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The Difference Between Things and Devices

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The following is a chapter-long excerpt from Albert Borgman's [Technology and the Character of Contemporary Life](#) (U of Chicago Press, 1984). It is reprinted here with permission.

We must now provide an explicit account of the pattern or paradigm of technology. I begin with two clear cases and analyze them in an intuitive way to bring out the major features of the paradigm. And I attempt to raise those features into sharper relief against the sketch of a pretechnological setting and through the consideration of objections that may be advanced against the distinctiveness of the pattern.

Technology, as we have seen, promises to bring the forces of nature and culture under control, to liberate us from misery and toil, and to enrich our lives. To speak of technology making promises suggests a substantive view of technology and is misleading. But the parlance is convenient and can always be reconstructed to mean that implied in the technological mode of taking up with the world there is a promise that this approach to reality will, by way of the domination of nature, yield liberation and enrichment. Who issues the promise to whom is a question of political responsibility; and who the beneficiaries of the promise are is a question of social justice. These questions are taken up in later chapters. What we must answer first is the question of how the promise of liberty and prosperity was specified and given a definite pattern of implementation.

As a first step let us note that the notions of liberation and enrichment are joined in that of availability. Goods that are available to us enrich our lives and, if they are technologically available, they do so without imposing burdens on us. Something is available in this sense if it has been rendered instantaneous, ubiquitous, safe, and easy.[1] Warmth, e.g., is now available. We get a first glimpse of the distinctiveness of availability when we remind ourselves that warmth was not available, e.g., in Montana a hundred years ago. It was not instantaneous because in the morning a fire first had to be built on the stove or fireplace. And before it could be built, trees had to be felled, logs had to be sawed and split, the wood had to be hauled and stacked. Warmth was not ubiquitous because some rooms remained unheated, and, and none

was heated evenly. The coaches and sleighs were not heated, nor were the boardwalks or all of the shops and stores. It was not entirely safe because one could get burned or set the house on fire. It was not easy because work, some skills, and attention were constantly required to build and sustain a fire.

The machinery of a device does not of itself disclose the skill and character of the inventor and producer; it does not reveal a region and its particular orientation within nature and culture. In sum, the machinery of devices, unlike the context of things, is either entirely occluded or only cerebrally and anonymously present.

Such observations, however, are not sufficient to establish the distinctiveness of availability. In the common view, technological progress is seen as a more or less gradual and straightforward succession of lesser by better implements.[2] The wood-burning stove yields to the coal-fired central plant with heat distribution by convection, which in turn gives way to a plant fueled by natural gas and heating through forced air, and so on.[3] To bring the distinctiveness of availability into relief we must turn to the distinction between things and devices. A thing, in the sense in which I want to use the word here, is inseparable from its context, namely, its world, and from our commerce with the thing and its world, namely, engagement. The experience of a thing is always and also a bodily and social engagement with the thing's world. In calling forth a manifold engagement, a thing necessarily provides more than one commodity. Thus a stove used to furnish more than mere warmth. It was a *focus*, a hearth, a place that gathered the work and leisure of a family and gave the house a center. Its coldness marked the morning, and the spreading of its warmth the beginning of the day. It assigned to the different family members tasks that defined their place in the household. The mother built the fire, the children kept the firebox filled, and the father cut the firewood. It provided for the entire family a regular and bodily engagement with the rhythm of the seasons that was woven together of the threat of cold and the solace of warmth, the smell of wood smoke, the exertion of sawing and of carrying, the teaching of skills, and the fidelity to daily tasks. These features of physical engagement and of family relations are only first indications of the full dimensions of a thing's world. Physical engagement is not simply physical contact but the experience of the world through the manifold sensibility of the body. That sensibility is sharpened and strengthened in skill. Skill is intensive and refined world engagement. Skill, in turn, is bound up with social engagement. It molds the person and gives the person character.[4] Limitations of skill confine any one person's primary engagement with the world to a small area. With the other areas one is mediately engaged through one's acquaintance with the characteristic demeanor and habits of the practitioners of the other skills. That acquaintance is importantly enriched through one's use of their products and the observation of their working. Work again is only one example of the social context that sustains and comes to be focused in a thing. If we broaden our focus to include other practices, we can see similar social contexts in entertainment, in meals, in the celebration of the great events of birth, marriage, and death. And in these wider horizons of social engagement we can see how the cultural and natural dimensions of the world open up.

We have now sketched a background against which we can outline a specific notion of the device. We have seen that a thing such as a fireplace provides warmth, but it inevitably provides those many other elements that compose the world of the fireplace. We are inclined to think of these additional elements as burdensome, and they were undoubtedly often so

experienced. A device such as a central heating plant procures mere warmth and disburdens us of all other elements. These are taken over by the machinery of the device. The machinery makes no demands on our skill, strength, or attention, and it is less demanding the less it makes its presence felt. In the progress of technology, the machinery of a device has therefore a tendency to become concealed or to shrink. Of all the physical properties of a device, those alone are crucial and prominent which constitute the commodity that the device procures. Informally speaking, the commodity of a device is “what a device is there for.” In the case of a central heating plant it is warmth, with a telephone it is communication, a car provides transportation, frozen food makes up a meal, a stereo set furnishes music. “Commodity” for the time being is to be taken flexibly. The emphasis lies on the commodious way in which devices make goods and services available. There are at first unavoidable ambiguities in the notion of the device and the commodity; they can gradually be resolved through substantive analyses and methodological reflections.[5] Tentatively, then, those aspects or properties of a device that provide the answer to “What is the device for?” constitute its commodity, and they remain relatively fixed. The other properties are changeable and are changed, normally on the basis of scientific insight and engineering ingenuity, to make the commodity still more available. Hence every device has functional equivalents, and equivalent devices may be physically and structurally very dissimilar from one another.

The development of television provides an illustration of these points. The bulky machinery of the first sets was obtrusive in relation to the commodity it procured, namely, the moving two-dimensional picture which appeared in fuzzy black and white on a screen with the size and shape of a bull’s-eye. Gradually the screens became larger, more rectangular; the picture became sharper and eventually colored. The sets became relatively smaller and less conspicuous in their machinery. And this development continues and has its limit in match-box-sized sets which provide arbitrarily large and most finely grained moving and colored pictures. The example also shows how radical changes in the machinery amounted to continuous improvements of the function as tubes gave way to transistors and these yielded to silicon chips. Cables and satellites were introduced as communication links. Pictures could be had in recorded rather than transmitted form, and recordings can be had on tapes or discs. These considerations in turn show how the technical development of a device increases availability. Increasingly, video programs can be seen nearly everywhere—in bars, cars, in every room of a home. Every conceivable film can be had. A program broadcast at an inconvenient time can be recorded and played later. The constraints of time and place are more and more dissolved. It is an instructive exercise to see how in the implements that surround us daily the machinery becomes less conspicuous, the function more prominent, how radical technical changes in the machinery are but degrees of advancement in the commodity, and how the availability of the commodities increases all the while.

The distinction in the device between its machinery and its function is a specific instance of the means-ends distinction. In agreement with the general distinction, the machinery or the means is subservient to and validated by the function or the end. The technological distinction of means and ends differs from the general notion in two respects. In the general case, it is very questionable how clearly and radically means and ends can be distinguished without doing violence to the phenomena.[6] In the case of the technological device, however, the machinery can be changed radically without threat to the identity and familiarity of the function of the device. No one is confused when one is invited to replace one’s watch, powered by a spring, regulated by a balance wheel, displaying time with a dial and pointers, with a watch that is powered electrically, is regulated by a quartz crystal, and displays time digitally. This concomitance of radical variability of means and relative stability of ends is the first distinguishing feature. The second, closely tied to the first, is the concealment and unfamiliarity of the means and the simultaneous prominence and availability of the ends.[7]

The concealment of the machinery and the disburdening character of the device go hand in hand. If the machinery were forcefully present, it would eo ipso make claims on our faculties. If claims are felt to be onerous and are therefore removed, then so is the machinery. A commodity is truly available when it can be enjoyed as a mere end, unencumbered by means. It must be noted that the disburdenment resting on a feudal household is ever incomplete. The lord and the lady must always reckon with the moods, the insubordination, burdens on and the frailty of the servants.[8] The device provides social disburdenment, i.e., anonymity. The absence of the master-servant relation is of course only one instance of social anonymity. The starkness of social anonymity in the technological universe can be gauged only against a picture of the social relations in a world of things. Such a picture will also show that social anonymity necessarily shades off into one of nature, culture, and history.

Since the transformative power of technology is very uneven chronologically, settings that approached the character of a world of things still prevailed at the beginning of this century. Here it pays to look closely, to see in one case and in detail how nature and culture were interwoven and how this texture was rent by the advance of technology and overtaken by anonymity. The case I want to consider is that of a wheelwright's shop just prior to its dissolution. A moving account has been given by George Sturt, the last in a succession of wheelwrights.

Since the web of relations is so tight and manifold, it is difficult to present it in an abstract and summary way. But let us begin with those aspects in which the relation of humans to nature is singled out. The experience of cultivating the land is still alive at this time in England, and Sturt speaks repeatedly of "the age-old effort of colonizing England." [9] But he does not understand colonizing as the domination of nature, i.e., as conquering and subduing, but as an adaptation of people to the land, and he paraphrases it as the "age-long effort of Englishmen to get themselves close and ever closer into England." [10] As people adjust to the land, the land discloses itself to the people. There is "a close relationship between the tree-clad country-side and the English who dwelt there." Sturt speaks of "the affection and the reverence bred of this." [11] But it is impossible to abstract a relationship in this pretechnological setting that obtains merely between human beings and nature: What takes the wheelwright into "sunny woodland solitudes," "into winter woods or along leafless hedgerows," and "across wet water-meadows in February" is the search for timber. [12] But "timber was far from being a prey, a helpless victim, to a machine," Sturt says, and continues: "Rather it would lend its subtle virtues to the man who knew how to humor it: with him, as with an understanding friend, it would co-operate." [13] This is a relationship not of domination but of mastery. If the wheelwright, Sturt says elsewhere, "was really master of his timber, if he knew what he had already got in stock and also what was likely to be wanted in years to come, he kept a watch always for timber with special curve, suitable for hames, or shaft-braces, or waggon-heads, or hounds, or tailboard rails, or whatever else the tree-shape might suggest." [14] Such respectful working with nature is not just as close to nature as conservation; it opens up dimensions that remain otherwise closed. "Under the plane (it is little used now)," Sturt says, "or under the axe (if it is all but obsolete) timber disclosed qualities hardly to be found otherwise." [15] And elsewhere he says:

With the wedges cleaving down between the clinging fibres—as he let out the wood-scent, listened to the tearing splitting sounds—the workman found his way into a part of our environment—felt the laws of woodland vitality—not otherwise visited or suspected. [16]

But again the intimacy of the wheelwright with nature did not stop with the materials but

embraced his entire world by way of the needs of his customers. Sturt puts it this way:

And so we got curiously intimate with the peculiar needs of the neighbourhood. In farm-waggon or dung-cart, barley-roller, plough, water-barrel or what not, the dimensions we chose, the curves we followed (and almost every piece of timber was curved) were imposed upon us by the nature of the soil in this or that farm, the gradient of this or that hill, the temper of this or that customer or his choice perhaps in horseflesh.[17]

And similarly he says in another place:

The field, the farm-yard, the roads and hills, the stress of weather, the strength and shape of horses, the lifting power of men, all were factors which had determined in the old villages how the farm tackle must be made, of what timber and shape and of what dimensions, often to the sixteenth of an inch.[18]

This web of relations had, finally, its social aspects. It contained different guilds or groups, but no classes, i.e., divisions of people whose political and especially economic interests were opposed to one another.[19] The different groups had their character from their work and their relation to nature. In his search for timber, the wheelwright found not only trees but also “country men of a shy type, good to meet.”[20] And back at his shop he was met by the carters, “a whole country-side of strong and good-tempered Englishmen. With the timber and the horses they seemed to bring the lonely woodlands, the far-off roads into the little town.”[21] The social network was sustained by fidelity, by wagons that were built to last lifetime and that were carefully repaired when they had broken down.[22] Prices were charged by tradition and not by calculation of costs and profits.[23] The tie between employer and employed was one of “kindly feeling” as Sturt puts it, a relation of resourcefulness and trust.[24]

Sturt’s account is remarkable not only for its portrayal of the strength and character of a pretechnological world of things. It is also painfully aware of the rise of technology and the destruction of the pretechnological setting. This process too becomes visible at the reference points of nature, materials, and social relations. Accelerated by the demands of the First World War, a “sort of greedy prostitution desecrated the ancient woods...I resented it,” Sturt says, “resented seeing the fair timber callously felled at the wrong time of year, cut too soon, not ‘seasoned’ at all.”[25] The conquest of nature is not confined to the treatment of the forests but moves into the wheelwright’s shop too, replacing skill with mechanical power which can “drive, with relentless unintelligence, through every resistance.”[26] As said before, domination is not an end in itself but serves to secure more radically the products of labor. Thus, as Sturt points out, “work was growing less interesting to the workman, although far more sure in its results.”[27] And domination provides more income for the purchase of commodities, but at the same time it disengages the worker from the world. This is Sturt’s experience in the following passage:

Of course wages are higher—any a workman to-day receives a larger income than I was able to get as “profit” when I was an employer. But no higher wage, no income, will buy for men that satisfaction which of old—until machinery made drudges of them—streamed into their muscles all day long from close contact with iron, timber, clay, wind and wave, horse-strength.[28]

These transformations finally touched the social relations as well. “The Men,” Sturt says of his employees, “though still my friends, as I fancied, became machine ‘hands.’”[29] The loss of skill went hand in hand with the loss of rustic village life, and the change in the living situation upset the old social relations. Sturt, speaking of the changes in the life of one wheelwright in particular, says:

I was not in touch, through him, with the quiet dignified country life of England and I was more of a capitalist. Each of us had slipped a little nearer to the ignominious class division of these present times—I to the employer’s side, he to the disregarded workman’s.[30]

Sturt had an uncanny sense for the transformative power that changed the face of his world. He recognized its concealment, the semblance, i.e., as though technology were only a more efficient way of doing what had been done throughout the ages.[31] And he recognized its radical novelty, the fact that technology upsets the tradition from the ground up. The technological changes forced him to introduce modern machines and take in a partner who could supervise the new ways of working. “Neither my partner nor myself,” he says in retrospect, “realised at all that a new world (newer than ever America was to the Pilgrim Fathers) had begun even then to form all around.”[32] This returns us to the difficulty, discussed in Chapter 8, of bringing the distinctive features of this “new world” into relief. As was argued above, these features become visible when we learn to see how the presence of things is replaced with the availability of commodities and how availability is procured through devices. Devices, that was the claim, dissolve the coherent and engaging character of the pretechnological world of things. In a device, the relatedness of the world is replaced by a machinery, but the machinery is concealed, and the commodities, which are made available by a device, are enjoyed without the encumbrance of or the engagement with a context.

But this analysis of the distinctiveness of the device is still deficient, and the deficiency can be brought into relief through two objections. Is not, one may ask, the concealment of the machinery and the lack of engagement with our world due to widespread scientific, economic, and technical illiteracy?[33] And quite apart from one’s level of education, is not everyone in his or her work directly and explicitly engaged with the machinery of devices?

We can approach the first point through one of its companion phenomena, people’s alleged unwillingness and inability to maintain and repair technological devices.[34] How well-founded is this allegation? One way in which commodities are made available is that of making them discardable. It is not just unnecessary but impossible to maintain and repair paper napkins, cans, Bic ball points or any of the other one-way or one-time devices. Another way to availability is that of making products carefree. Stainless steel tableware requires no polishing, plastic dishes need not be handled carefully. In other cases maintenance and repair become impossible because of the sophistication of the product. Microcomputers are becoming increasingly common and influential as devices that free us of the tasks of allocation, record keeping, and control. The theories and technical processes that underlie the production of microcircuits are too complicated and too much in flux to be known in detail by more than a handful of people. And the microcircuits themselves are realized at a functional level so minute and dense that it does not permit the intrusions necessary for repairs even if structure and functions are fully understood.[35] Finally, microcomputers are being used more and more widely because they are becoming “friendly,” i.e., easy to operate and understand.[36] But such “friendliness” is just the mark of how wide the gap *has* become widen between the function accessible to everyone and the machinery known by nearly no one. And not only way people are confined to the side of ignorance of this gap, but so are many, perhaps most, of the

professional programmers.[37]

Still, education in engineering and in the natural and social sciences would make much of the machinery, i.e., of the context, of technological devices, perspicuous. But even if such education were to become more common, the context of functions and commodities would remain different from the world of things for two reasons. First, the presence of that context would remain entirely cerebral since it increasingly resists, as we have seen, appropriation through care, repair, the exercise of skill, and bodily engagement. Second, the context would remain anonymous in the senses indicated above. The machinery of a device does not of itself disclose the skill and character of the inventor and producer; it does not reveal a region and its particular orientation within nature and culture. In sum, the machinery of devices, unlike the context of things, is either entirely occluded or only cerebrally and anonymously present. It is in this sense necessarily unfamiliar.

The function of the device, on the other hand, and the commodity it provides are available and enjoyed in consumption. The peculiar presence of the end of the device is made possible by means of the device and its concealment. Everyone understands that the former rests on the latter, and everyone understands as well that the enjoyment of ends requires some kind of attention to the means. Only in magic are ends literally independent of means. The inevitable explicit concern with the machinery takes place in labor. But labor does not in general lift the veil of unfamiliarity from the machinery of devices. The labor process is itself transformed according to the paradigm of the device.

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[1] Earlier versions of this notion of technology can be found in “Technology and Reality,” *Man and World* 4 (1971): 59–69; “Orientation in Technology,” *Philosophy Today* 16 (1972): 135–47; “The Explanation of Technology,” *Research in Philosophy and Technology* 1 (1978): 99–118. Daniel J. Boorstin similarly describes the character of everyday America in terms of availability and its constituents. See his *Democracy and Its Discontents* (New York, 1975).

[2] See Emmanuel G. Mesthene, *Technological Change* (New York, 1970), 28.

[3] See Melvin M. Rotsch, “The Home Environment,” in *Technology in Western Civilization*, ed. Melvin Kranzberg and Carroll W. Pursell, Jr. (New York, 1967), 2: 226–28. For the development of the kitchen stove (the other branch into which the original fireplace or stove developed), see Siegfried Giedion, *Mechanization Takes Command* (New York, 1969 [first published in 1923]), 32–40.

[4] See George Sturt’s description of the sawyers in *The Wheelright’s Shop* (Cambridge, 1974 [first published in 1923]), 32–40.

[5] In economics, “commodity” is a technical term for a tradable (and usually movable) economic good. In social science, it has become a technical term as a translation of Marx’s *Ware* (merchandise). Marx’s use and the use here suggested and to be developed agree inasmuch as both are intended to capture a novel and ultimately detrimental transformation of a traditional (pretechnological) phenomenon. For Marx, a commodity of the negative sort is the result of the reification of social relations, in particular of the reification of the workers’ labor power, into something tradable and exchangeable which is then wrongfully

appropriated by the capitalists and used against the workers. This constitutes the exploitation of the workers and their alienation from their work. It finally leads to their pauperization. As stressed in Chapters 13–16, I disagree that this transformation is at the center of gravity of the modern social order. The crucial change is rather the splitting of the pretechnological fabric of life into machinery and commodity according to the device paradigm. Though I concede and, in Chapter 25, stress the tradable and exchangeable character of commodities, as I use the term, their primary character, here intended, is their commodious and consumable availability with the technological machinery as their basis and with disengagement and distraction as their recent consequences. On Marx's notion of commodity and commodity fetishism, see Paul M. Sweezy, *The Theory of Capitalist Development* (New York, 1968), 34–40.

[6] See Morton Kaplan, "Means/Ends Rationality," *Ethics* 87 (1976): 61–65.

[7] Martin Heidegger gives a careful account of the interpretation of means and ends in the pretechnological disclosure of reality. But when he turns to the technological disclosure of being (*das Gestell*) and to the device in particular (*das Gerät*), he never points out the peculiar technological diremption of means and ends though he does mention the instability of the machine within technology. Heidegger's emphasis is perhaps due to his concern to show that technology as a whole is not a means or an instrument. See his "The Question Concerning Technology," in *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York, 1977), 3–35, 6–12 and 17 in particular.

[8] It also turns out that a generally rising standard of living makes personal services disproportionately expensive. See Staffan B. Linder, *The Harried Leisure Class* (New York, 1970), 34–37.

[9] See Sturt, *The Wheelright's Shop*, 132; see also 31 and 38.

[10] *Ibid.*, 66.

[11] *Ibid.*, 23.

[12] *Ibid.*, 25.

[13] *Ibid.*, 45.

[14] *Ibid.*, 31.

[15] *Ibid.*, 24.

[16] *Ibid.*, 192.

[17] *Ibid.*, 17–18.

[18] *Ibid.*, 41.

[19] See Peter Laslett, *The World We Have Lost* (New York, 1965), 22–52.

[20] See Sturt, 25.

[21] *Ibid.*, 28. See also the portrait of the sawyers, 32–40.

[22] *Ibid.*, 30, 43, 175–81.

[23] *Ibid.*, 53 and 200.

[24] Ibid, 53–55.

[25] Ibid., 23.

[26] Ibid., 45.

[27] Ibid., 153; see also 201–2.

[28] Ibid., 201–2.

[29] Ibid, 201.

[30] Ibid., 113.

[31] Ibid., 154, 201.

[32] Ibid., 201.

[33] A sketch and an analysis of technological illiteracy can be found in Langdon Winner, *Autonomous Technology* (Cambridge, Mass., 1977), 282–95. While ignorance (of the machinery) is to be admitted and stressed, one must add that this ignorance goes hand in hand with an understanding (discussed below) of the overall pattern of technology.

[34] Robert M. Pirsig describes this aversion to technology and contends that we can find wholeness at the center of technology if we begin to understand, maintain, and care for our devices. See his *Zen and the Art of Motorcycle Maintenance* (New York, 1974), 11–35, 97–106, 276, 290–92, 300–326. For further discussion see Chapter 20 below.

[35] Joseph Weizenbaum argues that certain computer programs have altogether escaped comprehensibility. See his *Computer Power and Human Reason* (San Francisco, 1976), 228–57.

[36] See “Wonders of ’89,” *Newsweek*, 19 November 1979, p. 151; and “And Man Created the Chip,” *Newsweek*, 30 June 1980, p. 50. Further discussion of microelectronics can be found in Chapter 19.

[37] See Weizenbaum, *Computer Power*, 103.

