

PROBLEMATIC OF TECHNOLOGY AND THE REALMS OF SALVATION IN HEIDEGGER'S PHILOSOPHY

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Abstract. The aim of this paper is the exploration of Heidegger's interpretation of the phenomenon of technology against the background of his new vision of reality. It can be said that in this context sin which was formerly moral and religious became in our age, as it were, technological. Because man has distanced himself from the Nature, he finds himself at the same time alienated and guilty, contemplating, like a child brazen in the brainlessness of what he has done and waiting in anguish the imminent punishment of a mother who does not forgive. Cum multis aliis, it is not only ugliness with which Heidegger reproaches techno-science but aggressiveness as well.

The Technological Project

Near is
And difficult to grasp the God.
But where danger is
There grows the saving power also.¹
(Hölderlin)

Now, only a God can save us²
(Heidegger)

Every one of us makes a distinction between what has a traditional origin and what has a scientific origin. We cannot mistake traditional knowledge (episteme), the science that characterizes the modern world, and the tra-

¹ From Holderlin's *Patmos*.

² From the interview with M. Heidegger, in *Der Spiegel*, Nr.23, 1976, pp.193-219, „Nur noch ein Gott kann uns retten”.

ditional empirical knowledge that allows for acting with efficiency, but does not necessarily lead to knowledge of a scientific sort. Plato rigorously explained the vocation of the hunter, of the cook; they do not have the vocation of delivering a scientific knowledge of their object. At the level of the knowledge of what is, they can lead to right opinions, but the reasons remain confusing. What are the technologies of today? Our modern technicians are not in the same situation as the traditional artisans. There is, beyond our practices, a science. We do not train pure technicians, it is no longer science which conditions the work of technology but rather technology which allows for science to progress and hence continue to exist. A society founded on technical competence, which would not rely on the knowledge of Nature, would be a society that is blind to true causes. It could also totally blind us to ends.

Our modern technology claims not to incur such blame. It presents itself as the execution of a science and not as an empirical science. From science we derive benefits of utility for our life. Such was, de facto, Descartes' vision inaugurated in *Discours de la méthode*³. Descartes saw more in objective science than empirical knowledge, he saw a knowledge of causes capable of delivering a technology, a technology capable of guaranteeing the progress of the human condition. Descartes also opposed what he termed the „speculative philosophy” of the scholastic schools of his time, to the new science delivering „knowledge strongly useful to life”. Instead of a knowledge devoted to speculation or contemplation only, which was the Greek model of knowledge, the objective approach of modern science proposes a knowledge oriented toward action, capable of delivering the general good for mankind. Determining the general good of all men is a task that concerns morality. Science has another task; it is in the first place knowledge delivering force and the actions of fire, water, air, the stars and the skies. A knowledge of the elements and of the forces of Nature that renders us capable of mastering Nature. It would suffice that knowledge of this kind be developed, and come to equal the empirical skill we already have in the practical field, and in „the diverse areas of the artisans”. Then the promise of a considerable change of the human condition would open before us.

We could transform scientific knowledge into technical know-how. Knowledge about Nature opens immense perspectives and gives power without limits. If such a project could be accomplished, Descartes said, we could make ourselves masters and possessors of nature. With such a programmatic declaration, science becomes a privileged instrument, a means

³ See Descartes, *Oeuvres et lettres*, textes présenté par André Bridoux, Gallimard

at the service of ends. But of what ends? Those which man will determine. Primarily, ends which centre on the amelioration of the human condition, those in the service of human comfort and health. It is not a question of truly seeking to domesticate Nature and subjugating it. Descartes remains moderate, he says we shall be „as” master and possessor of Nature. This is only an analogy. Science in itself does not have as an end the domination of everything whatsoever and in every way, this subjugation remains relative, for only God the creator remains master and possessor of Nature. However, science can allow us to humanize Nature, to organize the conditions of the best life.

Descartes' successors were less prudent and more ambitious. The whole history, the saga of technology is a wild conquest of mastery and power, at the same time mastery of life and mastery of matter. The promethean adventure of technology, since Descartes, has taken its course. The west launched itself on a road to power, in the domination and even in the subjugation of Nature. Science delivers knowledge; technology offers power, knowledge and power are combined in a will which aims at the mastery of Nature. This will appears objectified before us, in the omnipresence of technical objects and machines, as a liberation from the considerable will to power of Nature. It is no longer what Descartes foresaw, a moderate and wise will which would make us rejoice, without pain, in the fruits of the earth and all the commodities found in it, but also principally in health, which is without doubt the first good and the foundation of all the goods of this life.

The question of the essence of technology

Undoubtedly in order to understand the theoretical foundations of contemporary technological pessimism, it is a sine qua non to explore Heidegger's thesis, which is of a remarkable audacity. Heidegger's thought is generally considered complex and ambiguous and is always at the heart of sundry current debates. In point of fact Heidegger is a thinker who pushes farther the ontological question of the status of technology through his fundamental, and hence classical, thinking on the essence of technology. Heidegger states before hand that „the essence of technology is absolutely nothing technological”⁴. As the essence of a tree is neither this oak tree, nor this coconut tree, the essence of technology is not technological. We can perceive its effects, use its power, even recount its history, all without thinking

⁴ *The question concerning Technology*, p. 9.

it essentially. The ignorance of this difference gives way to naïve attitudes, either its denial, technophobia, or its excessive acceptance, technophilia. In all these cases we are unaware of the essence of technology, and in so doing we bar ourselves from a free relation to it, and hence from answers to our questions. We have a fortiori, in this blind ignorance surrendered to it, „we all remain enchained to technology and deprived of our freedom”⁵.

The most dangerous and the most ordinary conception is that which consists in considering technology as something neutral. This is the view that it should be a neutral means, by means of which man achieves good or evil in accord with his intentions. This idea of neutrality presupposes an instrumental and an anthropological conception of technology. Traditionally two classical answers have been provided to the question, ‘What is Technology?’. Firstly, technology is „a means with a view to ends”; secondly, technology is „man’s activity”⁶. We can also see that these conceptions are united, for only man, endowed with intelligence, can put in place processes to attain ends aimed at, therefore positing the ends beforehand. The instrumental conception is not faulty; it is itself exact (*richtig*). But exactness is not truth⁷. Exactness is conformity with the immediately visible; truth leads to essence, to Being. The difference between exactness and truth is the relation to essence. The true presupposes „disclosure [*Enthüllen*] of the essence of what exist in front of us”. The true presupposes openness to a site where a free relation between the essences disclosed to man and the thing under consideration is possible, truth is the event of this essential correspondence. It is, solely where such a disclosure has taken place. This open site establishes us in a free relation to addresses us from its essence, this free relation is an understanding, otherwise said, an address from the call of Being, notably from the Being of things, and the answer to this call.

Be that as it may, it is not a question of purely and simply denying instrumentality. It is a question of deconstructing the concept, that is to say searching within its presuppositions and limits a possible transcendence. It is noteworthy that the solidarity between the instrumental and anthropological conceptions is such that if one is not true, the other will not be true either. If technology is not a means the ideas of mastery, control, of the spiritual orientation of a technology submissive to man’s will, no longer have meaning. Hence the importance of interrogating the truth of the instrumental conception. If technology is no longer an instrument, then man is no longer a master who leads but a slave who is unaware of himself as such.

⁵ Ibid. p. 9.

⁶ „ein Mittel für Zwecke [...] ein Tun des Menschen”, *ibid.* p. 10.

⁷ „What is simply exact [das bloss Richtige] is not yet the true[*das Wahre*]”, *ibid.* p. 11.

What does the instrumentality of technology mean? It is the putting in place of a system of means for ends. But on what then do things such as means and ends depend? A means is that by which something is carried out, realized [bewirkt] and thus obtained. A means is that by which we obtain real effects [Wirkung], effects being linked to means, as their outcome [Ursache]. All means, hence all instruments, are a cause. We must therefore understand technology in its Being, within the aim of establishing a free relation with its essence, hence, going back, beyond instrumentality, causality.

The traditional conception defines a cause as that which carries out, which realises [*das Bewirkende*]: being, a cause produces effects, provokes modifications, derives results. We participate in a privilege given to one of Aristotle's four causes, encompassing the *causa efficiens*. The modern age privileges or favours the effective cause, but it also forgets the others. From the Latin translation of the Greek *aitia* by *causa* this reduction has become dominant; for the Romans, cause already meant to carry out, to operate, to act on, to have effects on. What did the Greek conception really say? Heidegger translates *aitia* as something that is responsible to another thing, which responds⁸, which is implicated in one thing becoming another thing. To be responsible, *verschulden*, also means, to be in charge, to be implicated in and implied in. To the Greeks being a cause did not yet mean being an effective agent, which it has become for us. On the contrary, our will to power has blinded us to the awareness of our own essence and our responsibility to Being. Causality and more particularly that to which we often illegitimately reduce it, effective causality, must be reinterpreted, since this notion of operational efficiency does not exist in Greek, and Aristotle never mentioned it. The fourth cause is, for example, the goldsmith who fabricates a money cup. But the goldsmith is not the operator and the cup is not the effect of his fabrication, although it is the figure of his responsibility, that of leading things to the light of presence, maintained and placed in front [*vorliegen*], arranged and available [*bereitliegen*]. To it make available, or exposed, it is placed in front of us, in a shared space and according to a time that renders possible (whether it is admiration or utilization).

But what type of causality is responsible, for example in the case of the goldsmith? To what is it to respond? Causality leads the thing toward its appearance; this transparency is a coming to presence. This presence is the

⁸ „das, was ein anderes verschuldet“; „La question de la technique“, p. 13. André Préau translates 'das Verschulden', responsibility, l'être responsable, being responsible, by „the act which we respond“, always in inverted commas.

Latin *praesentia*, in other words, the fact of being (*esse*) there in front(*prae*); the being of presence, is being beside, the German word for presence means, *an-wesen*, and no longer *Gegenwart* (German and Latin prefixes evoke this idea of nearness and approach). Presence delivers a kind of proximity. To dwell in the world is to establish relations of proximity and of distance, wanting to allow things and beings to happen next to the self, some nearer and some farther. These things and beings are present to me whatever their spatial proximity⁹ only if they are near to me; that is to say if they participate in the configuration of my world and oblige me to reposition myself in order to assure the place they demand. Giving a place to someone, give way to something (for example in handcrafted production) means to free a place in our world. Responsibility has the fundamental trait of letting-happen in the coming¹⁰. Letting-happen translates the German *an-lassen* (which today means to keep, to not stop, to start, but also to occasion, to be the cause; *Anlass*, means occasion, motif). Heidegger breaks down the verb *an-lassen* which hence means to allow [*lassen*] to come toward [*an*], allow-to happen, to allow-to move forward, to allow-to come nearer up to the nearness of presence. But it is also necessary to understand the activity of such allowing [*lassen*], this allowing-to happen is also a making-happen [*ver-an-lassen*]. The prefix *ver-*according to Heidegger, pushes, so to speak, the letting towards a doing (cf. n. 1, p. 16). *Veranlassen* (which today also means: to provoke, to cause) finds its original meaning again when we understand it in its elements, *ver-an-lassen*, to make-let-come. Here is how we should understand the essence of causality as the Greeks thought about it. It does not echo an „occasion” which only maintains a marginal and restrictive dimension of the idea of cause. Causality is fundamentally, the free bringing to light of presencing, where the encounter, that is to say being-near is possible.

To make-happen is to bring toward, to lead; to lead, what is not present to presencing. This leading, which the Greeks termed *poiêsis*, we could translate by pro-duction [*Hervor-bringen*]. The Greek *Poiêsis* refers to handcrafted technology, but also poetry, though not only that. What the Greeks called *phusis*, which can be translated, since the Romans, as nature, comes from *poiêsis*, from pro-duction. What is produced by the artisan happens in

⁹ „Proximity does not consist in the lack of distance”, in „La chose”, p. 194. [Eng. „the thing”]. It would have been necessary to be able to talk of „rapprochement” or of „nearness”. Nearness could translate the German neologism utilised by Heidegger in *Acheminement vers la parole*, p. 197, die *Nahnis*. Cf. also *Temp et Etre*, translation by Francois Fédier and Jean Beaufret, in *Questions III* and IV, p. 213, „la prochaineté”, „Nahheit”.

¹⁰ „dieses An-lassens in die Ankunft”, „La question de la technique”, p. 15.

presencing, as does what naturally pushes forth, both are a mode of *poiêsis*. The coming to light of presencing, the opening to Being, such is, beyond the differences, their common fundamental trait.

What then is happening in presence? What has taken place in production? Heidegger responds this time by breaking down the German word 'Her-vor-bringen', pro-duction: „what produces leads from closure to disclosure”. Producing is therefore a complex play of advance out of what withdraws, of approach and maintenance in the nearness that is given. Producing is therefore disclosure. Unveiling [Entbergen] is the origin of this movement of pro-duction, and the latter finds its impetus in it and maintains it. Disclosure consists less in showing what was hidden than exposing what has withdrawn¹¹. Disclosure, Heidegger, adds, is what the Greeks termed *alêtheia*, (what the Romans translated as *veritas*, the French as *vérité*, the English as *truth*[in German *Warheit*]. To echo or come back to technology, we must therefore posit that in its essence, it is founded in disclosure, for ‘ all that produces is founded in disclosure’¹².

Technology and the Disclosure of Being

Thus, technology leads to instrumentality, while a thinking understood as causality, a causality which is itself understood as responsibility, leads to making happen in presencing, or pro-duction. Which leads us to conclude that technology is a mode of disclosure. Technology should therefore be understood as a mode of the disclosure of Being, of Being that is, that opens out its Being, has taken place: this event of Being is *alêtheia*, truth. But this understanding of technology does not seem convenient when applied to handicraft or to modern technology, which is no longer a tool technology but a motor technology. What does a hydroelectric mill disclose? What is the truth of the nuclear power station? Let us launch the question, how does modern technology disclose Being?

Technê was a *poiêtic* disclosure which pro-duces [*hervorbringen*]; modern technology is a disclosure that provokes [*herausfordern*]. There is in

¹¹ Heidegger states „by *verborgen*”, we must understand „withdrawal” rather than „concealment”, in *Vortrage und Aufsätze*, note by the author, p. 349. Michel Haar prefers „*décèlement*”, (cf. op. cit., note 24, p. 357). As for Jean Louis he proposes the remarkable „*découverte*”, (op. cit. p. 249). What we must understand is that there is nothing hidden pre-existing its appearance and independent of it.

¹² „das Her-vor-bringen bringt aus der *verborgenheit* her in die *unverborgenheit*”, *ibid.* p. 17.

both an outlet out of withdrawal, a disclosure, but production is guided by the limits both of the craftsman and of nature with its rhythms, whereas pro-vocation evicts by force, violence and rapidity (*födern*, also meaning to activate, to accelerate), imposing a rhythm which is dictated only by economic pressures and the obsession with profitability. Modern technology challenges nature, puts it in place to deliver energy. Modern technology is incontrovertibly also a movement of production, of bringing to light, but we human beings must remain there, technology should revolve around man and not vice versa, what is disclosed, is so in order to serve with efficiency and with profitability. With modern challenging technology, nature is commanded [*stellen*] to deliver what it conceals; it is commanded [*stellen*] to deliver its energy, and to compromise itself [*bestellen*]¹³ in order to serve men. The Rhine is disclosed as hydraulic power by the turbines of the power stations, whereas the water mill disclosed the river as current.

What becomes of the nature challenged by the essence of modern technology? Or specifically what is the mode of the presencing of things that are disclosed by challenging? What is challenged has its mode of presencing, its *Stand*. This *Stand* is a *Bestand*, that is to say a presencing as always available and exploitable contents. The word is essential, it must be understood not in its classical sense (*Bestand* also signifies existence, stability, duration), but in its essential meaning, it says the mode of being of things challenged by modern technology, it means the manner in which all that is present is attacked by the disclosure that challenges. In order to understand this mode of presencing, we must relate it to other modes of presencing, that of the object [*Gegestand*] of modern thinking and further back that of the Greek *antikeimenon*. *Stand* is the position, the situation, that is to say presencing. *Gegestand*, is the mode of the presencing of things which are placed against, opposite us [*gegen*], it is the object (*ob-jectum* for the Romans) of a subject; whereas *antikeimenon*, is the mode of presencing of the thing for the Greek, it is not conceived, but received, it occurs to him and takes him by surprise, in the excess of its arrival into presencing¹⁴. *Bestand* is the mode of the presence of objects of the technological world, indeed, the modes of presencing are exclusive, mutually concealing themselves from each other. Or rather the collection is the completed radicalisation of the object; its consistency, its permanence, its availability, its exploitability are

¹³ Stellen whose general meaning is to place, to put, place, has as its meaning here to ask for an account, to summon, to question; bestellen, has for its first meaning to cultivate, means here also to command, to order.

¹⁴ See on this point the remarkable pages of the 3rd *Séminaire du Thor*, *La philosophie est la réponse d'une humanité atteinte par l'excès de la présence*, p. 420.

fully assured, clearly planned, without the shadow of want. One of the first characteristics of this mode of being is replacement [*Ersetzbarkeit*], „to be today is to be-replaceable”. The technological world is a world without objects, the reign of *Ersatz*. The encounter with the thing was a source of wonder for the Greek; the opposition to the object is manifested, in modern man, in a will to mastery. Is the man of the technological age, like the one whom Nietzsche called the last man, capable, neither of wonder nor of the object, but only of being opposed to things? What becomes of the subject in the world without objects? Does technology end by winning out over man himself? Is man the master and keeper of his *Ersatz*?

In this day and age „the earth appears as a non-world of errancy”¹⁵. Heidegger, describes this situation in hard words „the collapse of the world” and „the devastation of the earth”¹⁶. The world is nothing but a vast deposit, assuring stock and availability to entities, man errs in this organized plenitude, blinded by overabundance, easily full but never sufficiently satisfied to cease his vocation to the unessential. But is only man responsible for this state? Is he the cause of the *Gestell*? And if not who accomplishes the challenge?

The instrumental conception of technology has been surpassed. What about the anthropological conception? We must stop at the relation uniting man and technology. If we take account of technology, machines, man still remains master, he uses machines he has conceived. But this is not the question of the essence of technology. In what concerns challenge, the putting in place of nature reduced to an available collection, it is man who intervenes. But it is not man who decides on the mode of the disclosure of Being. It is not man who has decided not to poetically disclose nature. ‘Man does not decide on the veiling in which every time reality shows or conceals itself’¹⁷. Man does not decide on the mode of the disclosure of Being, he answers to the call of Being that needs the essence of man to unfurl itself. Man has not chosen or intended to unravel reality according to the mode of challenge, „man is already challenged” to challenge and in an original way. Hence another question poses itself: does man not end by being put in place and called as available collection?

In order to respond, it is necessary to stop and consider the relation of Dasein to Being, of the essence of man to the essence of Being. Incontrovertibly, a challenge is open in disclosure that is never the deed of man.

¹⁵ *Dépassement de la métaphysique*, p. 113.

¹⁶ *Ibid.* p. 82.

¹⁷ „Über die Unverborgenheit (...) verfügt der Mensch nicht”, „La question de la technique”, p. 24.

Moreover, man takes part in the challenge, as more generally, he takes part in revelation. This is why he never becomes a pure collection. It remains, however, to question the nature of the part played by the essence of man. Heidegger evokes, without ambiguity „what man has always claimed with respect to a word addressed to him [Anspruch]”, namely to be a master, where he is only a shepherd.¹⁸ What is this all about? And about whom? About God? The question of the relation of Dasein to Being gives way to considerations concerning, at the same time, Dasein and Being. To be man is precisely to be this remarkable entity who has the task of bringing Being into word; to be man is to understand and respond to this call of Being. Whatever the moment and the characteristics of existence, it puts us face to face with Being. We are always already „led into the unhidden”, whether we act, speak or think. What is fundamental is this call of Being, and man only respond to it, even where he contradicts it. But if Dasein is always addressed, called, we must add that the call of Being supposes an ear or a heart. This is why the call of Being seems difficult to compare with the voice of God. God is what he is independent of man, any dependence would mark a limit and would be in contradiction with his infinity. Let us finally add that, if God exists, is an entity, even the supreme Being, he is not Being in Heidegger’s sense¹⁹. Being is finite²⁰, it is always the being of an entity, always the being of an entity in relation to the being man. We must conclude with this statement „modern technology [...] is not a purely human act”²¹ and on the basis of this ask: what is the being of technology?

The essence of modern technology is a challenging mode of disclosure which determines very generally the relation to all of that entity which requires a collection. It therefore gathers a multitude of attitudes. It is, we could say the gathering of acts of challenge. It is the „gathering of this questioning [*das versammelnde jenes Stellen*] that requires man, that is to say challenges him to disclose or unveil reality as collection in the mode of carrying out”.²² Heidegger then proposes, to express this, a German word, *Gestell*²³, deviating from its original meaning, which ordinarily signifies

¹⁸ „La question de la technique”, p. 25.

¹⁹ „Even the God, if he is, is an entity, is held as an entity in Being, in the essence of the latter, who becomes the becoming world of the world [aus dem Welten von Welt ereignet]”, „Le tournant”, p. 319.

²⁰ On this point of the finitude of Being and its relation to Dasein, cf., among other, the 3rd Thor Seminar, in Questions III and IV, P.25.

²¹ “La questions de la technique”, p. 25.

²² Ibid. p. 27.

²³ Cf. also the conference „The turn”, in *Questions III et IV*, pp. 309 sq. Preau translated it in French; Haar proposes *Dispositif*, Followed by Didier Franck (cf. also Jean Beaufret,

'shelf', 'trestle', 'pedestal', 'chassis'. Heidegger understands it in terms of its elements: *Gestell* is the gathering [*Ge-*] of all these acts of challenge [verbs *in – stellen*]. These tasks or behaviours or attitudes are numerous. They are at the same time the fundamental operations of the spirit at work in modern science: *nachstellen*, to follow the trail, to track; *klarstellen*, to put in prominent place, explain... These are activities particular to technological attitudes: *stellen*, require, question, to command; *herstellen*, to fabricate; *erstellen*, to construct, to convert; *einstellen*, to settle; *aufstellen*, to put in place, to post, to install; *sicherstellen*, to be assured of, to safeguard; *abstellen*, to rectify, to watch out; *verstellen*, to adjust. He mentions also many words belonging to the vocabulary of commerce— recalling here that the *Gestell* also manifests in economic reduction, not to say in financial policy-*aufstellen*, to establish a receipt; *bestellen*, to command. It is, also, generally speaking, the original activity of metaphysical thinking of the modern age, *vorstellen*, to represent. It is necessary to shed light on man's relation to technology or precisely the relation of *Dasein* (man's being) to *Gestell* (the essence of technology), and yet beyond *Dasein*'s relation to Being. It is a question concerning that part of man that leads to meditation on destiny and freedom. It is necessary to avoid the view that the critique of the anthropological conception leads only to its contrary, the fatalism that makes of man an impotent pawn in the game of a superior entity.

The *Gestell* is the mode of disclosure of reality as collection or resource, this mode is a movement, standing on humanity's way, a beginning [*Schicken*]. This verb means to send, to dispatch, to be intended to, but also to decree. This stake along the way, this destining as Heidegger calls it, is a destiny [*Geschick*]. That man is destined means that he is put on the way to the disclosure of Being, a way which is shared by an age and which makes a human community a historical people. The *Gestell* is, today, man's destiny, for it is thus that Being discloses itself. It is, says Heidegger, „a destinal mode of disclosure, that is to say, the challenging mode”²⁴. But we must understand in what sense this destiny does not imply fatalism [*Verhängnis*]. Not

in Frederick de Towarniki, *A la rencontre de Heidegger*, Gallimard, 1993, p. 223; Michel Haar always says explicitly that we must translate *Gestell* from *con-summation*; G. Vattimo, translate it as *im-position*, in *Les Aventures de la difference*, Minuit, 1985, cited by Jean Grondin, *Le Tournant dans la pensée de Heidegger*, PUF, 1987, p. 102. Mark Wrathal *challenge* as the English equivalent of *Gestell*, in *Heidegger*, Granta Books, 2005, pp. 99-105; William Lovitt renders *Enframing* as the English equivalent of *Gestell*, in *The question concerning Technology and other Essays*, translated and with introduction by the author, 1977, Harper Torch Books.

²⁴ „eine geschickhafte Weise des Entbergens”, „La question de la technique”, p. 40.

that man could wish otherwise, in this case mastering technology, „technology whose essence that is being itself does not let itself to be dominated by man. For that would then mean that man should be the master of Being”²⁵. Man becomes free only insofar as he finds where he belongs, according to his destiny²⁶. Freedom does not originally characterize a human action, nor even a will or a thought. Human existence is only free insofar as it answers to the call of the original freedom of Being, only insofar as it takes part in destiny. Man is destiny, that is to say free because the disclosure of Being is given to him by sharing and this participative task is also his highest dignity. Destiny is a sharing, what the Greeks called *moira* which comes from *meros*, the part, but which the Latin translation into *fatum* has forgotten. This sharing is said to be the co-responsibility of Being and Dasein. For if Dasein presupposes Being, the latter is in need of Dasein. Being, to open itself, needs man as the there of its manifestation. This is the meaning of the statement „man is the shepherd of Being”²⁷. It is necessary to say again that Being is not a superior, transcendent power, it needs Dasein, it uses him²⁸. It is the remarkable characteristic of the essence of man to be the there (*Dasein*), Being only opens itself as Being, in the midst of entities, insofar as man in his essence waits for it, welcomes it. „thus used, man is assigned to make happen the appropriating event of truth”²⁹.

That said, *Gestell* is not a destinal mode like any other. It conceals an extreme danger. The first danger of the *Gestell* is that it might maintain Dasein in a state of deafness to the call of Being, which would also be an ignorance of Dasein’s own essence, that of being there. Therefore the possibility of waiting, or of a vision closes itself. It is what Heidegger calls the ontological blindness of he who is blind to phusis, blind to Being³⁰. Such a one then abandons his free being, that is to say he forgets his part, his destiny, his most laudable vocation. Self-abandonment, forgottenness of Being, self-wandering in consumption of entities: such is the figure of errancy. But *Gestell* is full of another danger. Since it impels man to exclusively disclose in the mode of challenge. It thus conceals the other mode

²⁵ „Le tournant”, p. 311.

²⁶ „La question de la technique”, p. 33.

²⁷ „Lettre sur l’humanisme”, p. 88 and p.101.

²⁸ „There is truth [Warheit „gibt es”] only in the sense in which and for as long as *Dasein* is”, *Sein und Zeit*.

²⁹ „Als der so Gebrauchte ist der Mensch dem Ereignis der Wahrheit vereignet”, „La question de la technique”, p. 43.

³⁰ „What is and how phusis is determined”, *Questions 1 et 11*, traduction Francois Fedier, p. 22.

of disclosure, poetic disclosure, pro-duction. It risks concealing disclosure itself, that is to say the emergence of Being, its unfurling in entity. Finally unveiling itself, in other words the event of truth, risks no longer being an event for the essence of man. „*Gestell* hides from us the radiance and power of truth”³¹.

The essence of technology is the most extreme danger for truth. To say that the *Gestell* is the destiny of Being, also means that it is „destining”, going toward another veiled destiny. This new epoch of Being should be the surpassing of its present stage, the global technical civilisation. Heidegger then cites the German poet Hölderlin³²: „Where danger is, grows the saving power also”. What does save [*retten*] mean? Not only to protect what is threatened in order to make it secure where it will remain what it is. To save means to carry out the essential. „To save is not only to snatch out of danger, it is strictly speaking to liberate or free a thing, to let it return to its own being”³³. *Sauver* signifies to save unharmed. But how to save from the danger of technology? Is that possible?

„It is possible here, now and in the flexibility of what is small [*im Ger-ingen*]”, Heidegger says enigmatically³⁴. Let us only understand that it will be neither from the order of a more powerful action, nor even from the order of a human decision. No human intervention would be able to transcend this danger, insofar as the latter is the destiny of Being. Who then will save us? God? Heidegger has indeed written „only a God can save us”. It would be useless to act by standing on our way. „We must not do anything, we should only wait”, to wait and hope? Moreover, Heidegger writes „as a mode of being, *Gestell* cannot lead to the metamorphosis of its destiny with the help of the essence of man”. Man’s task seem paradoxical, at the same time essential and modest or humble, not to say pathetic. Almost an unwilling serenity.

In a nutshell, Heidegger, or rather the second Heidegger, according to the historians of philosophy the Heidegger of „The Question Concerning Technology” and of the „essays and conferences of the years 1940 and 1950, in the first place questions the instrumental conception of technology, that is to say of technology considered as means in the service of ends.

³¹ „La question de la technique”, p. 37.

³² „Wo aber Gefahre ist,wächst/Das rettende auch”, Heidegger cites again these lines and gives their reference (hymn patmos) in „le tournant” [the turn], p. 314.

³³ „Batir, habiter, penser”[Build, dwell, think], in *Essais et confrénces*, p. 178.

³⁴ „La question de la technique”, p. 45. Jean Beaufret aussi suggests to translate as „la moindre des choses” or „Presque rien”, cf. Frederic de Towarnicki, op.cit., p. 139. [Eng. „The least of things”; „almost nothing”].

A highly developed instrumental conception. For Heidegger, technology is the „structuring and determinant power for modern culture”³⁵. It is technology that best characterises the modern age.

If we can analyze it with the categories of ends and means, it is because this „instrumental and anthropological conception”³⁶, dispossessing technology of all causality (it should only be a tool, a means without causality other than its own use) does not allow for the understanding or apprehension of the „essence of technology”, „which should be a mode of disclosure” (Stiegler). Technology, for Heidegger, is what allows for the disclosure of that which does not produce itself and is not yet before us. Technology is disclosure, insofar as it makes be what is not yet (Stiegler). But modern technology introduces a particular form of „disclosure” of nature: it challenges nature in order to take out of it its secrets, to summon it to reason in order for it to be used to produce (Deforge). Modern technology is thus characterised by the expression of Gestell, translated by some as „system”, and by others as „challenge”, „inspection”, „summons”. Whatever the translation, of this, in the view of some commentators ambiguous, saying of Heidegger’s, the Gestell represents the essence of modern technology, which is fundamentally violence committed against nature, „an aggression against life and against man’s being itself”, a provocation, a supreme threat, putting into peril „the essence of man”. This charge against technology is severe and will determine the subject matter of thinking for a long time into the future.

However it is said that Heidegger’s position on technology is more ambiguous and complex than it seems. For, if modern technology is „a danger greater than the third world war”, if it carries the risk of dehumanizing man, it is not the technological reality itself that is questioned (machines, objects, appliances), but this „essence of technology”, which „is nothing technological”. It is not technology in this sense which is dangerous. There is nothing devilish in technology, but there is a mystery concerning its essence. It is the essence of technology insofar as it is a destiny of disclosure

³⁵ J.M. Massie, „une puissance structurante et déterminante pour la culture moderne”.

³⁶ All citations about Heidegger are extracted from different works which have served as guide to us in the approach to this rich, complex and enigmatic thinking, works which we will highlight here in one note: B. Stiegler, *La technique et le temps*, op. cit.; Yves Deforge, *De l’éducation technologique à la culture technique*, ESF, 1993; Jean-Yves Chatteau, *Technophobie et optimisme technologique modernes et contemporains*, in Gilbert Simondon, *Une pensée de l’individuation et de la technique*, op.cit.; George Steiner, *Martin Heidegger*, Flammarion, 1987. These citations of Heidegger come from the philosopher’s different texts: *La question de la technique, Gelassenheit, Le dépassement de la métaphysique*.

that is the danger. Thus Heidegger, introduces a subtle and problematic distinction between the reality and the essence of technology, the latter of which pertains to the *Gestell*, to disclosure, to an autonomous will to power, implacable and irresistible. But can we separate a reality from its „essence”, to absolve this apparent reality from all threat and put all responsibility for the danger on the „essence”? For J.Y. Chateau, who carried out a profound and magisterial comparison of Heidegger and of Simondon on the question of technological pessimism and optimism, the danger of technology does not come from technology itself, it is our attitude to technology that is devilish³⁷. It seems from this point of view difficult to see in Heidegger's thought something other than a profound and radical pessimism concerning technology, in spite of his ambiguities and his complexity. If the danger is situated in *Gestell*, it is because „*Gestell* conceals from us the radiance and the power of truth”, because it is „forgottenness of the truth of Being and of truth itself”. Otherwise said, modern technology would dehumanize man by shutting him in a universe closed in on itself, enchained to the exclusive power of technical reason, calculus, by means of the illusion of the paradigm of objectivity, in „forgetfulness of Being and even forgetfulness of this forgetfulness”. For the trap of *Gestell* is of a supreme refinement, since generalized technicalisation makes Dasein forget its own danger, its own existence, in a complete alienation of thinking.

While Heidegger is pessimistic regarding the future of a humanity dominated by *Gestell*, he proposes a way out, a salvation, the decision by which man could come out of his errancy. This salvation being paradoxically contained in technology itself or in its essence. This could be the meaning of the citation from the poet Hölderlin found at the end of the „Question concerning Technology”: „but where danger is, grows the saving power also”. Heidegger's conclusion has left many critics unsatisfied and has raised the fundamental question: how indeed can technology be at the same time a mortal danger and that which saves from this danger? As far as we are concerned, Heidegger says in substance that the imperialistic character of technology comes from reason itself, insofar as it claims to stretch its empire everywhere and dominate all objects. Now a reason at the service of the will to power is a lost reason. Techno-science is the implementation of a project, whose essence is contained in reason taking the form of the

³⁷ „Le péril dans l'essence de la technique n'est pas plus „grand” que dans la réalité technique. Il est plus „essentiel” ou mieux il en est l'essence (...). S'il n'y a rien de démoniaque dans la réalité technique c'est au sens où c'est de par son essence qu'elle est démoniaque”. Jean-Yves Chateau, „Technophobie et optimisme technologique moderne et contemporaine” in Gilbert Simondon, *Une Pensée de l'individuation et de la technique*, p. 147.

scientific representation of the world. The form becomes explicit with the objectified system of science. Plus, the sword of Damocles that hangs over man does not in the first place come from machines and appliances of technology, whose action could eventually be deadly. The danger, contrary to what we naively believe, is not in the use that is made of technology, but in the spirit determining it since its origin, in the logic leading to it. The danger of dangers, is the lack of awareness of this danger. A radical awareness of the nature of the technological project is necessary. That is why Heidegger cites Hölderlin: „But where danger is, grows the saving power also”.

A critical lucidity with respect to the technological process is the only way open for us to get out of this alienation. This is the only way that would enable us to rediscover a bit of the humility which characterised the relation of traditional man to nature, and the relation of man to man. This entirely presupposes the modification of the representation of man's relation with nature. We must recover the meaning of man's integration in Nature instead of seeking to dominate it. In the language of Heidegger, it is our relation to Being that is at issue. Thus of the peasant in those days, Heidegger says: „The work of the peasant does not enframe the cultivated earth. When he sows grain, he confides it to the forces he wakes such that it prospers”. Traditional people did not challenge the earth, they knew how to respect it, and to watch, as a shepherd who watches his sheep. The peasant confides the seed to the earth and watches it. What has happened in man's relation to the earth? Agriculture has become industrial, it has become technical. The earth is only matter to be exploited technically. It is requisitioned by technology.

Natural energies, for example, are requisitioned by technology³⁸. Heidegger compares in this sense the old bridge on the river and the electric power station that bars the Rhine. The electric power station is put in place in the Rhine. It challenges the river to deliver its hydraulic pressure. The Rhine river appears as something employed. The power station is not constructed in the current of the Rhine as the old wooden bridge which for centuries has united one bank with the other. It is rather that the river is blocked by the power station. The two images are clear: the old wooden bridge is a humble relation vis à vis Nature; it is on the side of the arts of men and of humility. The power station is a technical device whose empire is an aggressive

³⁸ Heidegger, „Discourse on thinking”, p. 50: „Nature becomes a gigantic gasoline station, an energy source for modern technology and industry. This relation of man to the world as such, in principle a technical one, developed in the seventeenth century first only in Europe. It long remained unknown in other continents, and it was altogether alien to former ages and histories”.

challenging of Nature. The monstrous element of technology is there, the power of the Titan is there. Certainly the Rhine remains, it is always the river of a suburb, but it has lost its status, it has become an object for technological exploitation. Worst of all, with the advent of post-modern values it has become the object of a visit organised by a travel agency, „which has constituted a holiday industry”. This object is an object for the subject that uses it, for a reason that intends to profit from it. Therefore technology itself produces a need that exacerbates its domination. The universe is standardizing itself; nothing else, neither mystery, nor the sacred can resist its intrusion; everything is finally summoned to prove its usefulness for the development of technology or disappear. Life itself is understood in the light of technology: a good life is an efficient, profitable, „creative” life.

Thankfully, there are even scientists who do justice to life, which poses problems for moral conscience, and demand that technical manipulations be legitimate. J. Testards in the *Transparent Egg*³⁹ raised the central problem of bioethics and the embryo. Researchers working on heredity demand a moratorium on genetically modified organisms, because it has been demonstrated that they could be dangerous. In his time Einstein said that technology is like an explosive that must not be put in the hands of the children that we are. When we acquire a real concern for the plenitude of life, we will know how to be careful. All power requires wisdom and all wisdom supposes a broadened, profound, self-awareness, a view that can focus its care on the weakness of life, the care we owe to man and all that lives. It is not necessary to scare ourselves by talking about the Titan that is the history of technology. All power ultimately restores life as well as awareness. There is in the heart of man enough generosity and ardour for him to have the desire to create a different world. It is however clear enough that the scientific representation that has dominated for many centuries must be radically modified. It is indispensable that science reject the vision of a fragmented reality.

It is clear enough that it is impossible, in reality, to separate science and technology. The real problem is that of the signification of the whole of techno-science and its implications for life. We are swept along in a competitive drive of technology no one is able to master. Ultimately, all exploitable discoveries will finally be exploited, it is science that now lives in dependence on technology. In this universe we must recover a wise reason that is not a technical reason.

Nevertheless ugliness is not the only thing with which we can reproach technology. The most serious thing with which we can reproach it is aggres-

³⁹ See J. Testards' work.

siveness. Hence, Heidegger analyses the *Gestell*⁴⁰, the enframing of Nature by technology. Enframing is the questioning of a suspect by the police or the magistrate. It is means summoning someone to explain, to prove that there is nothing with which he can be reproached. Enframing, is of course done in relation to a norm. The suspect must prove that he is innocent, in other words, that he has done nothing that is against the law embodied by the police and the judge. This is what Kant writes in the preface to the Critique of Pure Reason that science must subject nature to questioning instead of allowing itself to be lead by her on the periphery. Reproaching technology for enframing nature, is reproaching it for subjecting nature to its own laws and criteria and examining at what point nature submits to this. Thus enframing means to denature nature, to make technology out of it, and so to annihilate it purely and simply. Heidegger compares the presence of an electric power station on the Rhine⁴¹, and that of a small wooden bridge. The construction of the electric power station eliminates the river as a river to make out of it a mechanism that turns a machine. The river itself becomes a machine, a technical object and dies as a natural thing.

So technology is established as an enemy of nature that devours it gradually. We imagine a world where all life, insofar as there remains one— will happen in these concrete jungles and that shortly, thanks to technology which is spreading like an epidemic, will cover the whole planet. Plastic flowers, rivers greenish or black with pollution and dead seas, will constitute the only nature; the future that technology seems to offer us stretches out on an asphalted road identical to every other. The future that computer science and biotechnology make us imagine borders on that which Huxley depicts in *Brave New World*⁴². For who can feel at home in a world in which all existence takes place as on the conveyor belt of an automobile factory, a world where we live as a dehumanized and childish, libidinous, materialistic being

⁴⁰ „L'essence de la technique, je la vois dans ce que j'appelle le Gestell. (...) Le règne du Gestell ['arrondissement'] signifie ceci : l'homme subit le contrôle, la demande et l'injonction d'une puissance qui se manifeste dans l'essence de la technique et qu'il ne domine pas lui-même. Nous amener à voir cela, la pensée ne prétend faire plus. La philosophie est à bout". Martin Heidegger questioned by „Der Spiegel". *Questions and Answers on History and Politics*, trans. Fr. Launay, Mercure de France, 1977, p. 50.

⁴¹ Martin Heidegger, *Vortrage und Aufsätze* [Eng. *The question Concerning Technology*], translated and with introduction by William Lovitt, p. 16: „The hydroelectric plant is set into the current of the Rhine. It sets the Rhine to supplying its hydraulic pressure, which then sets the turbines turning. This turning sets those machines in motion whose thrust sets going the electric current for which the long-distance power station and its network of cables are set up to dispatch electricity".

⁴² See A. Huxley, *Brave New World*, pp. 25-89.

and in perpetual barbarism, for whom existence is a sequence of mechanical gestures useful to society and elementary pleasures? The only human beings still capable of asking themselves questions, of suffering and loving, of feeling like living beings and as a part of life, of being, to take up a saying forged by Michel Henry⁴³, corappropriated to nature, have been relegated to an island, for they constitute a hindrance to the post-Fordian society, where there is no place for Shakespeare and the complex themes his plays raise. Thus we are many of us dreaming of a return to nature. Like Rousseau in *Reveries du promeneur Solitaire*⁴⁴ we distance ourselves from an artificial civilisation to rediscover the mountain, lake, the silence of the forest. We are opposed to a culture of genetically modified organisms and if we can we cultivate for ourselves our own fruits and vegetables. We prefer to ask for homeopathic treatment, we cure ourselves with plants. If the route renders it possible we will trek or take a bicycle to work. We love life as it was „in the good old days”, before technology, in a small house with a chimney, near the river, when only a wooden bridge existed, when we lit candles, when pesticides were not yet invented and when cultural pleasures were simple: village celebrations among people who have known each other for a long time, discussions and lectures beside the fire. The past appears to us like the golden age in which man was living in harmony with nature.

Conditions of a Difficult Life

Notwithstanding, is this vision of the past not romantic? When we think of a house in a clearing surrounded by trees and flowers, in which precise epoch of history do we situate it? And this picturesque bridge on the Rhine, when exactly was it constructed and under what conditions? Indeed, we must carefully distinguish between on the one hand, an imaginary past, present throughout culture, whether it is in a television series, in historical movies (*Les Trois Mousquetaires*, *Fanfan La Tulipe*), in popular novels (*Les enfants de la terre* by Jean Auel, for example), or advertisements

⁴³ This is a neologism coined by Michel Henry in *La Barbarie*. He uses this term as an upholder of life against technology and also to show the immense gap implicit in scientific knowledge. In this case Michel Henry gives priority to the inner life. As it stands because of all the instruments and machines that science puts at the disposal of human beings, they are gradually losing the use of their faculties. Other thinkers and scientists have already begun to express their doubts about whether technical progress really contributes to the good of humanity. *La Barbarie*, pp. 23-41.

⁴⁴ See Jean Jacques Rousseau, *Généve*, Hatier, pp. 33-56.

(e.g. an advertisement for cantal cheese shows a peasant who opens his packet of cheese smiling, surrounded by the sunny field and bales of straw). On the other hand, the past of historians, who reconstruct better than any of these other media, what the actual conditions of existence were in a given epoch. Let us have a closer look at this dream of the good life, in the old days. It is primitive; it has neither running water, nor electricity. Thus water must be fetched from wells or from nearby rivers, which are not necessarily around the corner. Then it must be boiled. That requires fire and therefore wood, which a lumberjack obtained by cutting down a tree with a simple axe and the strength of his body, and which he then had to carry on his back right to his house, or right to the market where he would sell it.

The same goes for roasting meat which must be turned for a long time over the fire; for that people might have used either a small size dog shut in a cage placed on a wheel heated by the chimney underneath, in such a way that the dog runs on the wheel that burns its feet and thus makes the wheel connected to the spit-roast turn, or a child who turned for hours a wheel placed on a pillar, and connected to the spit-roast. The movable property was primitive, mattress hard, wooden, the bed sheets hard as well, and the house difficult to warm. The air inside was unhealthy because ventilation was bad. People suffered from cold and humidity. It was dusty and insects were present, because there were no means of doing away with weevils and other infestations. During winter and evenings the only light came from candles, which provided too weak a light for working in so that sight prematurely deteriorated, e.g. in the case of those who spent all their time spinning wool, to mend used dresses or to knit new ones. And the wooden bridge so dear to Heidegger, when and by whom was it constructed? In the 17th century? In the 16th century? Or perhaps in a still more remote era, at the end or in the middle of the Middle Ages? Whatever the epoch may be, the conditions of life and work of those who constructed it were far from being dream like.

According to the economist, Robert Vogel, in *The Escape from Hunger and Premature Death*⁴⁵, up to the 18th century and the beginning of the industrial era, people in Europe suffered from chronic malnutrition. Thus the height of the average person was 10-20cm less than that of a person today, or that of a member of the bourgeoisie or aristocratic populations of that epoch (an aristocrat measured on average a head taller than a man of the people). For when the growing body does not find the necessary food, it grows less, which reduces its life expectancy. If mothers are badly fed

⁴⁵ See Robert Vogel, p. 216.

during pregnancy, the foetus develops badly, and up to the 19th Century, birth defects (club-foot, mental retardation) were more common than today. Another consequence of the malnutrition of pregnant women (themselves being the mothers of undernourished women) and underage children, was the retarded development of internal organs (lungs, liver, kidney, heart, pancreas). These organs were atrophied and fragile and the life span of Europeans of that time was less than that of Europeans today. Thus, contrary to what is said by people who rebel against the life of today and its bad nutritional habits, responsible for numerous chronic illness which are imagined not have existed before, degenerative illness such as diabetes and cardio-vascular diseases, as well as renal insufficiency and hepatitis, were very frequent before and happened at a young age, often in the mid-thirties and forties (as opposed to the sixties today). Under-nourishment was also the reason for frequent deaths prior to the 18th century.

We are therefore far from the Marxists' ideal artisan who realizes himself by transforming the matter on which he works. This analysis of the past shows us that the past which many of us dream about is an idealized past which has never existed. And this dream about a time in which people lived a better life is a very old dream which has exist in all epochs. Thus the Renaissance French thought of a golden age before the fall of the Roman Empire, where people were more civilized and had true knowledge. In the 13th century, an uncle of Dante's cited in the *Divine Comedy*⁴⁶ complains that before, in the time of Dante's great grand parents, fathers brought up their children better and life in the cities was easier, whereas today's children no longer respect paternal authority and life in Florence is unbearable. And in this day and age we turn our eyes either toward the epoch of our grand parents, or toward a golden age of humanity, whether it is a Vedic civilisation where people „were in harmony with nature” and „mastered all the laws”, or some other mythical time when the smoke from the chimney of a picturesque house rose toward a blue sky, a house where, like in the movies of Walt Disney, birds and small rabbits could come to pay a visit.

If, then, the idea of a life in harmony with nature, by a return to the good old days, is not immune to criticisms, this invites us to examine the idea itself of nature as being good. For underlying this dream of a more „natural” life is the idea of nature as a norm to which we must move closer in order to be good. Whereas if we distance ourselves from her, we pay for this distance with our health and happiness. The *Gestell* or the Enframing of nature is unsettling because subjecting nature to human criteria is a violence against

⁴⁶ See Dante, pp. 33-56.

nature as such, which implies that she will have her revenge. And yet, the idea of Nature as good and wise is also a romantic one, just like the idea of the past as a golden age. Nature is what it is, sometimes to our advantage, at times to our disadvantage. If Nature furnishes us with water, food, oxygen, life and growth, Nature also offers us so many illness, scarcity, natural catastrophes, decline and death. Life within Nature, strictly speaking, is like that of the Palaeolithic fruit-gatherers. Contrary to popular belief, they were not healthy and suffered from degenerative illness despite their active life and diet. Thus Robert Freitas relates, in „Nanomedicine”, that the man of the „caves” suffered from bone cancer, arthritis and tuberculosis.

It is by distancing himself from Nature that man has gradually been able to progressively ameliorate the quality of his life, owing to his inventions. And this distance is made possible by technology. What makes a house in the clearing so attractive, is not so much the flowers surrounding it, as its thatch roof, running water, electricity, heater, washing machine, dishwasher, diverse electrical appliances, telephone and a car in the garage. Technology also means an efficient agriculture that produces a sufficient quantity of food, such as in Europe, which means that chronic malnutrition is today a memory. We have criticised technology and rendered it responsible for all of our misfortunes; but we cannot do without it, for it is also the reason for our coming out of a humid, cold, dangerous and miserable cave. And the development of technology necessitates the enframing of Nature, otherwise said her obedience to the laws of our reason that renders her intelligible and useful to us. To dominate Nature, which has for long subjected us to her caprices, it is necessary for us to know how she functions and how we can put her in our service, and this requires a critical interrogation of Nature and the exploitation of her possibilities. If we reject technology, we will again find ourselves in the same state as man before this technology, and we have seen that his condition of life had nothing enviable in it. We therefore reply to Heidegger that, yes, science Enframes Nature, but that there is nothing demonic in that. That per contra, it is a necessity in order that our life on the planet no longer be, to go back to Thomas Hobbes’ saying „nasty, brutish and short”.

The Evolution of Technology

Even so, while accepting that we cannot do without technology, and that basically we do not want to go back to the past where life was abominable, and far more difficult than now, we continue to find fault with technology for

its ugliness, dirtiness and its evident misdeeds. In fact, not a single person enjoys inhaling the harmful smoke of millions of vehicles circulating the world, and the presence of radioactive and chemical substances in Nature. Pesticides, and fertilizers in our food are alarming, factories, asphalt roads, windmill sites, electric and nuclear power stations are ugly, and if they solve problems, they also create them. Lorries, airports, and motor roads are noisy and render the nearby life unbearable. Technology is offensive to certain aspects of Nature which we love to preserve: cleared forests which are never renewed and give rise to natural landslides, reduced lakes in danger of disappearing (The Aral in Russia, the Dead Sea in Jordan), global warming which can have serious consequences. It seems we are therefore in an impasse: we are dependent on technology, which, however, is destroying our natural milieu. What do we do in tackling this situation?

When we talk of Technology, we must always have two things in mind: the first is that Technology is always the Technology of a certain age. The second is that technical progress accelerates in an exponential way, for a given generation gives birth to new technologies and stands on the discoveries of the preceding generation. In the first place therefore, Technology evolves. Not so long ago, vehicles were running without a catalytic converter; today man is seeking to develop a hybrid car which partly runs on electricity, or solar energy; the goal is that the car be entirely electrical, or solar powered. The two solutions are currently being studied; that is why vehicles using petrol will one day belong to the past, and it is realistic to imagine that they will practically have disappeared toward the middle or the end of the 21st century.

The technology of tomorrow will eliminate certain serious problems that we blame on current technology; it is not therefore by rejecting technology that we will solve these problems, but by developing it. The more a nation invests in research, the more quickly it ends pollution and famine. Secondly we must bear in mind that the rhythm of progress is accelerating. Thus, it is for about a century now that our petrol vehicles have been stinking up our cities and roads, and two centuries that our factories have been poisoning the atmosphere, less time will be necessary to develop solutions, when necessary investments are made (this will depend as much on economic factors and financial interests as scientific feasibility). In his book *The Singularity is Near*⁴⁷ the American inventor Ray Kurzweil explains that technical progress is developing and progressing in an exponential way.

⁴⁷ See Ray Kurzweil, www.kurzweil.net.

The rejection of technology though comprehensible, is at the same time dangerous and naive. It is going to block us from the further development of technology, in those areas where the latter is still clumsy and immature. Whereas it needs to be developed. Reaching maturity, technology will easily integrate itself into Nature, whether it be the environment (which technology will preserve while assuring its safety for man), or our own bodies and clothing. Man cannot do without technology. Without it, he is a slave to a capricious and intransigent Nature, and reduced to an animal life.

Technology is at the same time the expression of human intelligence, and his ally against the natural forces threatening him. The future will be technological or it will not be at all. If man continues to burn petrol, he will destroy climates and the air he breathes, and will depend on natural resources that are being exhausted. If he continues to practice agriculture with pesticides and chemical fertilizers he will impoverish the soil, which cannot regenerate itself. If he sticks to antibiotics, resistant species will become more and more numerous. That is why man must do his best to ensure that technology is developed to its highest point. This is not the best possible choice. It is the only choice.

Plus, we can no longer look at technology in a neutral way, as a sort of toy which we can play with without looking at the consequences of its use. Technology raises an ethical problem of responsibility that we cannot evade. This responsibility demands that we consider our motivations, and notably the economic motivations that we put forward to justify technological development.

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