

A CRITIQUE OF MARTIN HEIDEGGER'S PHILOSOPHY OF TECHNOLOGY: TOWARDS THE NEED FOR APPROPRIATE TECHNOLOGY

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Abstract

Since the dropping of the atomic bomb on Hiroshima and Nagasaki at the end of World War II, lively philosophic reflections have been started concerning the problem of man in relation to modern technology. Moreover, it is doubtless that technology in this modern time impacts on all aspects of human life to a frightening depth and extent unknown to man in earlier ages. Hence, Heidegger's thought on the subject of technology is very relevant in understanding and appreciating the positive and negative impacts of technology on modern world. This paper analytically interrogates the main point of Heidegger's interpretation that modern technology is a provoking/challenging setting-up disclosure/revealing of nature, "which puts to nature the unreasonable *demand* that it supply energy which can be extracted and stored as such." Can this be accepted as the whole truth? Through critical analytic and hermeneutic methods, this paper found out that technology of itself is not dangerous; but our technological behaviours certainly have ethical implications in the sense that there can be good or bad, true or false and, so, our technology can be appropriate or inappropriate. We arrived at the conclusion that what is urgently needed today is an appropriate modern technology, which requires that we reflect on our ends and values before we commit ourselves to the development of new technologies, or even to the continuation and use of certain older ones.

Keywords: Philosophy, Technology, *Technophilia*

Introduction

Nobody doubts the fact that we live today in a technological world. As Albert Borgmann observes, that the world is technological means at least that it is radically novel. It is novel in the sense, for example, that it is in many ways further removed from the 18th century than the 18th is from the 8th century or the Stone Age. Thus, it becomes of interest how we position ourselves with technology to meet our needs in today's world. Technology is found everywhere, and everyone knows and experiences it. Be it mass production, engineering, or medicine, the products and procedures of technology certainly do not suffer from a lack of attention. They are there for everyone to see. According to Borgmann, technology appears as a concerted and unlimited effort at problem-solving. Hence, it seems to offer no resistance to philosophy which, in its vital contemporary form, is also taken to be a problem-solving discipline. Aware of this existing connection between technology and philosophy, one thinks of technology not as a subject of philosophical inquiry as such, but as an enterprise to which philosophy is a central contributor if not a servant (Borgmann 135). Yet there remains a definite task for which philosophy seems to be singularly equipped by tradition and training. That

is to say, philosophy has always attended to the dominant forces of its time by way of clarification and critique. Thus, quasi-philosophical judgments on the benefits, detriments, and the significance of technology are made every day and point up the need for basic principled examination.

The obvious assumption today is that all agree that technology has pervasively and incisively affected our world. Hence, people talk about threats of technology or crisis of modern technology. For, as Alan R. Drengson observes, contemporary Western industrial culture does not exhibit a consensus or a unified approach to technological development. Hence, there is a wide disagreement in our modern society about how we should develop resources, whether or how to exploit animal species, whether and which new technologies to develop, and how to manage our collective activities in relation to individual rights and in relation to the biosphere (Drengson 105). This is why we have today a crisis situation in technology, which is traceable to wrong philosophies of technology under which humanity operates. Drengson identifies two of such wrong philosophies as “technological anarchy,” which stems from the belief that all technology and all technical knowledge are good and should be pursued at all costs. Technological anarchy gives rise later to the second wrong philosophy namely, “technophilia” (the love of technology), which is the situation in which men become full of love or admiration for their own cleverness, with their technique and tricks, their technical devices and processes (106). The application of technology to nearly everything, observes Drengson, stirs counter forces, and the imagined logical end of this pursuit is unacceptable to many people. Hence, there is a natural desire to return to real human autonomy which was originally pursued through technology, but is now seen as frustrated there.

The foregoing is a description of the nature of the danger and crisis of modern human technology in which the whole world finds itself today. However, Martin Heidegger sees something more fundamental regarding the danger and crisis of modern technology that we have sketched above. As Michael Zimmermann observes:

Heidegger believes that once man is blinded to the fact that the essential vocation of human existence is to be the “house of Being” . . . then man himself is able to be regarded as a mere object whose exploitation is justified in quest for more power. Man’s attempt to make himself God ends in the growing wasteland of nihilism. (101)

In this paper, we shall undertake a philosophical critique of Martin Heidegger’s thought on technology and modern technology, respectively, as found in his work, *The Question concerning Technology and other Essays* (1977). In this critique, the views of other philosophers will come in when and where necessary. In the end, we shall try to advance the view that an appropriate technology is of urgent importance today.

Origin of Modern Technology

In tracing the origin of modern technology, Heidegger discussed technology from two perspectives: (a) technology as a mode of disclosing (“bringing-forth”), and (b) technology as “technè”.

(a) Technology as a Mode of Disclosing (“Bringing-forth”)

In the first part of his essay, Heidegger intended to show technology as a mode of disclosing or revealing (Being). The point of departure here is the conception of technology as an instrument –technology as a means to ends. Now, Heidegger underlines that technology is not equivalent to the “essence of technology.” Likewise, that the essence of technology is by no means anything technological. Thus, from this point of view, we shall never experience our relationship to the essence of technology so long as we merely represent and pursue the technological, put up with it, or evade it. Everywhere, says Heidegger, we remain unfree and chained to technology, whether we passionately affirm or deny it. Furthermore, he affirms that an ancient doctrine holds that the essence of a thing is considered to be what the thing is. Thus, we ask the question concerning technology when we ask what it is. According to him, one of the two answers to this question is that technology is a means to an end. In Heidegger’s own words:

One says: Technology is a means to an end. The other says: Technology is a human activity. The two definitions of technology belong together. For to posit ends and procure and utilize the means to them is a human activity. (4)

This is so because, says Heidegger, the manufacture and utilization of equipment, tool, and machines, the manufactured and used things themselves, and the needs and ends that they serve, all belong to what technology is: “The whole complex of these contrivances is technology. Technology itself is a contrivance –in Latin, an *instrumentum*” (5). Thus, Heidegger says that this conception of technology as a means and a human activity can be called the instrumental and anthropological definition of technology. This definition is so uncannily correct that it even holds for modern technology of which, in other respects, we maintain with some justification that it is, in contrast to older handcraft technology, something completely different and therefore new.

Although the definition of technology as an *instrumentum* is acknowledged as correct, yet it is not supposed to bring us to the essence of technology. To point out its insufficiencies, Heidegger unlike most other authors (–who hold that technology is an autonomous product of culture and cannot be interpreted as instrument) attempts to penetrate to a more fundamental conception of the essence of technology by an “ontological analysis of the causal character of the means itself.” This is because a means is that whereby something else is affected and thus attained, namely the end, which itself determines the nature of the means. In Heidegger’s words:

A means is that whereby something is affected and thus attained. Whatever has an effect as its consequence is called a cause. But not only that by means of which something else is affected is a cause. The end that determines the kind of means to be used may also be considered a cause. Wherever ends are pursued and means are employed, wherever instrumentality reigns, there reigns causality. (6)

Following Heidegger's view of the Greek conception of the four causes, the material cause is the matter out of which, for example, a silver chalice is made. The formal cause is the shape into which the material enters. The final cause is the end, for example, the sacrificial rite in relation to which the required chalice is determined as to its form and matter. The efficient cause is that which brings about the effect that is finished (–the actual chalice), in this case, the silversmith. Thus, what technology is, says Heidegger, when represented as a means, *discloses itself* when we trace instrumentality back to a fourfold causality, which doctrine is traced back to Aristotle (8).

(b) Technology: from “Technè”

Heidegger says that the thesis that technology is no mere means but that the essence of technology is the realm of revealing should strike us as strange. In order to arrive at the full implication of this assertion, we have to take seriously the simple question of what the term “technology” means. According to him, the word is of Greek origin: *Technikon* means that which belongs to *technè*. According to Heidegger, one should understand two things about the meaning of *technè*: “One is that *technè* is the name not only for the activities and skills of the craftsman but also for the fine arts. *Technè* belongs to bringing-forth, to *poësis*; it is something poetic” (13). The second thing we should understand about *technè* is even more important, says Heidegger:

From the earliest time till Plato, the word *technè* is linked with the word *epistèmè*. Both words are terms of knowing in the widest sense. They mean to be entirely at home in something, to understand and be expert in it. Some knowing provides an opening up. As an opening up, it is a revealing. (13)

In this effort to justify the assertion that technology is a mode of disclosing or revealing, Heidegger of necessity makes reference to Aristotle (*Nichomachean Ethics* Bk. VI, chaps. 3 & 4). According to him, Aristotle distinguishes between *epistèmè* and *technè* and indeed with respect to *what* and *how* they reveal. *Technè* is the mode of *alètheuein*. It reveals what does not bring itself forth and does not yet lie here before us, whatever can look and turn out one way and now another. Whoever builds a house or a ship or forges a sacrificial chalice reveals what is to be brought-forth, according to the terms of the four modes of occasioning. This revealing gathers together in advance the aspect and the matter of a ship or house, with the view to the finished thing envisaged as completed, and from this gathering determines the manner of its construction. Thus, says Heidegger, what is decisive

in *technè* does not at all lie in making and manipulating, nor is the using of means, but rather in the revealing mentioned before: "It is as revealing, and not as manufacturing, that *technè* is a bringing-forth" (13). Thus, the clue to what the word *technè* means and to how the Greeks defined it leads us into the same context that opened itself to us when we pursued the question of what instrumentality as such in truth might be. Heidegger reaffirms his assertion that technology is a mode of disclosing: "Technology is a mode of revealing. Technology comes to presence in the realm where revealing and unconcealment take place, where *alètheia*, truth, happens" (13).

Modern Technology: The Heideggerian Perspective

To the question, "What is modern technology?" Heidegger again replies that "it too is a revealing" (14). For him, it is necessary to pay strict attention to this fundamental feature of "revealing" in order to grasp fully that which is new in modern technology. According to him, modern technology is a provoking setting-up disclosure. However, it is not a disclosure or revealing in the sense of "*poièsis*" but, rather, a revealing in the sense of a "challenging" (*Herausfordern*: provocation). In the words of Heidegger: "The revealing that rules in modern technology is a challenging (*Herausfordern*), which puts to nature the unreasonable demand that it supply energy which can be extracted and stored as such" (14). Hence, it is not a revealing or bringing-forth in the sense of the Greek *technè*, but a provoking or challenging sort. For example, a track of land can be provoked or challenged into yielding coal or ore. This part of the earth now reveals itself as a coal mining district, the soil as a mineral deposit. The field was formerly tended (set in order) by the farmer, i.e., enclosed and cultivated. Today the cultivation has come under the grip of another kind of setting-in-order, which sets upon nature. In other words, it is tended in an entirely different sense by the motorized food industry and artificial fertilization, i.e., it is provoked or challenged. The air is set up so as to yield nitrogen. The Rhine River, in which the power plant is set –but which more properly speaking is channeled into the power plant –is set up by the latter to its water pressure, which sets ("*daraufhinstellt*") the turbines turning, and the turning drives those machines whose driving puts out ("*herstellt*") electric current, for whose transmission the power station and its grid are set up ("*bestellt*") to distribute electricity. But also, a scenic River, the Rhine, is an object able to be set up ("*bestellbar*") for viewing by tourism, which set up a vacation industry there. Thus, says Heidegger, the revealing that happens in modern technology has a feature of provoking, in that the energy concealed in nature is unlocked and transformed and distributed over and over again. In Heidegger's words:

The ruling that rules throughout modern technology has the character of a setting-upon, in the sense of a challenging-forth. Such challenging happens in that the energy concealed in nature is unlocked . . . transformed . . . stored . . . in turn distributed, and what is distributed is switched about ever anew. (16)

Thus, observes Heidegger, the unlocking, transforming, storing, distributing, and switching about are ways of revealing. But the revealing never simply comes to an

end. Regulating and securing even becomes the chief characteristics of the revealing that challenges or sets up. The term “to set up” (“stellen”) here means that the Rhine, for example, does not simply appear in the manner in which a natural object is regarded, but is set up and re-set (“ungestellt”) to a definite purpose, i.e., challenged in its essence.

Danger of Modern Technology

From all we have seen above, it turns out that, according to Heidegger, the greatest danger of technology springs from the fate (destiny) of technology as “Gestell.” Heidegger affirms that the essence of technology shows itself in what he calls “enframing” (*Gestell*). What is actually enframing? According to him:

Enframing is the gathering together which belongs to that setting-upon which challenges man and puts him in position to reveal the actual, in the mode of ordering, as standing-reserve. (24)

In other words, says Heidegger, enframing is nothing technological, nothing in the order of machine. It is rather the way in which the actual reveals itself as standing-reserve. But such revealing does neither happen exclusively in man, or definitively through man. As the one who is challenged forth in this way, man stands within the essential realm of enframing. He never takes up a relationship to it, only subsequently. Thus, the question as to how we are to arrive at a relationship to the essence technology, asked in this way, always comes too late. But the question as to whether we actually experience ourselves as the ones whose activities everywhere, public and private, are challenged forth by enframing never comes too late.

Where then precisely lies the danger of modern technology? According to Heidegger, the danger lies in the fact that the essence of technology is enframing, and its holding sway belongs within destining; and destining at any given time starts man on a way of revealing. Seen from this point of view, Heidegger maintains that “. . . man, thus under way, is continually approaching the brink of the possibility of pursuing and promulgating nothing but what is revealed in ordering, and of deriving all its standards on this basis” (24). In other words, contemporary man proceeds continually in pursuing only that which is disclosed in the setting-up, taking all criteria from this. This shuts up the other possibility for man to gain access more and more to the essence of the unconcealed and its unconcealment which enables man to experience the necessary belongingness to disclosing as his essence. Thus, says Heidegger: “Placed between these possibilities, man is endangered by destining. This destining of revealing is as such, in every one of its modes, and therefore necessarily, danger” (26). But the greatest danger, according to Heidegger, lies in the fact that the unconcealed no longer concerns man even as an object but exclusively as stock, so that man remains only the one who sets up the stock. In Heidegger’s words:

As soon as what is unconcealed no longer concerns man even as object, but exclusively as standing-reserve, and man in the midst of objectlessness is nothing but the order of the standing-reserve, then

he comes to the very brink of a precipitous fall; that is, he comes to the point where he himself will have to be taken as standing-reserve. (26-27)

This situation, for Heidegger, is the first sign of the supreme danger when destining reigns in the mode of enframing (*Gestell*). Then again, man as the one so threatened dresses himself up into the figure of lord of the earth. And from this deceptive appearance arises that everything confronting him is only a creation of man, who henceforth confronts himself alone. In the words of Heidegger:

“... man ... so threatened, exalts himself and postures as lord of the earth. In this way, the illusion comes to prevail that everything man encounters exists only insofar as it is his construct. This illusion gives rise in turn to one final delusion: it seems as though man everywhere and always encounters only himself. (26-27)

The truth, says Heidegger, is that precisely nowhere does man today any longer encounter himself, i.e., his essence. The above Heideggerian view of the danger of technology is rooted in the exercise of power by the enframing (*Gestell*), which requires that nature be able to be set up as stock.

A Critique of Heidegger's View

Among many criticisms of Heidegger's thought concerning technology, one finds that of Simon Moser more insightful. Moser believes that there is no philosopher of technology today, let alone a metaphysician of technology. However, among interesting positions expressed on the subject of technology, he finds that of Heidegger on *The Question Concerning Technology* standing out. The reason, says Moser, is:

... because it attempts to evaluate the essence of technology metaphysically or ontologically; moreover it compares modern technology with ancient technè and in the end it reveals an inner sympathy with the development tendencies of modern technology. (144)

Thus, Moser observes that Heidegger's treatise is metaphysical in that it assumes from the start that technology is not the same as the essence of technology. For example, one might say that that which makes each tree to be a tree is not itself a tree. Hence, Heidegger could assert that the essence of technology is not something technological at all, like those things which we know as rods, pistons, and scaffolds, and which make up what is called assemblage. Machine, apparatus, etc, do not present the essence of technology; at most it could be read out of them in the way the essence of tree can be read out from fig tree. But then, there is the question whether the relation between tree and fig, which is one of genus and species, be compared with that of technology and the technological aspect of machines and apparatus. Moser rather thinks that we ought to think very carefully about everything technological in order to track down the essence of technology since, in any case, there is nothing clear about these relations to begin with. Yet

there is the opposite danger of remaining involved in the particulars of technological things and not penetrating to that which technology could perhaps be in the way of a total event as an historical process.

Another interesting point in Heidegger's view on technology is his notion of modern technology as a provoking setting-up disclosure, which "sets the demand upon nature to deliver energy." Moser observes that this could imply the personification of nature; in which case, nature so provoked could one day rise up and strike back against man, the provoker. For example, could the production of coal and ore be a provocation of the land? As Moser observes, to produce ("fordern") coal is not to demand ("foerdern") coal of nature; and oil drilling and the working of coal seems no doubt really to take place without this provoking conduct. The metaphorical feature of the expression "compel" (or "demand") lies in the fact that, in its proper sense, it signifies coercion of man or animal and, so, not an appropriate analogy when applied to inorganic nature. Thus, Moser affirms that the contrary of Heidegger's principal thesis, as we saw above, would then be that modern technology is not primarily a provoking setting-up disclosure of nature, but rather a bringing-forth in the sense of Aristotelean *technè* (i.e., a human habit capable of producing, that is, bound up with logos, reason), even though it utilizes all the laws of modern sciences. Therefore, one must understand "bringing-forth" in modern technology in the straight-forward sense of producing, creating, making, and likewise take *technè* in the more straight-forward sense meaning shown above –as human production bound up with reason.

As a follow-up to the above discussion on the concepts of "setting-up" and "provoking" nature as a feature of modern technology, Moser argues further that Heidegger's thesis "concerning the provocation of nature is not a theory of rapacious exploitation" (148). Accordingly, he says, because Heidegger avoids with critical caution the whole question of plundering and exhausting nature, yet the world where we all dwell is rural, aristocratic, old-fashioned, a world of *physis* and of "wilderness," of the mystery and the treasure. Moreover, one finds nowhere in the foreground of technological phenomenon the evidence that man is provoked to take nature as a mere stock, except perhaps in the fact that the colossal increase of humanity in the last century and a half has compelled man to look around for newer and newer sources of energy and supplies of raw materials. Thus, and even at that, the thesis that "Being" provokes man to provoke nature and that man is unable to extricate himself from this situation under his own power is hard to maintain and defend.

Evaluation

(a) Further Danger of Modern Technology

Toward the end of the essay on "The Question Concerning Technology," Heidegger makes these vital affirmations:

What is dangerous is not technology. Technology is not demonic; but its essence is mysterious. The essence of technology, as a destiny of revealing, is the danger" (28).

Looking at the above assertions, and from all we have seen so far, we cannot deny that there are certainly elements of truth, though not the whole truth, contained in Heidegger's treatise on technology in general and modern technology in particular. For we cannot deny today that there is a general narrowness of outlook in modern technology in relation to theoretical, artistic, and religious truths, which is certainly dangerous for man.

Thus, Alan R. Drengson has pointed out that one real danger in relation to modern technology lies in the attitude he describes as "technological anarchy" which, according to him, "has been a dominant philosophy throughout much of the industrial West." Explaining this philosophy, Drengson says:

In brief, technological anarchy is the philosophy that all technology and all technical knowledge are good and should be pursued. Whatever can be done (provided it is not insane), should be done. (106)

The danger in technological anarchy lies in the tendency to abhor most government regulations over technology and market. There should be none, or at least the fewer such regulations the better. However, as Drengson observes, this attitude is unsustainable, since minimal order must prevail and there is an urgent need, for example, to prevent some hazards to environments. Technological anarchy is tantamount to the philosophy of exuberant and curious youths. Hence, it stimulates rapid technological development and encourages the development of technological diversity. The inner danger to technological anarchy is that, at a point, technology which was originally pursued as an instrument (a means) to satisfy human desires and needs tends to become an end in itself. Where this stage is reached, technological anarchy gives way to yet another danger, namely "technophilia" (love of technology). According to Drengson, *technophilia* as a characteristic feature of modern technology gives rise to a situation in which "humans become enamoured with their own cleverness, with their techniques and tricks, their technical devices and processes. The products of technology become our toy, technology our game" (106). In this situation, contemporary man begins to identify with the objects of his love. The danger lies in the fact that there exists the tendency that these objects of our love begin to control us, as our unconscious identification with them invests its objects with our person. Further, this identification becomes a form of control over us, since we are unable to dissociate ourselves from our technology and then cannot see it objectively. For example, we can be so much in love with automobiles that they become extensions of ourselves. Thus, any "insults" to them is regarded as personal affronts which, in some cases, can over threaten one's identity. What follows next is that we lose an objective understanding of the positive and negative features of the technology of the automobile –which includes the whole process of factories, gas stations, parking lots, roads, freeways, legal structures, etc. Thus, although the automobile was first a means to an end, namely transportation, it and its supporting structure eventually become a dominant feature of the culture as a whole. Cities, land use, and even

economic well-being tend to become entangled with the technology of the automobile. One sees then that what began as an instrumental value, as a means to an end (–which was transportation), has now become an end in itself, and this paradoxically works to frustrate the human values involved. In the end, the technology of the automobile can become a threat to life and health, and even to the way of life of the people. This particular example of automobile technology can be extended to other technologies, and the story is the same everywhere today.

Thus, the real danger of *technophilia*, as the love of technology, is that it turns the pursuit of technology into the main end of life. As Drengson observes, *technophilia* aims to apply technology to everything: to education, government, trade, office work, health care, personal psychology, sex, entertainment industry, etc. In this way, technology becomes technocracy, a governing force in almost every aspect of life –man becomes technology driven by its own love of technicals and of techniques. Thus, the application of technology to nearly everything (technocracy), which is a logical consequence of *technophilia*, stirs counter forces, and the imagined logical end of this pursuit becomes unacceptable to many people. In other words, as we pass from youthful exuberance to adolescence and reaches adulthood, the love affair with technology cools off as the process of maturation leads many people to realize that technology is becoming an autonomous controlling force endangering human and non-human values on earth. Many begin to realize that even the biosphere as a whole becomes gravely threatened by the products and process of modern technological activity. It is to realize that we have reached the situation in which humanity is threatened by technology run out of human control, as seen in the dropping of atomic bomb in Hiroshima and Nagasaki by the United States' air force. However, Heidegger should not be regarded as an enemy of technology and science. For, he did not reject them as though they are only destructive to human life.

(b) Need for Appropriate Technology

Today, as Donald Brinkmann rightly observes, “technology penetrates the whole realm of human life to an extent and depth never before attained” (122). In spite of the dangers in modern technology, no one would wish to maintain that technology of itself be deplored. Heidegger did not do so. He affirmed that “technology is not demonic.” Many philosopher-scientists would also agree with him. Where there would be lack of consensus is on the unified approach to technological development. Hence, Drengson rightly observes that:

There is wide disagreement in our society about how we should develop resources, whether or how to exploit animal specie, whether and which new technologies to develop and how to manage our collective activities in relation to individual rights and in relation to biosphere. (105)

Therefore, what is to be emphasized today in our modern society is the urgent need for all to appreciate the fact that there is a necessary relation between technology and the nature of man. As Carl Mitcham and Robert Mackey point out, we need to

“emphasize that man’s choice of technologies reveals the ontological relation between technology and modern society, and try to understand modern technology in terms of that relationship” (102-103). Thus, since technology is first of all a kind of knowledge, as Heidegger said earlier, and since knowledge is propositionally true or false, there can be true or false technology, good or bad technology or, what comes to the same thing, appropriate or inappropriate technology. In order to develop and manage our collective activities in relation to individual rights and in relation to the biosphere, what humanity needs today is appropriate modern technology. Drengson gives an idea of the requirement of this type of technology:

Appropriate technology requires that we reflect on our ends and values before we commit ourselves to the development of new technologies, or even to the continuation and use of certain older ones. (109)

Furthermore, he explains that that, as in mature love (as it concerns technophilia), one becomes capable of compassion and helping others to attain their ends. So also in appropriate technology, we reach a stage in which we become capable of mastering our technology as instrumental to ends about which we become progressively clear. In the case of research, for example, we realize that not all researches are worthy of our pursuit, and that there are other broader issues that take precedence over the flash of technique and tool. Thus, human and non-human values take precedence over mere curiosity. Consequently, a central importance is placed on the compatibility between a proposed (or existing) technology, human wellbeing and ecosystem integrity.

Accordingly, in philosophy of appropriate technology, technologies should be designed in order to fulfill the following conditions or requirements: they should promote diversity; promote benign interaction between humans, their machines and the biosphere; dynamically balance all costs; and they should be technologies which promote human development through use. For example, as diversity is one of the features of stable ecosystems and stable economies, diverse technologies provide a large range of options to individuals and to further social development. Friendly symbiotic interaction between technology and the biosphere are necessary features of future technologies, if we are to develop sustainable economies. And when technologies evolve to the level of appropriateness, they can be designed in such a way as to promote human development.

Thus, the emphasis on appropriate modern technology involves a deliberate effort to transform the technological process to an art. When such obtains, then the technological processes become life-promoting, rather than life-threatening. For, then, technology is designed to enhance human persons, ecological and cultural integrity. From what we have seen already, one sees that technology cannot be separated from the selves that create and perpetuate it. This is why, in the final analysis, the purpose of appropriate technology is to transform man’s relationship

with technology in order to add real values to man's life. In the words of Drengson:

Ultimately, appropriate technology aims to transform our relationship to technology in such a way that it becomes a means to the realization of values fully understood. This means that the limits of technology are clearly perceived, the values of simplicity realized. (110)

Consequently, appropriate technology emphasizes technological mastery and creation which involves the capacity to transcend technology and much human dependence on it. At the same time, it opens endless possibilities for the creation of new appropriate technologies. This is why earlier we refused to agree with Heidegger's idea that, in technology, man is "set-up" (as "stock") to subsequently go on setting-up nature as standing-reserve or stock. Appropriate technology encompasses the possibility of mastery and creativity and freedom. There is the possibility of self-mastery that transcends self-manipulation and the desire to control others. Thus, the end or purpose of technology is seen to lie beyond technology in the realization of human possibilities in the value of persons, in creative community and in communion with nature. This is the ultimate *raison d'être* of a fully mature, appropriate technology.

Conclusion

Going through Heidegger's thought concerning technology naturally could not have been easier. However, Heidegger's thought on the subject of technology is very relevant in understanding and appreciating the positive and negative impacts of technology on modern world. For, since the dropping of the atom bomb on Hiroshima and Nagasaki at the end of World War II, lively philosophic debates have been going on concerning the problem of man in relation to modern technology. Moreover, there is no doubt that technology in this modern age impacts on all aspects of human life to a frightening depth and extent unknown to man in earlier ages. However, the main point of Heidegger's interpretation that modern technology as a provoking/challenging, setting-up disclosure of nature cannot be accepted as the whole truth. Modern technology is the application of theoretical knowledge of nature to the most diverse areas of life in the interest of objectives set by men. Thus, the science of nature and the satisfaction of human needs constitute a specific unity in technology.

Finally, we conclude that technology of itself is not dangerous. However, our technological behaviours definitely have ethical implications, in the sense that there can be good or bad, true or false and, so, our technology can be appropriate or inappropriate. Therefore, it must be emphasized that our approach to technology must involve the self-mastery necessary for its wise use. Thus, it must also be affirmed that we need today an appropriate technology whose philosophy applies technology to the world in a respectful way, unlike technophilia that seeks to impose technology upon the world. Hence, an appropriate technologist is

respectful of the values in the world, whereas the technocratic mind attempts to impose patterns of his own division on the world. The aim of appropriate technology is to understand the world and appreciate it, so that human beings can interact freely with it to realize a maximum of reciprocal values, such as wonder, delight, compassion, and so on. For, if we only believe that happiness and value can only be attained by mastering the world through manipulation and control, then we will be engaged in the endless pursuit of an elusive goal. Consequently, we will be damaging the earth's ecosystems since they will be approached only as stocks or resources ("standing-reserve") to be exploited. This has proved to be the bane of modern technology and the concomitant crisis. For, as already observed, man's attempt to make himself "lord," to dominate, control and exploit nature in a destructive manner through modern technology can only end in disillusionment and crisis.

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References

- Borgmann, Albert. "Orientation in Technology." *Philosophy Today*, vol. 16, no. 2/4, Summer 1972, 135-147.
- Brinkmann, Donald. "Technology as Philosophic Problem." *Philosophy Today*, vol. 15, no. 2/4, Summer 1971, pp. 122-128.
- Drengson, Alan R. "Four Philosophies of Technology." *Philosophy Today*, vol. 26, no. 2/4, Summer 1982, pp. 103-117.
- Dunn, P. D. *Appropriate Technology: Technology with a Human Face*. Schochen Books, 1978.
- Ellui, J. *The Technological Society*. Vintage, 1964.
- Heidegger, M. *Being and Time*. Trans. by John Macquarrie and Edward Robinson. Harper Row, 1962.
- — —. *The Question Concerning Technology; and Other Essays*. Transl. by William Lovitt. Harper and Row Publishers, 1977.
- Mitcham, Carl et al., eds. *Philosophy of Technology*. Free Press, 1972.
- Mitcham, Carl & Robert Machey. "Jacque Ellui and the Technological Society." *Philosophy Today*, vol. 15, no. 2/4, Summer 1971.
- Moser, Simon. "Toward Metaphysics of Technology." *Philosophy Today*, vol. 15, no. 2/4, 1971, pp. 129-156.
- Tawney, R. H. *The Acquisitive Society*. Harvest Books, 1948.

Zimmermann, Michael. "Marx and Heidegger on the Technological Domination of Nature." *Philosophy Today*, vol. 25, Summer 1979, pp. 99-112.