

French historian and social critic Jacques Ellul first came to the attention of the English-speaking world in the early sixties, with the translation of his best-known work, *The Technological Society*. Since then, numerous other works have revealed his discerning analyses of the modern world.

Originally broadcast on CBC Radio's *Ideas* as a series of interviews by William H. Vanderburg, Ellul's first-person approach here makes his ideas accessible to readers looking for new ways of understanding our society, and also gives unique new insight into Ellul's life, his work, and the origins and development of his beliefs and theories. This is a provoking, revealing self-portrait of an original and important thinker.

Jacques Ellul has been Professor of the Faculty of Law and Social and Economic Sciences at the University of Bordeaux in France. His numerous books have attracted worldwide attention, and his dedication to social and political action has made him a known and respected figure in France.

William H. Vanderburg began his studies of how technology influences human life and society with Jacques Ellul. He has been Director of the Centre for Technology and Social Development at the University of Toronto, and is the author of *The Growth of Minds and Cultures*, which Ellul notes as an important work in the foreword.

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ELLUL
PERSPECTIVES ON OUR AGE

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JACQUES
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SPEAKS
ON HIS
LIFE AND WORK



EDITED BY WILLIAM H. VANDERBURG

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"... a brief but compelling overview of both the man and his philosophy." — Globe and Mail

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Understanding Our Age

My political activity and my reflections based on Marx's thinking led me to establish two rather simple things. First, a good number of Marx's predictions about the evolution of capitalism did not come true. The transformation of the world was far more complex than he had envisioned. The capitalist world had powers of resistance that were not exhausted, despite Lenin's explanations. Second, a very large number of those bourgeois that Marx had talked about disappeared, especially the ineffective and useless portion of the bourgeoisie, the people limited to existing on a private income. Thus, there had been a certain transformation of capitalism too. I therefore wondered if the Marxian analysis of capital and capitalism in the nineteenth century was equally valid in the first third of the twentieth. It was certainly questionable. Next, it struck us, especially in the personalist movement, that there were certain extremely similar trends in both Soviet and capitalist society. Beyond the economic transformations and beyond the political and legal forms, one could find common elements—particularly the need to increase industry at any price and to develop technological objects.

Here, too, we were left with a question. We felt, perhaps because we hadn't read all of Marx, that he hadn't given technology the position it has in our era. The first person, no doubt, who stressed the importance of technology (in the

proper sense, which I will try to define below) was my friend Bernard Charbonneau. In 1934, he began to regard technology as the decisive factor, the essential factor in the world we live in—a truly prophetic view. But Charbonneau, who teaches geography, did not create the stir that his ideas merited. He is completely unknown despite his highly remarkable books. It was he who first drew my attention to the phenomenon of technology. I gradually realized that a transformation had indeed taken place since the nineteenth century. Basically, Marx was speaking of a society dominated by the industrial world. In 1930 to 1940, this industrial world was still dominant. But now new trends had emerged.

It struck me that something similar and comparable in both the Soviet and the capitalist worlds was precisely the technological phenomenon. One could start with the extremely simple idea that a Soviet and an American factory were exactly the same thing, just as a Soviet and an American automobile are the same thing. In other words, on a totally elementary level there were common points, and this was a reason to compare the two kinds of organization. Little by little, as we analyzed the influence of technology and its importance in our society, we came to realize that technology was the most decisive factor in explaining our era. As an explanatory element, it could play the part that capital had played in Marx's interpretation during the nineteenth century.

I don't mean to say that technology has the same function as capital. Nor am I saying that the capitalist system is a thing of the past. I know that it still exists, but capital no longer plays the role it did when Marx was studying it in the nineteenth century. Power in particular and the reproductive capacity of value are no longer tied to capital; they are now inherent in technology.

However, perhaps we ought to be more precise. When I use the French word *technique*, normally translated into English as

technology, I do not mean exactly the same thing as the French word *technologie*, which is also translated into English as *technology*. We have to be meticulous about this simple point of vocabulary. I know that the two are habitually confused. Etymologically, of course, *technologie* means a discourse on *technique*. That is the true meaning of *technologie*. Now when I speak of *technique* (English *technology*), I am speaking of the technological phenomenon, the reality of the technological. When I view an automobile, the engine of the automobile is in the category of *technique*, i.e., the technical. It is not what the French call *technologie*, even though English usage tends toward *technology* in this point. The study of the engine and the discourse on the engine is *technologie*. But the phenomenon itself must be viewed as part of *technique*. I know the difficulty of this semantic problem in English, for there is only one single word, *technology*, to designate both *la technique* (the concrete thing) and *la technologie* (the discourse, the teaching of the subject itself). But we must absolutely distinguish between the two. It is the same difference as between *society* and *sociology*, or between *earth* (*gē* in Greek) and *geology* (the science of the earth). However, there is a further difficulty. The English word *technology* essentially concerns the work of engineers, chiefly in the industrial milieu. But for me, *la technique* is a far wider concept, referring to efficient methods applicable in all areas (monetary, economic, athletic, etc.). I would prefer that English retain the word *technique*. Thus, in this sense, it is *technique*. In this reality, in this substance—one might say in our Western society, it is *technique*, i.e. (in English), *technology*, that struck us as the determining element, and also as the determining element in the creation of, say, value.

We know that for Marx, work is what creates value. We are bound to see that in a society which has become extremely technological, the determining factor is both scientific research and the application of science in the form of technol-

ogy. These statements are not peculiar to the capitalist structure. This is what creates value now; even some (though not all) Soviet and Communist economists acknowledge it. In other words, we have to reread the world in which we now live. Not in terms of the capitalist structure, but in terms of technology.

The further I advanced, the more I asked myself which phenomenon would have struck Marx as the one most determining our society if he had worked in our twentieth-century milieu instead of the nineteenth-century milieu? Which phenomenon would have struck him as the one most crucial to structuring both the human condition and the political organization? I grew more and more convinced that technology is the element that would have caught his attention. Hence, it was in terms of Marxist thought and with relative faithfulness to Marx that I began to study the phenomenon of technology more and more closely.

Of course, others had more or less discerned the role of technology. I am thinking of Max Weber in particular, and then Lewis Mumford a bit later. But I feel that one cannot fully compare my research to theirs. In Max Weber, we most certainly have a very closely related method, but I cannot say that Weber influenced me. When I commenced these investigations, I was totally unacquainted with Weber's sociology, and I didn't get to know it until 1944. We certainly have a similar approach to issues and a similar sociological method, but there is a major difference between us.

However much of a genius and prophet Weber may have been, the society he analyzed was the society of 1900, or at best, the society of the nineteen-tens and -twenties. He died in 1920. Hence, he did not know the technological phenomenon in its full development. Scholars now generally agree that the watershed between the older society and the typically technological society came around 1945. In other words, Weber

had a particular view of how general the technological phenomenon was. He thought about the bureaucratization of society in terms of technology, but he could not really study the phenomenon himself.

However, many other sociologists have studied certain aspects of our technological society. I am thinking of Raymond Aron in France and Galbraith and McLuhan in the United States and Canada. Aron has essentially studied industry; Galbraith, the technological, bureaucratic, industrial state and a particular power structure—the technobureaucracy, as it were; and McLuhan has studied the problem of mass media. But all of them, in my opinion, have done only fragmentary research. One cannot investigate the whole modern social phenomenon on the basis of the technostructure any more than on the basis of television. In other words, there is a general, overall view encompassing research on industry, the modern state, and television. This all-inclusive view, this framework, is that of technology. Raymond Aron is very critical about some of my research, finding it much too general and systematized. But it is systematized only in that I try to offer a theoretical explanation for a phenomenon that strikes me as all-encompassing, a phenomenon that covers the whole range of human activities; whereas Aron tends to pinpoint only certain aspects, especially in his studies on industry.

In my research on technology, I was ultimately led to situate modern technology in relation to the past. This is obviously very much on the minds of those who say to me, "But people have always used *techniques* (Eng: *technologies*)." Of course, people have always used *techniques*; nor can we say that what we are now doing is unrelated to what was done in earlier times. Nevertheless, I feel we should not reassure ourselves by saying it's basically the same thing. According to Emmanuel Mounier (and this is one of the reasons I broke with him), there is only a difference of degree between a flint arrowhead

and the atomic bomb. In this case, I would have to very firmly apply Marx's notion that, on a certain level, quantitative change is qualitative change. Hence, when the human race moved from the flint arrowhead to the atomic bomb, there was a *qualitative* change. Mounier also said: "When you admire technologies so much, just look at your own hand. Is there any technical device more perfect than your own hand?" Well, that's true, of course. But I don't think that this notion allows us to understand in any way the singular and unique character of our age.

In other words, I was led to distinguish between what people were doing in all other societies when using certain *techniques*, certain technological operations. Clearly, any action of hunting, fishing, building a cabin, even gathering, is a technological operation—a practice. On the other hand there is the phenomenon that we have known in the Western world since the eighteenth century and that has developed during the nineteenth and twentieth centuries; I call it the technological phenomenon.

The great difference between the two is in their respective characters. First of all, there is the participation of the rational. Until the eighteenth century, *technique* (i.e., *technology*) was, purely and simply, a practical matter. In the eighteenth century, people began to think about the technologies: they compared them and tried to rationalize their application, which completely changed the perspective. A technology was no longer merely a practice, it was no longer merely an operation. Now, technology passed through a rational intervention, and it had a completely different object; its object was efficiency. When studying the old technologies, one is extremely surprised to see how unimportant efficiency was as a decisive or determining notion. Technologies were used for religious reasons, for purely traditional reasons, and the like. If one technology were more efficient than another, that didn't trou-

ble the users very much. The technological phenomenon, however, is characterized by evaluations of the technologies and comparisons in terms of this criterion of efficiency.

Hence, the technology existing in the Western world since the eighteenth century is qualitatively different. This is not only a question of volume. Technology has assumed different functions. This is the second element which differentiates pre- and post-eighteenth-century technology; technology has left the framework of material applications. When speaking about technology, we have always habitually thought of the machine. But I feel it is a grave mistake to regard technology essentially as machines.

At the present, with the development of information technologies and communications technologies, people are coming to realize that the machine, although not a secondary phenomenon, is certainly one of many phenomena in technology. Research on rational and efficient methods is expressed not only in constructions of material devices—machines. It covers and has gradually come to encompass all human activities.

By this, I meant that there is now a precise knowledge of how a group or a society is constituted, evolves, and how one can organize to achieve a certain result. Sociology and psychosociology supply us with means to obtain the best returns from a work team, to "place" individuals in a given spot at a meeting in order to increase or decrease their influence, to make an organigram of an organization so that it will be as efficient as possible, to know whether it is better to establish long-distance or short-distance relationships in an administration, and so on. These are simple examples of what I mean when I speak of the technologies of organization in a society. They have been widely applied in human relations, public relations, and the army.

Psychological technologies are exactly the same thing. For instance, I have studied propaganda technologies and advertis-

ing technologies, and these *are* technologies. Hence, we see that the technological phenomenon covers not just a small part of our activities—those in which, as is often said, our muscular activity is replaced by the machine. The technological phenomenon is tending more and more to encompass *all* our activities.

There are technologies that we obviously are well acquainted with. Anyone who is involved even slightly in athletics knows that they are no longer left to the intuition of the athlete; today, they are extremely rigorous technologies. A century ago, sports were very spontaneous. Runners or swimmers each had a “style,” and each improved individually. But since then, more and more precise rules have been established. A champion’s life is thoroughly programmed (food, sleep, and diversity of physical training). And people have minutely studied (often on film) every single gesture, pointing out an error here, a slowdown or speedup there, endlessly correcting each movement so that utmost efficiency may be achieved. Likewise, people have set up a “strategy,” seeking the right moment for the runner to accelerate to the maximum. . . . All this is technology.

We are dealing with what is basically a power covering the full range of human life. This expansion of technology to human groups, to human life, is one of the essential characteristics of our world.

A last crucial feature, it seems to me, is the relationship between technology and science. Here too, people normally view technology as an application of scientific discoveries. But this schema is far too simple. At the present, we are faced with a highly complex and ambiguous situation; science can evolve only with the help of technology. One need merely recall the exploration of space to see that science is now tied to the information that the many technologies contribute. In other words, there is no linear relationship between science and

technology. The relationship is, first of all, mutual: science/technology and then technology/science.

Beyond that, however, technology likewise results from its own conditioning. A technological innovation is not necessarily the fruit of a new scientific discovery, but most often is an internal, intrinsic development of technology itself. This means that we no longer need science in order to combine several technologies belonging to different domains. These technologies interconnect and combine, resulting in something new, something technologically new. Likewise, we know how sterile some scientific discoveries can become for various reasons, over a long period of time, and never flow into the technological domain. Hence, we must abandon this simple view of the relationship between science and technology.

This analysis of the technological phenomenon, along with other factors, led me to criticize the current analysis of the Industrial Revolution. I felt that scholars were overemphasizing the purely industrial phenomenon. The technological revolution, I believed, had already been launched, and the Industrial Revolution was only one of many aspects of it. What permits me to say this is the observation of what took place in Western society when the Industrial Revolution was developing. The state, let me note, appeared at the same time, and in the modern state, with all its structures, one can also note the emergence of administration with a trend toward administrative efficiency, rationality, the use of completely modern devices. We can see the same tendency toward rationalization in law, and we must also recall the rationalization of science, which, having progressed slowly during the fifteen and sixteen hundreds, was truly rationalized in the eighteenth century.

In other words, by taking these three examples—the state, the law, and science—I perceived that it was not only in the area of industry that the technological mentality emerged, along with the concern for rationality and efficiency; this

development occurred in many other domains as well. Thus, the great phenomenon during the eighteenth century in Europe was not the use of coal and the construction of machines. It was the change in the whole society's attitude toward a new fact: technological practice. The Industrial Revolution was just *one* aspect of this new practice.

It is astonishing to see historians misinterpret in this way. One need only consult Diderot's *Encyclopédie* in the eighteenth century to realize that people were fully conscious of this change in attitude. At that time, there was enormous interest in machines, but machines as one aspect of the technological innovation, as one aspect of the new understanding of human beings or the new understanding of society, which now had to be rational and efficient. One finds this new conception throughout the *Encyclopédie*. Thus, if one no longer regards the Industrial Revolution as the dominant element, the determining element, the problem becomes far more vast and complex. There is no longer just an economic problem, say, of how people passed from the craft stage to the industrial stage. The problem is now, why do people apply certain processes both in industry and elsewhere—processes that might have been known in the past but that had never been applied?

It seems to me that certain conditions that had never existed before came about in the eighteenth century. I might very summarily indicate five of them, which, simultaneously, allowed the development of the technological phenomenon.

The first was a significant growth in population. This increase presupposed a better organization, but also the availability of a work force, as well as a far denser, far more dramatic circulation, not only of people but also of ideas.

A second fact was what I might call the social plasticity. That is to say, a very large number of *ancien régime* social structures were destroyed in England and France and then in Germany. Social groups crumbled, and their members had the

possibility of moving toward completely different activities. This development turned out to be essential for the Industrial Revolution in the strict sense of the term; it also created a working-class population.

On the other hand (and this is the third aspect), the new era brought inventions by intellectuals and practitioners of a clear technological intention. They felt that one must be able to apply the same system of processes in all domains. This was an intellectual innovation.

And then (and this is the fourth element), this development was grafted onto a very long technological maturation, which went on for something like two hundred and fifty years in Europe. This maturation consisted of very small progressions which slowly accumulated, though never appearing to be decisive or to have any structure. This was contrary to what had occurred in the Roman Empire or in China during periods of technological developments. In addition this maturation may also explain the emergence of the clear technological intention.

Finally, an important factor was the accumulation of capital for utilizing the industrial means, as well as all the technological means. Naturally, capital was necessary, especially when the private entrepreneur was operating. This was the first time since Roman days that Western society accumulated a certain amount of capital from commerce *per se*.

These five elements together led to the development of the old to the new society, one aspect of which was the Industrial Revolution.

In these conditions, technology, I felt, had gradually become the key phenomenon of our whole society, not only because it gradually encompassed all activities, but also because it could evolve only on the basis of certain values. That is to say, technology is not just a practice; it also presupposes values—an intellectual or a spiritual attitude consistent with the de-

mands of technology. Furthermore, it requires a certain social structure. I just mentioned that the Industrial Revolution came about only because of new values—rationality and efficiency—and because of a change in social structures. Well, *what had occasioned the technological phenomenon now became a demand of technology for continuing its own development.* You see, in growing, technology requires that human values be in exact accordance with technological development and that social structures develop purely in terms of technology. This, I believe, shows that nothing in a society remains intact once technology begins to penetrate.

I should indicate that values which are indispensable to technology include utility values and, until very recently, work values. We must not forget that in ancient societies work was not a value. It became a value precisely when the technologies required that people be put to work. We are dealing here with a frequent misunderstanding. People always claim that the technologies economize on work (and this is quite correct). *But this is based on the conviction that we are meant to work all the time!* This was by no means the conviction in earlier societies. For two centuries now, we must note, the West has worked a lot more than any previous society.

In reality, work has changed character. It is no longer a curse as in the Middle Ages. On the contrary, it has become a positive value because it is indispensable for capitalist and industrial development, and also for all technological development. All people must be integrated in the work process, albeit, of course, with the hope, with the promise, with the utopian expectation, that we will finally no longer *have* to work! This is part of the dual effect of technology, which makes people work to their maximum (Taylorism—time and motion study—is one aspect of technology), but always with the prospect that technology will totally and radically take over for us and replace us when we can finally do nothing. In

the nineteenth century, this became an essential value of the technological world.

There is another essential value, however, and that is happiness. I would like to cite what Saint-Just said: "Happiness is a new idea in the world." He was right. Happiness was indeed a new idea, but not in the elementary sense that other societies had never had the notion of happiness, or that people had never desired happiness. The new element was that people now realized that happiness was based on certain material conditions. The eighteenth and nineteenth centuries abandoned the idea of spiritual or intellectual happiness in order to have this material happiness, consisting of a certain number of essential consumer goods. And hence, in the nineteenth century, happiness was linked to a well-being obtained by mechanical means, industrial means, production. The new thing that Saint-Just spoke about was that, in the past, happiness could appear as a very vague, very distant prospect for humanity, whereas now, people seemed to be within reach of the concrete, material possibility of attaining it. That was why happiness was to become an absolutely essential image for the nineteenth-century bourgeoisie, and for modern society. Happiness was attainable thanks to industrial development, and this image of happiness brought us fully into the consumer society.

Now one can almost say we have come to realize that consumption does not assure happiness. We are passing through a crisis, a crisis of values. I just mentioned that work too, as a value, was passing through a crisis. It is the new development of technology that has brought about a crisis in the values that allowed the initial development of technology. I also noted that technology not only presupposes adapted values but also demands a social structure allowing the development of technology. We must realize one very simple thing. Every time technology penetrates an environment that is not

made for it, it will upset that environment. I am thinking especially of how technology and the industrialization technologies are influencing the Third World.

We can say that wherever the local work force was called in for purposes of industrialization, the result was total disruption—not just partial, but total disruption of the entire country. The reason is very simple: the people who become workers in industry leave their families and come to the city. Not only do they work at jobs previously unknown to them; not only do they earn their livelihoods in a different way; but, above all, they completely escape the social control of their milieu. They now live in the city, uprooted. They have escaped the natural authority of the paterfamilias, and their resources no longer depend on the tribal or patriarchal structure. They have their own individual resources. In other words, the mere summoning of workers causes a destructuring of the family, a setback and ebbing of the economic mode in which the entire population lived, and a certain moral uprooting.

Perhaps we should expand on this point. Traditional societies, we must recall, have no individual morality. Indeed, morality is really the normalized behavior of the group, with each person individually expected to live as the group does. Once people are torn away from the group and live as workers in industry, then, whatever their level, they no longer depend on the social control of the group. They then need an individual morality to compensate; but they have none.

These people have not gone through the long process. They have not traveled the long road which took centuries in Europe: the long transition from a tribal structure to an individual morality. Hence, the disintegration we perceive wherever an industrial development begins in a Third-World country.

From a social point of view, however, I think that we can also note the transformation of our own society under the

impact of technology. And here, I would like to indicate the difference between our technological society and the societies issuing from the Industrial Revolution—that is, between mid-twentieth-century and nineteenth-century society.

First of all, we have witnessed the appearance of a new class, a new ruling class. Marx was perfectly correct in his analysis of the role of the ruling class, which was the role of the capitalists. The capitalists held the power because they held the economic instrument on which everything depended. But now we see a new ruling class emerging, the class of technical experts, which represents one of the real aristocracies in all our societies. Many sociologists (who by no means have the same perspectives as I) have established the banal formula that in our society success depends not on *what you have*, but on *what you know*. It is more important to be competent, to be a high-ranking technical expert. This assures you a far more important career in society than starting out with a small amount of capital, which may perhaps allow you to set up a small business, but will not really allow you to make it in our society.

In other words, the person who has knowledge—practical know-how, technical know-how—is the true master in society. At the present, if one's capital is not put to work by people with technical know-how, then it will not count. The person owning capital privately is becoming less and less important, compared with the person who activates his or her capital within the ensembles of technological operations. And this class is the ruling class in that, like all traditional ruling classes, it possesses certain secrets. The technical expert's knowledge is always a mystery to non-experts.

Are we therefore living in what has often been called a "technocracy"? I do not think so. This is, I believe, a misuse of the word. In no society do the technical experts exercise complete political power such as is exercised in a democracy,

an aristocracy, a monarchy, and so forth. No, the technicians do not hold the power. However, a certain trend toward technocracy is apparent. For instance, in the Soviet Union, it is more and more the technical experts who directly exercise the power. And this is a question constantly asked in France, for example, in regard to the president of the Republic. Ultimately, the development is toward groups of experts in the most rigorous sense of the word. Although not truly a technocracy, this is nevertheless an aristocracy. And that is why our societies, whether Socialist or capitalist, boil down to exactly the same thing. Our societies are aristocratic societies. Here, I would like to cite an excellent study by the Yugoslav Milovan Djilas on the new class. He was one of the first to perceive (and others followed suit) that the Socialist world also had a new class division. This division is no longer between the owners of capital and the proletariat, but between those who control the bureaucratic, administrative, scientific, and other technologies, and those who do not control them. The former group is truly a new class. Meanwhile, as this new class emerges in our society, we note a trend toward a diminishing opposition between the former bourgeoisie and the working class.

The explanation for this phenomenon is long and difficult. I have just said that the classical bourgeoisie, the bourgeoisie of independent means, has disappeared. The middle class has now moved toward technological functions; and in the working-class world, there have certainly been ruptures. One can no longer compare a longshoreman's condition to that of a highly qualified worker who is actually a technician. However, Alain Touraine, a French sociologist, has observed a significant difference between them; a worker who is only a practitioner can have an excellent practical knowledge of technologies, but he or she will never reach a superior level in society, because only a theoretically trained technical expert can mount that

high. Technology must now be known not on the level of its practice, but on the level of its scientific foundations. As long as one has not made this transition, the limitations of improvement on a practical level are quickly reached. Real changes are now only made on a theoretical level by means of a science-based technology.

In other words, we see that technology is modifying the structure of our entire society. We are thus dealing with a phenomenon that not only changes our habits—we fly planes, watch television—but also ultimately changes our political interpretation. Certain parties still deploy their action, and all their propaganda, as if the situation was still one of a dominated class, a poor class, and so on. They thereby preserve Marx's nineteenth-century interpretation of the opposition between the bourgeois class and the working class. But this traditionalism is almost a century behind the times.

I am not saying that there are no more wretched people, I am not saying that there are no more dominated people. There certainly are. But now, power is no longer in the same place. Power is no longer in the hands of the owners of capital. I can develop this idea by analyzing the multinational corporations. Here, as we clearly see, capital still exists; but it is now structured in terms of technological demands rather than in terms of the ideas formulated by a capitalist. Today, there is no longer any owner of capital who plays the part that could once be played by a captain of industry.

Technology thus now appears as both a key phenomenon and as a point of view. I should elucidate these two levels and the difference between them.

Technology is a key phenomenon. In other words, for me, it is a reality, it truly exists. When I speak about technology as I do, I try to present what I perceive. And on the basis of hundreds of observations, I can study technology as a key phenomenon. But at the same time, technology is an instru-

ment of knowledge, a scientific instrument. It offers the central viewpoint in which one must place oneself if one wishes to understand and explain what is happening. Hence, there is a double element: the epistemological element and the reality element. All phenomena in our society are either an imitation of technology or a compensation for the impact of technology. These, I believe, are the terms in which to analyze most of the realities of our world. By imitation, I mean under the immediate influence of technology, which directly molds, for example, the administrative system. When the computer enters administrative practice, we must refashion administration to imitate the computer. Hence directly consequent and imitative mechanisms.

At the same time, however, the refashioning necessitates mechanisms of *compensation*, because it is extremely difficult to live in a technological universe. Just think of the countless science fiction stories. The technological universe, which ought to be a rational universe, is an extraordinarily icy, extraordinarily alien universe. People cannot be happy in a purely technological milieu. They can no more live spontaneously in the technological milieu than the astronaut in the cosmos. The astronaut must be powerfully equipped for survival in a space environment. Likewise, a person, no matter who, cannot live totally in this rigid, rational, icy world that is the world of technology. I am not saying it will always be impossible. After all, perhaps people will adjust to a rigid, rational, and icy universe. But for the moment, they have not adjusted. For the moment, a human being is still an extraordinarily irrational creature. It was a tragic error of the eighteenth and nineteenth centuries to believe that people were originally rational beings and that all irrationality must be suppressed. Each person is a creature of passions, of flesh and blood, a creature of impulses and desires. Hence, when a person lives in a purely rational framework, it is impossible to

be happy. He or she then requires compensations; and a very large number of factors characterizing the modern world are purely compensatory factors, making up for the technological impact. We have no choice but to live in this technological world; but we are forced to find something providing satisfactions elsewhere and permitting us to live otherwise. This state of affairs is felt very deeply, especially by the young, because technology has two consequences which strike me as the most profound in our time. I call them the suppression of the subject and the suppression of meaning.

First of all, the suppression of the subject. Technology is an objectifying power. If a person has learned to drive a car correctly, then it doesn't matter who he or she is, it's all the same. The subject, if you like, cannot indulge in purely subjective fantasies in a technological framework, but must act as technology demands for that one act. The suppression of the subject is transforming traditional human relations, which require the voice, which require seeing, or which require a physical relationship between one human being and the next. The result is the distant relationship. If we compare the countless telephone calls we receive throughout the day with the personal relationship we have with one or two people, we realize that our distant relationships are considerably more numerous. And in distant relations, there is really no subject. Technology brings about the suppression of the subject. This result is accepted by a certain number of intellectuals in France such as Michel Foucault, who feels that one can very easily abandon the subject. And yet Foucault has not stopped using the first-person pronoun. He still says "I." That is, willing or not, he considers himself a subject. He says "I do" or "I think." This is not "one thinks." This is not just anyone or anything.

In other words, while technology leads to suppressing the subject, we do not experience it at all well. We still feel we

are subjects, we still want a very personal, unique encounter. Hence, we are in contradiction with the technological milieu.

Then, there is the suppression of meaning; the ends of existence gradually seem to be effaced by the predominance of means. Technology is the extreme development of means. Everything in the technological world is a means and only a means, while the ends have practically disappeared. Technology does not develop toward attaining something. It develops *because* the world of means has developed, and we are witnessing an extremely rapid causal growth. At the same time, there is a suppression of meaning, the meaning of existence, the meaning of "why I am alive," as technology so vastly develops its power.

We know that *power always destroys values and meaning*. Here I would point out remarkable studies done by Friedrich Junger on the conflict between power and meaning. Wherever power augments indefinitely, there is less and less meaning. One seeks a meaning when power allows us to be *ourselves*, without being superhuman. Thus, we have these two extremely active factors—the suppression of the subject and the suppression of meaning—both due to technology and both making humanity very uneasy and very unhappy.

I will to try to show this interplay of imitations and compensations in certain areas, for instance in art or religion, or perhaps politics. I could start with the example of politics as a field in which technology has completely transformed the conditions of power. What strikes me is, on the one hand, the extraordinary increase in the means of action by the state and, concomitantly, the stunning decrease of power by the individual politician.

The modern state has means that are all technological: administrative means, communications means, control means, means for planning land use, all the information means that no other state has had until now. Hence, we are dealing with a

phenomenon that is very different from the one studied by Weber. Weber did see the growth of the state. But nevertheless, for him, the state was always tied to the power of a certain category of politicians. Bismarck, I would say, was ultimately the model of the state. But now we no longer need a Bismarck, we no longer need great statesmen. For with this augmentation of means, we witness the lessening importance of the politician.

The politician is someone who is not a technician, who does not know the means that the state can employ, who depends in all decisions on what the technical experts say and on what those other technical experts, the bureaucrats, do. Every politician must first deal with dossiers prepared by groups of technical experts, and these dossiers contain a decision ultimately suggested by technical experts. This is the decision that the politician will always make. Once the decision is made, it has to be applied by other technical experts, the administrators. The politician now has a tiny role, especially since the administrators—without even saying anything—can block this decision, so that nothing will happen. We can see this very concretely in France with the president of the Republic, who has generous ideas. He launches certain proposals, but nothing happens.

When I describe the increase in the means of the state and the decrease in the power of the politician, I am speaking of something that has been taking place in both the Socialist and the capitalist world. Indeed, this is one of the points of progressive identification between the two. Within this framework, one can say, for instance, that law is totally losing its validity and significance. It is becoming a technical device for administration and organization. In other words, law no longer has the objective of bringing justice. Today it is an instrument in the hands of administrators, in the hands of the state—an abstract instrument for administering and organizing the society.

We often have the situation (not only in France) of administrators acting outside of any legal rule and then, after acting, making juridical decisions that simply legitimize what they have done. In other words, law is no longer made in advance for the administrator to obey and apply. Law is made *after* the fact to justify what has been carried out. Here, we are patently faced with the loss of meaning—law no longer has meaning—and along with this occurs the disappearance of the subject—for the politician was once the subject. Through two centuries of European history, great individuals forged all history. Today this is no longer true. History is made by the heavy mechanisms of the state machinery and by the social forces that combine with or contradict one another—hence, things that totally escape the power of the subject.

In a word, we are witnessing an imitation of technology by the bureaucratic and technocratic power of the state; and we are witnessing a compensation, I might say, by the *discourse* of the politician. The speeches of the politician are always very important, indeed enthralling, because we think we are in charge of the situation. When we listen to a politician, we agree, we disagree, we contest what is said. But instead of looking at the reality of what is occurring, we are content to have a person on stage who tells us: "I am in charge of the situation," or we argue that he is not in charge of the situation. Either way we feel we have a subject before us and we feel that we are subjects. That is how we make up for the absence of the politician's power and our own power. In fact, in regard to technological growth, politicians are utterly devoid of means. They simply cannot reorient our society in a different direction.

That is one brief example. A second example will show what I mean by the disappearance of meaning and of the subject as well as the double movement of imitation and compensation in the domain of art.

Modern art is completely characteristic of this influence, this impact of technology. It is characteristic not only in what the artists produce, but also in the explanations offered by critics for modern art. There is no more subject. We know all the theories on painting. Now we have forms, we have splotches of color. But this means nothing. There is no theme.

The same holds for the novel. In what was known in France as the *nouveau roman*, the subject was suppressed in the following sense. There is no plot. It's considered totally retrograde to tell a story in a novel; you don't tell a story anymore, and there are no characters either. So we have those utterly amazing novels in which there is never anything but "I, you, he," and we never know who "I" is, who "you" is, who "he" is. There is total confusion sentence by sentence, and there is no telling what refers to whom. Hence, we are dealing with the expression of an art that reflects technology, the suppression of the subject.

A book of thoughts on modern art, explaining how to use the computer to paint a picture, showed a reproduction of a painting done by a computer and a painting done by Kandinsky. The author asked: "Who is the artist here, the computer or Kandinsky?" It was impossible to answer one way or the other; and so, it was said, you can see that the computer can do real and authentic painting. I, however, would say that this simply means that Kandinsky paints like a computer. That's all. It does not mean that the computer paints like Kandinsky. In other words, the painter has taken lessons from technology, he has taken lessons from the instrument, and he reproduces by suppressing the subject.

The same holds true when someone makes music with the computer or when the musician proceeds not by listening to sounds, by creating on an instrument, but by a mathematical development which is translated into certain sounds. This process is totally different from what artistic creation used to

be. Now, we truly have the reproduction of technology by art.

Likewise, the suppression of meaning. How many times have we not read, particularly in linguistics and above all in structural linguistics, that we must never seek the meaning of a text. A text simply exists. There are black forms on white paper, and we have to read the text as it is. We have to see the structure of the text, and it makes no difference whatsoever whether it has any meaning or not. Remarkably enough, there is a whole category of artists and intellectuals who fully accept that language has no meaning, that it simply has structures. In a very recent article, a modern linguist actually stated: "Naturally, when we say 'Please pass the bread,' this sentence has meaning. But this is quite unimportant because it is only an *extraordinarily rare case of language.*" For my part, however, I think that this is the *habitual use* of language; the structural utilization of language in modern poetry does not strike me as the normal and habitual case. Again this example illustrates the suppression of meaning, and here too, a tendency to imitate what is happening in technology.

But there is also *compensation*. It is not possible to live only in icy painting, in abstractness. It is not possible to listen only to computer music. So, we let off steam in the opposite direction; we dash toward, say, Pop Art, to make up for the technological milieu we live in. We move toward total sexual liberation as a compensation. Erotic spectacles make up for the far too sophisticated technological spectacle. Hence, modern art, in the suppression of subject and meaning, has two directions. It is a pure and simple reproduction of the technologies; and it is compensation for technology itself.

My final example of compensation involves nearly all the religious phenomena in the present-day world. We know that there has been a sudden development of religious phenomena. Personally, I do not believe that this development comes (if one is Christian) from the Holy Spirit. It is quite comprehen-

sible from a purely sociological viewpoint in light of technology. Life in our technological world is extremely frustrating and extremely distressing, so we have to escape it. Religion appears as a means of escape. That is why religion is taking the forms that we now witness, the forms of spiritualism, and the extremely ardent, extremely intense sects of pietism, through which we can separate totally. Technology is coming to dominate the material world, and we are subject to the material world. But we can compensate by way of religious escape, by way of spiritual escape.

We must not forget that this is what Marx meant when he called religion the opiate of the people, when he said that the function of religion is to continue the domination of capitalism over the exploited and to make them believe that in paradise they will have freedom and no longer be exploited. Now, of course, the characters have changed; it is no longer the capitalists and the workers. The phenomenon is completely different, and more abstract. We now have technological organization on one side and human beings, all humanity, on the other side. Religion plays the same role here, allowing us to escape, and to continue living at the same time. Clearly, what is happening in Iran is a compensation for an overly brutal and overly rapid technization by the Shah. The people could not support this sudden transformation and have therefore fled into mysticism.

I would like to specify that all the things I have discussed in relation to technology are not primarily theoretical. They are, essentially, observations of what I see as the substratum or, in Marxist terms, the infrastructure of our society. On the basis of these perceptions, I have developed an overall interpretation by means of a theoretical effort. I have set up a theory, which in my eyes, however, is nothing but a formulation and an account of what I have observed. In no way is this a closed system. I am obliged to take heed of any new fact that I note,

and I must then change some element in the original construction. (Here, once again, I think I am being quite faithful to the ideas of Marx, who kept rethinking his theoretical givens in line with economic or political events, for instance the Commune of 1871).

It is obvious, for instance, that the events of 1968 and the development of the hippy movement led me to revise a certain number of conclusions I had drawn about the effects of technology on humanity. I was, I might say, more pessimistic before 1968 than after. I used to think that we were so trapped in the technological system that we had no further resources to draw on. And then 1968 brought an explosion which opened certain paths and which showed that we were not truly conditioned.

By the same token, the religious movement in the Soviet Union, which is very different from the religious movement in Europe and America, shows that people have been psychologically conditioned, whatever technological methods may have been employed to shape them. This led me to modify a certain number of my judgments.

A further new phenomenon which is equally essential is, of course, the spread of the computer. So long as the computer was a very particular, very parcelized phenomenon, it could not be a focal point in a study of the technological society. But now I must rethink a good portion of my theory on the technological world because the computer is having ubiquitous consequences unlike any previous technology. In other words, my theory is open-ended. The computer has always been a part of the technological world, but its extensive application has altered the functioning of this world, and this is something I began analyzing several years ago.

Of course, mine is a general theory in that it allows me to interpret certain facts. I would say that the more facts a theory takes into account, the more valid it is. Heeding as meticu-

lously as possible everything that occurs in our world, my theory of technology, my analysis of technology as a system contributes to understanding more facts, I feel, than most other present-day theories that I know of, including classical Marxism, which is obliged to place most modern phenomena in parentheses. My theory is a means of interpretation, which strikes me as all the more serious in that I am not obliged to modify the facts in order to maintain my doctrine. In reality, the theory I have constructed allows me to verify a large number of facts. To the extent that it is evolutive in itself, I think that I can integrate more and more facts.

Finally, I should state that I have not offered a metaphysical theory or a metaphysical system. I have remained solely on the level of the reality occurring in the present world.