TECHNICAL AGENCY AND SOURCES OF TECHNOLOGICAL PESSIMISM

Fernando Broncano
Universidad Carlos III de Madrid, Spain

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Summary

Technological pessimism was an understandable reaction to the modernization processes suffered by the societies in the beginning of the twentieth century. The artifacts were more and more invading the circles of the daily life. It produced a generalized sense of exclusion that was reflected in many writings of the moment. Particularly, it was a deep motivation for philosophers as Lewis Mumford and Jacques Ellul that adopted a perspective a looking back to more humanistic contexts. A second tradition was the Critical Theory from Adorno, Horkheimer and Habermas. In this tradition, pessimism assumes the form of a theory about the role that technology plays in modern societies as a justification of the domination relationships. Many of the pessimist arguments spring from an experience of machines as a paradigmatic case of ways of industrialization. Notwithstanding, other forms of organizing technology inside societies are available, among other reasons because industrialization and mechanization is only an historical way of technology.

1. Contemporary Experiences with Technology

1.1. Modernization

Modern technology really began its influence on civilization through the industrial revolution. This was possible due to the convergence of various different elements. Not all these elements were of a technical nature, although some of the most important ones were. The first of these was the possibility of there being a representational platform of objects using the language of design, which permitted two converging possibilities: the

creation of machines, and the standardized reproduction of machine parts. These two activities form the basis of this industrial transformation. Industries were configured as organic production structures based on enormous machines making standardized products. In fact, large numbers of men, women and children were converted by industry into appendices of machines; new modern conurbations were created along with an urban rather than rural culture; cities and the landscape were filled with machines, the new technological objects. Industrial civilization became a new source for the asymmetry of power between nations. War machines were created through the industrial civilization itself. New nations exercised their power by militarizing their industry, and by showing that they had, not more military value, but rather more capacity for producing machines of destruction. Ever since the Franco-Prussian War of 1870 (where the French defeat was such a surprise that it provoked the forming of the Paris Commune), followed by the Boer War and the First World War (which again caused revolutions in the defeated countries Germany and Russia), and the dreadful end to the Second World War (with the concentration camps, massive bombing raids on the civilian population in Germany and the bombs on Hiroshima and Nagasaki), passing through the build up of industrial and military might that we know as the Cold War, industrial civilization is the first and most important historical experience of contemporary culture. Contemporary culture and thinking would be incomprehensible without knowing the way in which industry has developed. The individual as opposed to the mass, awareness and causality, the crisis of science determined by technology, political and financial policies being based on functions, solitude in the face of history and many other subjects, which formed part of the philosophical world in the first half of the 20th Century, are just some of the ways in which industrial civilization can be seen. These experiences from the industrial revolution help to explain how technology has been lived and elaborated conceptually as uneasiness, on occasions, as surprise, on others and as the sinking and defeat of individual will on many more occasions.

The increasing awareness of human frailty and of the limits or finite nature of human autonomy or self-regulation was at the heart of philosophy during the 20th century. At the centre of this experience was the reflection that technology was a collective form of agency, a modern way of expressing autonomy, after Bacon and Descartes, no longer as a contemplation of the order of the world, but rather as the transformation of reality guided by knowledge. There was a time at beginning of the 20th century when the increasing power of technology was a cause for surprise: industry, transport, civil construction, the military machine…, all of these had become excessively large, with a performance beyond comprehension and unintelligible from the human standpoint. Products and processes had become distanced from the human measurements of things, space and time. This is the crepuscular experience of *The Ballad of Cable Hogue* by Sam Peckinpah (1970). The pioneer, who has managed to forge a home from the desert and who has survived its dangers, dies by being run over by a car. This is the experience of a time in which we are victims, not of nature itself but of the works that were designed to dominate the threatening destiny of nature. From this standpoint, technological pessimism has been one of the essential constants of what has been considered a revision of modernity in response to this experience of fragility; or rather this is our thesis, as a way of thinking of the modern proposal under the categories of the finite and of contingency. Technological pessimism is a way of looking at the world as a ruin caused by the invasion of technology. The world can no longer be seen as a

place in which human activity gives rise to progress, but rather as the disastrous consequence of progress.

The most importance cause of pessimism that we are going to consider is modernization, understood in the sense defined by Max Weber as a change that involves all layers of society, from religion to the different forms of political legitimization, including, naturally, the new form of capitalist economy which Weber defined as a process of rationalization. However, what we wish to refer to is not modernization itself, but the social and everyday experience of modernization, a complex experience that ranges from the melancholy of a crepuscular world to the shock caused by the new forms of domination. This is the experience that was undoubtedly behind technological pessimism.

The first event which showed the limits of modernization was the First World War, given that it saw the massive entry of technology in military strategy. The experience of the war caused an ambiguous reaction, which amongst German intellectuals ranged between fascination and horror, and sometimes both attitudes were mixed within the same ideology. Spengler or Jünger are paradigmatic cases of this ambiguous way of endeavoring to explain the defeat of the Germans by the superiority of American technology. German fascism incorporated this complex attitude into its complex ideology, and we can also see this in a speculative way in the new Soviet culture where constructivism looked upon technology as both a new threat and salvation at the same time. The Leninist motto that Communism is Socialism plus electricity, the figure of the worker drawn by Jünger as the new subject of history, but also the policies of the New Deal to respond to the crisis of 1929 are examples of this mixture of horror and fascination. What is at the heart of this experience, which like all experiences is necessarily ambiguous until it has been elaborated conceptually and until it has become philosophy, is the fatalist experience of technological determinism. From Weber to Horkheimer, from Spengler to Heidegger, it becomes a diagnosis: politics has been invaded, colonized and dominated by technology.

The impact of this experience was present throughout the philosophy of technology until a new kind of pessimism became apparent at about the same time as the green movements, and other social movements, which began in the 1960s and 1970s. The philosophy and sociology of science departments, created in the 1960s, with the express purpose of extending scientific mentality in the University, had become focal points of a systematic criticism of science and technology, which was then being seen as just another field of the exercising of power. Science was studied by feminists, ecologists, members of the radical left and even religious militants who used many historical essays to show that scientific results and technological products were no more than social *constructions*. The critical attitude towards the scientific-technological phenomenon had imperceptibly but substantially changed its strategy. If the critics at the beginning of the century had accepted the existence of a special logic in science and technology, a kind of instrumental rationality, to which they opposed a kind of deliberative rationality, which included reasoning on ends and values, the new wave of criticism resorted to *tu quoque*: arguing that science and technology were in themselves a product of political negotiation, open results from the structures of the scientific communities and the hidden exercises of power.

If technology invaded politics in the elaboration of the experience of modernization, it was now thought that technology was invaded by the social, constructed by social facts. This is a more sophisticated kind of pessimism. Technology is a social construction which reinforces the same social facts as those which go to make it up. In this pendular movement between technology (including science as technology of truth) and politics, society had accepted the idea that technological (and scientific) knowledge was the most important transformational force (or productive force, to use Marx's term). The emphasis on the richness and quantity of production changed over a period of a hundred years to a new emphasis whereby the richness of a society was measured by socially distributed technological and cognitive capacities. The ability of societies to adapt to the problems and challenges of an economy based on permanent innovation and on the planetary extension of financing, production and market networks lies in these capacities. The essential theme of the new social symphony is the placing of expert knowledge in politics and the order of society. This pendular movement shows two forms of the new fear of the growing power of technology: it is either invading politics and, therefore, it is suspected of hiding social relations from us in an unintelligible cloud of arguments and artifacts, or, more recently, it is itself the new face of a power which is disguised as technology, but which is really no more than the mask of the negotiated power of the elite that controls the details of the city. In both cases, technology has replaced nature as the source of all fears. If traditional morals were built to avoid the entrance of nature, the instinctive and the biological, in the field of correct conduct, in the new society of knowledge, critical philosophers like new moralists were and are moving the contention wall to the separation between technology and politics.

1.2. The Age of Machines

The closest impact of technology concerns the experience of extending machinery to all areas of existence over the course of a couple of centuries. Machines progressively filled up the spaces and places of existence: geographical spaces and intimate spaces, geological spaces and even the virtual space of informative relations which had previously been limited to communicative human signals. Simple machines were already being studied by the engineers of Alexandria, like Ktesibios, who gave them basic classifications: screw, lever, plane, wheel…When we speak of machines in the modern sense, the elementary parts are combined and generate quasi-organisms. These are complexes of subsystems with specific functions which, in turn, are combined to create a global system, precisely what we identify with the machine, artifact or technology par excellence. Machines, although widely used by armies and occasionally in industry, changed their nature with the invention of the new mechanisms of watch making at the end of the Middle Ages. The modern age metaphysics were constructed under the influence of the metaphor of these new objects, the paradigm of which was the clock with clock weights. "Mechanicism", the name that we give to that philosophy of nature, was a product of the cognitive exploitation of a metaphor, the world as a clock. This was followed by the metaphor of organisms as automata, the body as a machine inhabited by the conscience. The metaphor was not purely metaphysical, it was a spring that drove all scientific research programs. Medicine stopped being alchemy and "medical matter" (pharmacy) and became physiology through the theatrical dissections practiced in new scenarios where corpses were shown to a curious public. At

the same time as medicine, the other sciences began to explore the new territory of physiological mechanisms where discovery was translated into the unveiling of the machine underlying living functions. Discovery became a synonym of disenchantment, of revealing that the mystery of life was no greater than the mystery of the clock. But at the same time, in the opposite direction, nature began to be thought of as the artifact of an unknown artisan god. The machine had become the shape of conscience, the mirror of the human and the divine. From the 19th Century it was also the punch bag used to exhaust all the complaints against technology. Later on, the machine became the paradigm of dehumanization, the frontier which definitively separated craftsmanship tolerated by the pessimists, from technology, which was definitively linked to industrialization and the proliferation of machines.

Let us consider one kind of machine which proliferated during the 1950s and which justifiably caused amazement amongst certain historians and philosophers. I am referring to the assembly lines in new factories for cars and industrial vehicles. These were machines composed of numerous other machines and control systems which became icons of the new age of automation. The new worker did not need "practical knowledge" any more, still less the blind, automatic patterns and compulsive movements shown by Chaplin when playing an industrial worker in the film "Modern Times". Technology definitively abandoned its state of craftsmanship or, worse still the assembly worker, to become the controller of automatic controls, watchman, supervisor and, occasionally, maintenance worker for the automatic machine. Two decades later, computers and the so called new technologies replaced automatisms in its role as an icon. They certainly added new elements in the scale of control and autonomy (expert systems, artificial intelligence,…). A machine differs from a utensil in as much as it acquires and develops its own meaning regardless of the hand which guides it. A machine does not require humans more than in the periphery of its existence, before or after, as one more means of support in its relationship with its surroundings. But it can no longer be defined by its relationship with a movement of the body, as a hammer, a spade or a plough is. A turbine, a combustion engine or a primitive steam machine are self-contained systems which do not require human care. The machine becomes alienated from the body. A machine is a complex of self-sustained and self-meaning functions. It differs from a utensil in as much as it acquires its own meaning as a result of the complexity of the materials, shapes and functions of its components. A hammer is only a hammer in the hand of the person hitting something with it, but an aircraft maintains its essence even without a pilot. When it takes off, the automatic pilot, a component of the machine, takes control and takes the aircraft to its destination and it is only in the last moments of landing when it is piloted again.

The new pessimistic attitude stems from this experience of the frontier between humans, living beings and machines. Humans, from this perspective, had elevated themselves illegitimately to the same level as the creative gods of life, and their own stupidity had led them to manufacture monsters. It is this pattern of collective thought that coincides with the romantic vision of new technology and which continues on in the thesis of autonomous technology totally out of control.

The original experience of agency, of an intentionally directed action, is the experience of basic actions such as reaching for a glass of water or kicking a ball. Craftsmen's

technical actions belong to this kind of primitive agency: repairing a tap, playing the guitar, dribbling round a defender. Technical experience in a world peopled by machines displays different characteristics from this primitive experience. In these cases, the action does not continue on into an immediate result, but rather a result controlled by yet more complex functions, which have nothing to do with the sensorial-motor control of the agent. This is the origin of a dialectic where there is a kind of alienation of the agency and a later assimilation whereby the agent becomes a new type of cyborg.

We program and put on the washing machine, and then a process begins which is beyond our control. This ends when the machine stops and we take out the clean and maybe even dry clothes. We switch on the computer and the experience may now have a certain continuity, but we know that the machine is carrying out electronic operations that we are forbidden to access. The first experience with automatic machines is an experience of alienation and vulnerability, similar to the feelings we get when we tentatively begin to drive a car for the first time. It is an experience that tenses our bodies and wears us out. Later, when the car has become an extension of our body, the experience of fragility becomes, unfortunately sometimes, a feeling of domination and skill which can be a serious threat to human life, but regardless of this, the car will have become a utensil, a part of the hand-dominated-world. However, many other components of the machine world will remain threatening and will continue to provoke a sense of fragility, distance and risk.

This interaction with machines has been seen by technological pessimism as a fracture of human identity. For these thinkers, techniques can still be divided into "human" and "inhuman" techniques. However, experience speaks to us at the same time of our nature, the nature of machines and the nature of our mutual interaction. Because it is not true that the experience of alienation should be considered to be definitive in itself, as a destiny or form of existence, but rather the opposite, as a dialectic process of constituting human agency in a technological environment where this agency itself forms a constitutive part of its hybrid nature.

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Biographical Sketch

Fernando Broncano is Professor of Philosophy of Science and Technology at the Universidad Carlos III de Madrid. Doctorate on Philosophy on the Universidad de Salamanca (1981). His research is mainly centered on the concept of rationality in daily as well in scientific and technological concept. Works: *Mundos Artificiales. Filosofía del cambio técnico*. México: Paidós, 2000. *Saber en condiciones.* Madrid: Antonio Machado, 2003. *Entre Ingenieros y Ciudadanos*. *Filosofía de la técnica para días de democracia*. Barcelona: Montesinos, 2006.