1994

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Political Artifacts In Scandinavia:
An American Perspective

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How does it stand with Scandinavian attempts to democratize technological choice? How can those efforts improve our grasp of the politics of technology?

These are questions posed by an outsider. As a reader of books and articles, I have followed the projects carried out during the 1960s, 1970s and 1980s, work that sought to politicize technological choices in Scandinavian countries and to illuminate a theoretical grasp of what such work entails. The early history of sociotechnical job design, the Iron and Metals project of the 1970s, the work and ideals of the 1980s Arbetslivsentrum, the DEMOS, UTOPIA and Florence projects, and other such initiatives—all are chapters well worth studying. Along with other American social scientists, I've consumed with great relish corresponding sociological reports of design experiments in Swedish auto-mobile manufacturing, studies of efforts in community control of technology in Denmark, as well as the writings of Scandinavian scholars in science and technology studies and design theory.

Whether these reports portray successes or failures, they have always seemed to me most promising, not only for the ways they might help us understand the origins and dynamics of technological change, but also for possible help in getting a handle on matters that citizens of liberal democratic societies find baffling and inaccessible. My own connection to these matters stems from an ongoing project that interprets technological choices from the standpoint of classical and contemporary political theory. The issues that matter from this standpoint are one that concern a range of entities I call "political artifacts". Political artifacts are devices and systems

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that are, on the one hand, useful and economically productive, but whose features also contain ways of expressing important features of civic culture—relationships of power, authority, order, control, freedom, justice and injustice. At a historical period in which technological innovation is a major source of change in patterns of living, the politics of any group or nation comes to be embodied in the forms and conditions of operation of the artifacts it employs. For that reason, political thought and practice must attend increasingly to the realm of material things. This is, to be sure, not all that politics is about; there is still much in political society that has little or nothing to do with technology as such. But given the scope and intensity of technological change and its consequences, a focus on political artifacts warrants greater attention than it has had until now. (Cf. L. Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology*, Chicago, University of Chicago Press, 1986).

There is at present an enormous gap between the political artifacts in the everyday lifeworld and the conventional politics of elections and governments. This gap became visible briefly during the American presidential elections of 1992. In a move to show how close he was to ordinary people, the President George Bush visited a supermarket and actually made some purchases. As he stood at the cash register he saw the clerk using a laser scanner to tally the prices. "Is this for checking out?" Bush exclaimed, obviously very surprised. The press and public were simply appalled that the President could be so out of touch with the lives of ordinary people as to not know what a scanner is. Of course,

machines of this kind have been around for more than ten years. People began to ask: If President Bush doesn't know about these things, what else doesn't he know?

Even those shocked at the President's ignorance, however, missed an interesting story right in front of them. For the presence of the Universal Product Code on packages and the increasing prevalence of laser scanners in shops is a reflection of developments that are shaping the broader civic culture in the U.S. and elsewhere—the rise of a sociotechnical regime that seeks to control not only product inventories but to influence people's ideas and behavior within technically mediated and ever more tightly interwoven relationships that include advertising, television, computerized data bases, and consumer purchases. Yet the forms of power that characterize this and similar regimes are seldom matters for public scrutiny.

The fact that President Bush was not familiar with scanners mirrors a deeper condition in which important aspects of sociotechnical governance of everyday life are invisible to just about everybody. As systems like the universal product code develop, there are choices made about the form and operation of the system, choices that eventually affect civic culture in a broad sense. Choices in this domain affect people's sense of social membership, of personal efficacy and content of life's possibilities. To understand the changes in modern political society, one has to understand (among other things) the design and development of things like supermarket scanners. For as we invent such things we also invent the kinds of people who will use them, the very same kinds of people who will in-

■
L. Winner 86

habit the polity in years to come. The distinctive personas of the industrial worker, the scientifically trained professional, the modern house wife, the satisfied middle class consumer, and other now familiar character types were inventions of a sort, social creations of earlier periods. As we look at innovations on today's drawing boards (or CAD/CAM displays), the question is not so much how they will "work," but what their outlines presuppose about who will use them.

In some notable Scandinavian approaches to the shaping of work environments, computers and social organization and the like, the significance of political artifacts and the "who" of social membership seems to be strongly grasped. This awareness is expressed not merely as description, analysis or critique of existing scientific and technological practice (the common approach among many European U.S. intellectuals), but as a more positive stance that tries to open up the key questions for study, debate and more broadly based public choice. In ways that seem to me at once obvious and yet difficult to pin down, recent projects in work place environments and computer systems development share something of the same basic moral and aesthetic sensibility as projects long associated with the term "Scandinavian design"—a concern for how to achieve graceful, humane relationships between material form and quality of people's lives reflected in architecture, city planning, furniture, and ergonomically designed tools. For that reason, people interested in the relationships between politics and material culture in contexts other than computers in the contemporary work place can have much to offer.

Yet for all of the interesting features of Scandinavian inquiries into the relationships between design, technological development and changes in political culture, it is difficult for an outsider to tell how widespread they have become and whether these initiatives have been on balance successes or failures. On the one hand there are strong suggestions that efforts to democratize technology are grounded in long-standing practice, that they are supported in law and public policy and agreements between unions and employers associations, that they are an important aspect of larger movements in Scandinavian countries to realize industrial democracy and economic democracy. There is also the suggestion that projects of this kind have actually produced varieties of hardware, software and social relations within and around technological systems that are superior to corresponding developments that would have issued from the unmodified dynamics of global capitalism. Specifically, there is said to be much less Taylorism, less surveillance, less centralism and oligarchy, fewer invidious social distinctions; by the same token, reports tell of greater equality of access, greater care for the dignity of work and, indeed, what seems to be a stronger acknowledgement of the wholeness, intricacy and integrity of cultural development—all expressed within the structures and operating conditions of at least some technologies now implemented in Scandinavian countries.

But there is also a strong undercurrent in the published literature that says these efforts are at best tentative and their larger potential unrealized. Some projects seem to have fallen short of their initial aims, while others seem to have encountered damaging local opposition.

■

L. Winner 87

The broader economic and political conditions that have supported the efforts also seem clouded. Their future seems overshadowed by what may be an erosion of electoral support for social democratic policies more generally.

At a time in which detailed studies of the social dimensions of workplace technology seem to be flourishing, a time in which Scandinavian researchers have joined those from other parts of the world to explore "cooperative design" and related topics, the political dimensions of this tradition of inquiry could easily be overshadowed by purely professional concerns. Hence, it is worth asking: What are the key lessons of various encounters between technology and politics in Scandinavia during the past two decades?

Which avenues of research, development and social action have proved fruitful and which have not?

Should these efforts change our basic understanding of processes of technological change or of the relationship between social organization and the patterns of technological systems?

Where is research in this area headed? Or perhaps more to the point, where should it be going? And which conditions in the larger economic and political environment are likely to affect what is desirable or possible?

Given the hopes announced by projects of the past, what are the living possibilities for research and action? Which possibilities are exhausted?

The direction of hopeful, democratically inspired Scandinavian experiments in technology choice seem to stand in direct contrast to what is in many parts of the world the standard narrative of technological development. In this oft-repeated melodrama, society is greeted by material improvements that promise increased efficiency and economic productivity. Directly in the path of this development, however, are people who have not been directly involved in producing the new systems but who stand to experience the consequences of their coming. In their eyes the development is ambiguous. While they may appreciate economic contributions of technological change, they themselves stand to receive little benefit. Instead they face loss of jobs, dissolution of their communities, the disruption of ways of life predicated upon sociotechnical patterns of earlier times, and the creation of new patterns they find disagreeable.

As the story unfolds, there are episodes of protest, conflict and/or negotiation. The technical development matures, bringing into sharper contrast the issues that divide the promoters of the innovation from those whose interests will be adversely affected. Eventually there is a breaking point where the plans of the innovators and developers succeed and the qualms, resistance and hopes of those in the path of technical change are swept aside. Those whose interests were damaged by the development's "creative destruction" must somehow find ways to accommodate it.

This is, roughly speaking, the pattern of technological change that characterizes mechanization, rationalization, automation, and computerization in much of the 19th and 20th centuries. In narratives of this kind ordinary people experience the coming of technological change as something almost completely external. Innovation stems from the needs of entrepreneurs, business firms, industrial research labs, and government bureaucra-

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L. Winner 88

cies. Ordinary workers, consumers or citizens are not involved in the creation of the changes, except at the receiving end. Neither do they see themselves as having any knowledge or competence that qualifies them to deal with the changes at hand. Their lot in life is to absorb the "impacts" and to embrace the ideology that what is happening to them can truly be called "progress."

A fairly typical version of this story unfolded in the development of the mechanization of sea going cargo during the post-World War II period. The case of longshoremen on the West Coast of the United States, a case that I have studied in some detail, is especially interesting because the workers directly affected by the change were politically left wing and had a record of successful strikes and bargaining with the shippers.

At the end of the 1950s, the union was confronted with a series of technological innovations that would change the shipping business in fundamental ways. Union leaders saw mechanization as an inevitable and even desirable development in forces of production. They also knew that they had no say in the development of the hardware, software and organizational form of the new technology.

The machines and systems favored by the shipping companies were always presented to longshoremen as finished entities. What the union could do was to negotiate about wages, work rules and whom would man the equipment. But as events unfolded, it became obvious that they had lost power over dock work and that most of their numbers would become redundant.

Expressing the feelings of a good many of his co-worker, one speaker at a 1966 labor caucus exclaimed, "It scares me, it scares the hell out of me: this new robot-manning stuff....These guys (the employers) are coming up with a lot of new things. I know you can't stop progress, we can't stop their manning and new implements; but boy! Pretty soon with all this money we get, we aren't going to be around to get it." (Quoted from L. Fairley, *Facing Mechanization: The West Coast Longshore Plan*, Los Angeles, Institute of Industrial Relations, monograph 23: 1979, p. 244.)

What the union members chose at that point was, in effect, to negotiate their own demise, receiving cash settlements that would enable them to retire early. Some of the men I interviewed took the money and moved to a fishing community south of San Francisco. They wanted to be near the sea and thought they would be able to support themselves in a dignified line of work. Alas, many of these men found that technological change was yet again their undoing. For there arrived a generation of larger, more efficient, electronically sophisticated trawlers that made their smaller boats and traditional fishing routines uncompetitive. The men affected felt as if they had been pursued by technically embodied demons whose purpose it was to destroy a person's prospect for meaningful work and personal autonomy.

Among scholars who study such episodes there is a continuing debate between those who find elements of technological or economic determinism as decisive and those who favor some account that emphasizes the social shaping or social construction of new technologies. This debate is carried out in theoretical treatises and historical case studies. Today it is fashionable among academics

■
L. Winner 89

to conclude that the people do have a choice in the "social construction" of technology, that there are no historical determinisms, no technological imperatives; social agents construct technologies and live happily every after. It's extremely comforting, almost (yawn) sleep inducing.

Zzzzzzzzz. Zzzzzzzzz. Oh, oh. Prof. Winner has dozed off reading the latest piece of soothing, social constructionist lore. Someone give him a poke!

What? Who? Oh, yes... You can take the story of the West Coast longshoremen and tell it as a moral fable of technological determinism or as a moral fable of social construction of technology. You can fashion a perfectly coherent and in some sense "true" story in either version. But whichever side one may take in this debate, the fact is, in my view, that such discussions are largely sterile. They are sterile because they do not point to ways that anybody might have done things differently or ought to have wanted to do so. For that reason, much of the erudite discourse in contemporary science and technology studies is distinctly unhelpful, non-empowering.

For example, the implicit advice of those who offer theories of the social shaping or social construction of technology perspective is that people might find ways to be more effective in becoming decisive actors who shape patterns of change. But this is often hollow counsel. For the opportunities for action typically exist only within carefully guarded boundaries of power and privilege. And beyond that, what in the world are the choices? As regards the transportation of cargo, for example, the intention to move freight effectively and efficiently means huge ships, filled with huge boxes and huge ships loaded by computer controlled cranes. From the point of view of traditional longshoremen, what were the interesting possibilities for the social shaping of new technologies that might have preserved or fruitfully modified their way of life?

In the context of theoretical debates about determinism and social shaping of technology, the Scandinavian projects offer a number of very promising departures. One distinguishing feature in some Scandinavian approaches, for example, is to take seriously the design of technological devices for the qualities of social life they sustain and the everyday political habits they nurture. Unlike the prevailing tendencies in analyses of technological choices they directly confront human concerns other than economic growth, competitiveness, risky technologies, and environmental crisis that usually define what people find thinkable nowadays. That is no small accomplishment. A great many people concerned with technology policy believe that the only questions that could ever matter in technology policy are ones that have to do with productivity, international competitiveness, risks to health and safety, and severe environmental problems. "Don't bother us and our business plan unless the ozone layer really is vanishing."

Another point of departure in some of the Scandinavian approaches is that they affirm as both social policy and research method that impending technological developments should not be regarded as something external to the lives of those who will eventually be affected. There is an affirmation that having a say in the design and application of new instruments

■
L. Winner 90

is a basic right that derives from citizenship, not just property ownership.

Yet another point of departure is an affirmation that ordinary people are capable of being directly involved in shaping new technologies. They already know a great deal that is useful and, beyond that, can educate themselves further in areas of technical knowledge usually supposed to be the sheltered domains of experts. This work involves creating new institutional settings in the co-creation of alternatives in ways that not only represent a wider variety of interests than has typically been the case in modern industrial history. There is even the promise that within such institutional settings something close to the public interest itself might emerge.

Another promising feature in much of this work is the recognition that technological development can fruitfully draw upon a much richer array of human fundamentals than the mechanistic technical and economic models that have prevailed until now. One can draw upon models in philosophy and anthropology, and sociology to ensure that systems are not spawned and nurtured by a one-dimensional rationality. This means that beyond the critique of instrumental rationality lies a body of understanding and fruitful practice that one can begin to teach the next generation of technical professionals and ordinary citizens. Indeed, this dimension of Scandinavian projects is the one most closely mirrored in North America at present, where the development of new intellectual agendas and research programs for making better technological systems far outpaces any concrete political efforts. The overall promise is that will see the rise of an orientation toward planning and design that

can produce qualitatively superior systems, ones that are fully respectable in an economic and technical sense, but which incorporate a much wider spectrum of democratically relevant features in their shape and performance. Hence, democracy can be manifest in the process, in the evolving creation of technical knowledge and practice. Perhaps it will even be tangibly apparent within the lasting forms of the technological devices and systems in widespread use.

If the qualities I have mentioned accurately reflect the real character of the Scandinavian initiatives, perhaps there is an even larger meaning one can find in them: that technological change may be oriented to the development of humanity rather than the other way around. At present too much of what is called "innovation" involves manipulating humans beings as raw material for technical and economic development. I say that some Scandinavian projects "seem" to move in a promising direction because I still don't feel qualified to judge whether or not these possibilities have been fulfilled, that the destinations suggested have been reached. Based upon my readings and conversations with Scandinavian colleagues, I have a set of lingering questions that I hope may produce further discussion.

1. Is the central theme of Scandinavian encounters between technology and politics still that of democratic participation in design and development? Or has the focus now moved elsewhere, perhaps toward a search for a better understanding of issues about the quality of computer systems among professionals doing research in this field?

■
L. Winner 91

During a year in Oslo, 1991-1992, I heard more than one knowledgeable person say: Participation was a central concern a decade ago, but it isn't any much any longer. One reason sometimes given is that, when all is said and done, the internal workings of technological systems are simply too boring for most people. As Oscar Wilde once quipped: "The trouble with socialism is too many evening meetings." Perhaps the Achilles heal in attempts to democratize technological design and development is that it is time consuming, tedious and conflict ridden in ways that most people don't find particularly rewarding.

2. What are the actual products of action-oriented research on technology and democracy? Are the results primarily those of improved social processes? Or are there tangible artifacts that have emerged from this work -- patterns of relationships between humans, hardware and software that, for example, one could map as a drawing or observe in some working form?

This question stems from my own interest for the ways in which politics is expressed in design, not only designing as an activity, but in design reflected in the concrete form of human made things. As a writer I want to depict political artifacts of various kinds: buildings, tools, machines, visualization of various forms of computer software, and so forth. If democracy has been realized in the form of, say, computer systems in the work place, where can one see blueprints, diagrams, photographs, or functioning models? If the products of successful attempts of this kind cannot be depicted in ways that enable others to visualize them, I wonder

how easily they can be fruitfully emulated beyond their initial trials.

3. Specifically with regard to computer systems, can one say that developments in the democratization of design have produced ideas expressed in either hardware or software that are significantly different from those that eventually issued from purely profit seeking capitalist firms?

As I look at the system interfaces of the UTOPIA project, for example, they look a lot like the kinds of things that eventually came out as Macintosh, Windows, and other "user friendly" software. If you can get the qualities of flexibility, open access and comfortable fit in commercially developed products, then why worry about democratic design at all? Can Xerox PARC and Seattle yuppies save human freedom?

4. Can Scandinavian-style efforts change technological systems and their consequences in truly substantial ways, or are we dealing with the superficial, essentially cosmetic aspects of technological interfaces, leaving the deeper structures unaffected? I am haunted by the example of William Morris who had an extremely profound critique of forms of industrialism as they affected the qualities of everyday life. But Morris' practical contributions to the reform of material culture were to produce wallpaper and furniture with lovely neo-medieval decorations, using essentially the same mechanized processes everybody else used at the time. Are contemporary responses to the politics of technology any more effective in getting to the core of the matter?

■

L. Winner 92

5. What is the relationship between Scandinavian efforts to broaden and democratize social influences upon technological choice and global economic and political forces? Can such efforts survive and flourish within the constellation of market forces and government policies of economic liberalization that characterize the 1990s?

One point of view I have heard recently argues that the Scandinavian efforts in alternative technology are (1) simply insignificant when held up to global forces of economic and technological change; (2) clearly doomed when confronted with the overwhelming forces of economic rationalization within particular nations and the ever more tightly interlinked global webs of transnational capitalism and (3) probably of diminishing interest to labor unions whose survivalist mentality now inclines them toward ever closer cooperation with management in the quest for tools and methods that reflect no-nonsense standards of productivity and competitiveness. Taking that viewpoint, some of my leftist colleagues are inclined to argue that Scandinavian experiments in democratizing technology are trivial, not worth their attention. This includes some scholars who held high hopes for such efforts ten years ago.

6. Given the legacy of projects and experiments of various kinds, what are the logical next steps? What are the emerging fields of interest for research and policy?

These questions come from a person who lives in a supposedly democratic society, the U.S.A., where the idea that technologies might be shaped in democratic, politically benign ways is almost never a research question. All the initiatives stem from business interests and they solicit citizen views only in ways they can control, e.g., market surveys about products in the works. University research and development laboratories seldom focus upon the broader social dimensions of their projects for fear of jeopardizing private and government funding. Perhaps the closest thing we have to an Arbetslivcentrum is the Office of Technology Assessment which produces a seemingly endless series of plain vanilla, notoriously uncommitted analyses of pending technological changes whose outcome, it is assumed, must ultimately be decided by private enterprise.

It is easy for Americans to over-idealize the Scandinavian approaches and to over-estimate their influence. Equally easy for us (since it is now our ingrained political reflex) is the move toward cynicism, producing critiques that dismiss everything as worthless. Neither mood seems up to the challenge we face in evaluating what has been accomplished and what might yet be done. In my view, the hope of understanding the relationship between technology and civic culture in a positive, critical sense enjoys at present much brighter prospects on Nordic shores than in the U.S. What one finds in Scandinavia is a background of understanding and historical, practical experience receptive to the idea that the intricacies of technological choice can provide opportunities for cultivating democracy and social justice. Scholarly communities who have knowledge on this score should remain open to debate about the wider political horizons of their inquiries, rejecting the mood that sees research as professional, rigorous, and useful, but no longer fully engaged.

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L. Winner 93

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L. Winner 94