his readers, especially those who live in urban areas, will probably be uncomfortable with his suggestion that when we get beyond the simplest of devices such as acoustical musical instruments and wood-burning stoves then we have allowed our ultimate concerns to become clouded. Some of his readers, especially those who are struggling with inherited religious and other cultural values that don’t seem to be applicable to their everyday lives, will probably be uncomfortable with his view that ultimate concerns are unprocurable and finally beyond our control. And some of his readers, especially those who view electronic communication as one of the antidotes to provincialism, may reject his argument that our culture has too much technology and that technology is the source of our current political and social ills. I myself am uncomfortable with these ideas because my conception of technology is pluralist and functionalist. My Pragmatism leads me to think that where technology fails us, it is not technology that is the problem. It is ourselves. It is our lack of interest, our lack of insight, and our lack of devotion to the solution of pressing problems. And above all, it is our lack of ability to invent new tools and to criticize our own highly cherished values.