CHAPTER 5: TECHNOLOGY

Technology is not demonic, but its essence is mysterious.[1]

This chapter is divided into two sections. In the first part of the chapter, I explore Heidegger's views on technology in detail. I include a section dealing with Heidegger's thought on science, in order to understand how science and technology are related in Heidegger's thought. My focus will be on Heidegger's conception of *Das Ge-stell* as the manner in which Being manifests itself in the age of technology; and *Bestand* as Heidegger's word for 'standing reserve' – the way in which all things including human being are revealed in this age. The second part of this chapter includes a discussion of Heidegger's concept of *Gelassenheit* and his suggestions for the 'overcoming' of the calculative thinking that have become all-pervasive in the age of technology. I reserve my critical appreciation of his ideas on technology for the final chapter of this study.

5.1. Technology and the Danger
5.1.1 What is technology?

In our time, technology has become a major concern for us. Every person in our society is touched by technology. In fact, 'our lives are technologically textured for most waking moments.'[2] We are seduced by the power of technology. We cannot fail to see how its products and processes have influenced our ways of thinking and acting, indeed, the very character of our lives.

Yet, technology increasingly evokes fear and trepidation in us when we look at the rapid destruction of the earth's resources and the possibilities for self-destruction that technology has placed in our hands. Technology seems to have become the central, endangering phenomenon of our times. Still, many believe that we will find solutions for the crises that we face as a result of our technological over-zealousness, and that we will find these solutions in technology itself. After all, it is *our* technology, one that will surely open up new possibilities to overcome these difficulties. We are the masters of technology; we cannot allow ourselves to be mastered by it.

5.1.2 Heidegger on Technology.

In the decades after the Second World War, Heidegger's writings on modernity came to focus explicitly on the problem of technology. Although only two essays *The Question concerning Technology* and *The Turning* are explicitly devoted to it, technology is a primary issue in all of Heidegger's work subsequent to 1930.

In ordinary German, *Technik* means both technology and technique[3], yet Heidegger does not see technology in this conventional manner. Rather, for Heidegger, 'Technology is a way of revealing.'[4] Essentially, then, technology is not about machines, complex techniques or the manufacture of artefacts in Heidegger's conception. The essence of technology is itself not technological. As Heidegger sums it up: 'Our age is not a technological age because it is the age of the machine; it is the age of the machine because it is the technological age.'[5]

Heidegger does acknowledge the fundamental relation between machines and technology[6], but views the modern production of machines merely as a ramification of a particular way of thinking. Machine technology is therefore just the most obvious outgrowth of modern technology. In Heidegger's ontological perspective, technology is neither neutral[7] nor instrumental. It signifies a particular mode of disclosure. It reveals Being in a particular way.

According to Heidegger, the major epochs in Western history are actually stages in the steady decline in Western human being's understanding of what it means to 'be'.

Technological modernity was anticipated by the Greek *epistēme*, combined with the Christian conception of an external nature subordinated to man. Heidegger cements the originality of these interpretations by viewing metaphysics as the only, leading allotment of beings - it is in the light of the withdrawal of Being that the technological-scientific epoch is revealed for what it is.

The final element that Heidegger adds - the essential link in his history of metaphysics - is the securing of truth as certainty, and of thought as representation[8]. Without the cogito and the instituting of the subject-object correlation, the technological-scientific era would remain incomprehensible.

In the technological age, for something to 'be' means for it to be raw material - part of the endless process of production and consumption. For Heidegger, the horror of the technological age is that human beings are also seen as raw material[9]. Thus, the 'question concerning technology' is ultimately a question about human dignity.

Modern technology reveals the world in the manner of a challenging forth (*Herausfordern*)[10] and not in the manner of a leading forth from concealment into unconcealment (*her-vor-bringen*). This challenging forth confronts what lies in potential by extracting it in order to use it, and not as a phenomenologically discoverable essence in need of safeguarding. This challenging forth unlocks and exposes; and is always directed at something else - the maximum yield at the minimum expense. The goal of technology as a whole is thus the endless pursuit of efficiency in the exploitation of resources.

For Heidegger, technology possesses a highly ambiguous nature: it is dangerous, since it is the supreme provocation, and yet it is salutary, since we have no other access to the truth of Being in our times[11]. How does Heidegger come to view technology as a way of revealing, as the way in which modern human beings accesses truth?

5.1.3 Technē

Reflecting on the ancient Greeks, Heidegger notes that the root of the word 'technology' is technē. For the Greeks, technē meant a revelation of something, an uncovering or a bringing to light. The word technē according to Heidegger then means a mode of knowing. Thus, we can see that from his reflections on the Greek technē, Heidegger can conclude that modern technology is also a manner of bringing forth out of concealedness. Heidegger notes that the manner in which modern technology reveals what is concealed is very different from that of the ancient Greeks. The Greek experience of technē was a revealing of what lay in potential. Hence, technē was a form of 'care', a way of enticing from beings their potential forms and functions. Heidegger tells us that:

> Technology is in its essence a destiny within the history of Being and of the truth of Being, a truth that lies in oblivion. For technology does not go back to the *technē* of the Greeks in name only but derives historically and essentially from *technē* as a mode of *alētheuein*, a mode, that is, of

rendering beings manifest [*Offenbarmachen*]. As a form of truth technology is grounded in the history of metaphysics, which is itself a distinctive and up to now the only perceptible phase of the history of Being.[12]

Techne̅ is one particular mode of openness to beings, which describes the human being's solicitous relationship to the world. This solicitation is the burden of freedom. Human freedom has not typically been identified with the solicitation of what lies in potential, but rather with the power to posses and master the actual. Modern technology receives its defining characteristics from this power of appropriation. I will discuss Heidegger's view of freedom in more detail presently.

5.1.4 *Bestand* (Standing Reserve)

In the endless technological drive for efficiency, the earth, its creatures and our fellow human beings are reduced to the status of raw material - Heidegger's word for this is 'standing reserve' (*Bestand*). The world as a whole becomes standing reserve. Now, 'everything is ordered to stand by, to be immediately on hand, indeed to stand there just so that it may be on call for a further ordering.'[13]

For Heidegger, the most dangerous result of this view is that other human beings also are regarded as 'standing reserve'. In the technological era, 'No longer are individuals "commanding presences" for each other; they have become disposable experiences that can be turned on and off like water from a faucet.'[14]

5.1.5 *Das Ge-stell* (Enframing)

In the decades after the Second World War, Heidegger's writings on modernity came to focus explicitly on the term *das Ge-stell*, which he uses as a key expression when describing the nature of modern technology.

Varying English translations exist for the term *das Ge-stell*, the term Heidegger uses to describe the essence of technology. Theodore Kisiel, for example, suggests 'composite'[15], stressing the 'provocative positing' involved. Joseph Kockelmans uses 'the com-positing'[16], while Albert Hofstadter uses 'enframing'[17]. I will use Hofstadter's

translation, since I feel that it most accurately expresses the idea that *das Ge-stell* allows human beings only to reveal reality as standing reserve (*Bestand*).

According to Heidegger, enframing is the manner in which Being manifests itself in the age of technology[18]. Enframing allows human being to reveal reality as standing reserve (*Bestand*). In this sense, technology is totalising. It reduces the metaphorical, expressive powers of language and thinking, in order to make reality calculable and manipulable. For Heidegger, enframing is the supreme danger, because it causes the event of revealing (Being itself) to slip into oblivion. As a result, human being is no longer Dasein as an open possibility, but rather a grounded actuality, a fixed identity. A human being fully adapted to the technological world would no longer be a human being, because of his complete forgetfulness of Being.

As we have seen, the development of a new machine, artefact or set of procedures is of secondary importance to Heidegger. To him, the totalising reach of enframing as a particular mode of human being is most important. Machines are only an example of that which awaits use as standing reserve and integrates the world as standing reserve.

There are three respects in which the character of Ge-stell as the highest danger is manifest. Firstly, there is contained in it the impending possibility that human being may come to take the measure of all things only in relation to an uncovering which provokes, and that thereby he will decisively drive out every other possibility of revealing[19]. *Das Ge-stell* thus endangers human being's relationship to things. Secondly, *das Ge-stell* represents the highest danger by the fact that it poses a threat to human being's own relation to himself to the extent that provoking-uncovering is taken as the standard by which human being is measured. Human being is seen as *Bestand*, and yet he continues to give himself airs of being master on earth[20]. Everything that comes into contact with technology becomes uniformly subsumed into a framework of sufficiently exploited resources. Modern technology has no boundaries or limits and so in the end, humanity itself becomes another element of technological ordering. Humanity as the only producer and consumer of technology becomes that which technology primarily produces and consumes.

The third danger is that human being now nowhere encounters himself in his essence, since he always encounters himself as a subject of, never as subject to the

call under which he stands[21]. *Das Ge-stell* threatens human being's entrance into a domain in which he can remember Being.

5.1.6 Technology and Metaphysics

Modern technology and metaphysics are completely entwined in Heidegger's view. In fact, they are largely equivalent terms. This is because the 'Enlightenment directive' to control and standardise life follows from the metaphysical drive to objectify the world. Both modern technology and metaphysics are a result of a refusal to think Being, in their systematic effort to exert mastery over beings[22]. Yet, neither technology nor metaphysics allows us a proper perspective from which to evaluate the other. Technology entices us into a productive process that disallows questioning thought - the kind of questioning that would properly reveal the nature of metaphysics. Metaphysical humankind, on the other hand, engaged as a subject in the reductive objectification of beings, cannot do other than exhibit a technological apprehension and manipulation of the world.

Technology is the main historical manifestation of the subjectivism introduced by Western metaphysical thought[23]. Metaphysical subjectivism views the human being as a subject standing before an object of perception. This view of the world as an object results in its instrumental use and domination. The subjectivism underlying modern technology has evolved into a radical humanism[24], i.e., it has become a species-level orientation, an objectifying anthropocentrism. It is important to remember that technological activity, the development of techniques and the production of artefacts, is not the origin of this subjectivism, but rather a ramification of it.

In his discussion of the emerging world picture in *The Age of the World Picture*[25], Heidegger further illuminates the nature of species subjectivism. The world conceived as a picture is a metaphysical reduction of the world to a human representation. Now, the inclusive representation of the world as an object becomes the basic human experience and the world picture becomes humanity's main measure of reality. The emergence of the technology of 'Virtual reality' is particularly insightful in this regard.[26] In a 'virtual world' one experiences and directs the course of sights, sounds and sensations made available through sophisticated computer simulations. By 'world picture', Heidegger means that we have effectively reduced the world to our representation of it. The human subject, in effect, begins to 'create' his own reality.

Wherever he looks, 'man everywhere and always encounters only himself.'[27] All that exists does so because it is represented or produced by us.

Heidegger believed that the crisis of modernity, exemplified as it was in the political and social chaos of the Weimar republic, no longer allowed any scope for a new philosophical point of view. All that remained was to reflect upon the crisis of modernity. For Heidegger, the essence of this crisis lay in the hegemony of technological thinking in the modern age, made possible by a subjectivist and destructive interference into familiar and well-understood relations between humanity and its environment. He related the essence of modern technological intervention in humankind's traditional relation with the environment as the culmination of the history of metaphysics[28]. This was initiated when Plato postulated the idea as a perceivable value - the idea of the good – and was fulfilled in Nietzsche's conception of the Will to Power as the wilful and subjectivist positing of values. Heidegger claimed that a 'new' philosophy would simply continue this subjectivist positing of values, and so proclaimed in *The End of Philosophy and the Task of Thinking*[29] that a new kind of thinking, which is neither philosophy, metaphysics nor science could perhaps create the possibility of overcoming the modern world's technological-scientific-industrial character as the sole criterion of human being's world sojourn[30].

5.1.7 Technology and Ontology

Technology is ontologically devastating, because it usurps all other modes of revelation. With everything standing in reserve for our use, 'distance' disappears[31]. Here, Heidegger is referring to distance as an existential sense of our proximity to horizons: those between earth and sky, mortals and immortals. This blurring of borders is the main sign of an unconditioned anthropomorphism. This is not only an anthropomorphism that objectifies the world in order to exploit it, but also one that creates the world in its own image, where everything that humankind comes into contact with becomes an extension of itself.

Technology distances us from the world as a fourfold home in need of preservation. The sky, for example was always beyond human reach, worthy of contemplation for its otherness. Now, it has become an integrated standing reserve. It soaks up our gaseous wastes, it has become a port for thousands of satellites, it has become an object of increasing militarisation, and its clouds are 'seeded' to extort precipitation. With each passing day, the likelihood increases that we will look up into the heavens,

or deep within nature, and the only impressions we will receive will be those made with our own hands.

Yet, human being as Dasein necessarily inhabits a 'there' and so can never encounter only himself[32]. Since human being is a thinking being-in-the-world, a situated and limited being, Heidegger can show that the ultimate victory of technological humankind is a delusion. Its reign would, however, not be any less catastrophic, because delusion may become accepted as reality. Human nature and human freedom[33], in Heidegger's special sense of the word, still lie in the balance.

5.1.8 The Danger

The danger, therefore, is for Heidegger not the potential physical self-annihilation of humanity, but rather that intensive technological production will overpower man's capacity for manifold modes of disclosure. Philosophic thought would be replaced with utilitarian cognition; artistic creativity would atrophy as a result of endless innovative production, and political action would be obviated by social engineering. Heidegger's fear is that someday, calculative thinking would be accepted and practised as the only way of thinking. Calculative thinking is that mode of any type of thought that deals with the quantifiable and the measurable; it is that mode of cognition that neatly categorises all of reality into thingly structures. 'Calculation refuses to let anything appear except what is countable ... Calculative thinking compels itself into a compulsion to master everything on the basis of the consequential correctness of its procedure.'[34] Most disturbing of all is that technological calculation and innovation may satisfy our material needs and our diminished spiritual needs to such an extent that we would not even notice what we had lost.

It is important to note that Heidegger in his criticism of calculative thinking is in no way attempting to deny any validity to it. He does however fear that calculative thinking might one day become the only way of thinking, as a result of human being being so captivated by the technological revolution. Calculative thinking admittedly has validity, but only in its own realm – the realm of objects.

According to Heidegger, 'Devastation is the high-velocity expulsion of Mnemosyne.'[35] Mnemosyne means remembrance, not in the sense of simply a recollection of what was, but also as a constant, intimate concentration on worldly affairs and things[36].

The expulsion of memory is therefore the loss of the capacity to abide by, rather than challenge forth the world. Once the fourfold is reduced to an extension of our cerebral computations, our capacity to dwell within its horizons disappears. We are left truly homeless.

5.1.9 Homelessness

Heidegger claims that the *Heimatlosigkeit* (homelessness) of contemporary human being is related to the 'dis-essencing' of language and thinking. *Das Ge-stell* does not coincidentally occur in the age of homelessness. It is the root from which this condition grows. The fixating of truth within *Das Ge-stell* exiles human being from his essence, namely to be Dasein. There is no longer a relation to the openness of Being, for the possible becomes identical to the real. Homelessness therefore consists in the abandonment of Being by beings[37].

Heidegger's word for home is *Heimat* and not *Heim*. This indicates a homeland, rather than a household. Because of this, Heidegger remains an easy target for those who rely on his political biography and depict his concern for homelessness as xenophobic and protofascistic. Heidegger did on occasion speak of homelessness as if its remedy entailed a national retrenchment, but I believe that a national, racial, ethnic or linguistic circumscription of home is not intrinsic to Heidegger's thought. He says in the *Letter on Humanism*: 'The word (homeland) is thought here in an essential sense, not patriotically or nationalistically, but in terms of the history of Being.'[38]

However, Heidegger's post-war preoccupation with homelessness is perhaps understandable as the product of enduring national and cultural concerns. Securing a home for Aryan Germans allowed the denial of home to neighbouring Poles and Slavs, as well as to the 'wandering' Jews and Gypsies. Nazism would create its own refugee problem and then impose its own solution, resulting in the massive destruction of the homes and lives of millions of Germans and Germany's neighbours. Though Heidegger had no taste for the racist violence with which the restoration of the German *Heimat* would be attempted, his nostalgic longing for the establishment of an organic national family rooted in tradition by blood, language and soil allowed a dangerous accommodation.

The defeat of the Nazis did not erase the concrete problems of homelessness, nor Heidegger's concern for authentic dwelling. Fifteen years later, Heidegger would still wonder how he and his fellow Germans might set themselves up as a 'bulwark against the on-rush of the alien.' The answer was for them to 'awaken unceasingly the bestowing and healing and conserving powers of Home.'[39]

For Heidegger, home does not primarily refer to a spatial location, but rather is a relation of nearness to the world. For Heidegger, 'world' is ' ... the clearing of Being into which man stands out on the basis of his thrown essence.[40]' Heidegger's many ruminations on homelessness have allowed his philosophy to be connected to an ecological framework that identifies the earth as the human habitat in need of caretaking. I will discuss Heidegger's connections with ecologically minded philosophers in Chapter 6, cautioning that by turning Heidegger into an 'eco-philosopher' we do violence to his work, and misunderstand the fundamental tenets from which he was working.

We cannot ignore the social, cultural, psychological and ontological significance of homelessness in our contemporary world. Humanity has been uprooted from the traditions of land, language, ethnicity and religion, and it has found no substitutes for them. The question we are asking today is whether humankind is losing its capacity to find a home on earth.

Marshall McLuhan[41] feels that today we have replaced our shared sense of home and belonging with a sharing of information. This information is not a stable possession since it is our own disposable and pliable creation. The vast diversity of human experience is homogenised into a uniform, universal currency. Homogenisation indicates not the capacity to share a home, but the incapacity to resist a process.

Heidegger believes that a way beyond contemporary homelessness consists in a humanity transformed by the opportunity to participate in worldliness. A discovery of our essential Being-in-the-world and our worldly shepherding of Being is needed. Routinised and homogenised, contemporary humanity is left without a nature and without a project. He says: 'We are too late for the gods, and too early for Being.' And yet, ' Being's poem, just begun, is man.'[42] This hope that Heidegger hints at rests on the possibility for a fundamental transformation. A humanity that is to listen to Being's poem cannot remain a humanity that is defined by its metaphysically grounded possession and mastery of the world. In *Building, Dwelling, Thinking*[43], Heidegger

seeks further insight into that 'saving power' that begins to surface in meditation on the essence of technology, a new way of seeing human being's position with regard to things. I discuss these insights in more detail in the second section of this chapter.

In his 1947 *Letter on Humanism,* Heidegger underlines the fact that his philosophic appeal to humanity should not be confused with humanism. Humanism places humankind at the centre of a universe, which is available for exploitation. Being exists as a resource for the species and as such receives its value. The species becomes defined in its essence by its rule over the universe of beings. Humanism is founded upon metaphysical subjectivism because Being is always objective presence - that which relates as object to the species subject. By rejecting humanism, Heidegger aims to engage that thinking which questions human being anew. The aim is to discover in this questioning the essence of human being, to find that the mystery that situates this questioning constitutes a new abode for human being, a place of dwelling.

Anxiety is the mood of homelessness that wrests human being away from the habitual dispositions that make possible his coping with daily affairs. It is perhaps best described as the state of unease in which human being's 'there' is revealed to be not fully his own. In anxiety, human being feels displaced and alienated. The world becomes disclosed as foreign. In short, anxiety is the foreboding of homelessness.

Yet, anxiety is not to be deprecated, because it communicates a basic, sometimes harsh ontological reality: our thrown being-in-the-world. The point is neither permanently to escape our anxious apprehension of contingency and the nothingness of Being, nor self-destructively to languish in it. The problem is to live in the balance.

Anxiety is an awareness or foreboding of our homeless condition. We must, according to Heidegger, learn to become at home in our homelessness. We must experience our anxiety as our own and make our abode in the world in a way that acknowledges rather than denies our sense of existential displacement. The ongoing search for a home in our earthly homelessness defines human life. Engaging in this search authentically defines the philosophical life.

In the contemporary world, the problem of our homelessness is made manifest as a metaphysical drive to construct an abode. Homelessness now becomes a problem to

be resolved through social engineering and technological ingenuity. Heidegger feels that all such resolutions are ill fated. A proper abode for humanity can never be fabricated. It may only be discovered and rediscovered. True dwelling is not an imposition of the self on a foreign landscape, but rather a setting at peace, a preserving and a safeguarding of each thing in its nature.

Being at home connotes a peaceful belonging, while anxiety indicates an uneasy displacement. To be truly homeless is to lose one's ability to reveal the world as the place for human dwelling. To be truly at home is to exercise one's ontologically disclosive capacities. Being at home in the world and being free are the same thing, according to Heidegger. To be at home everywhere is to experience the freedom that allows our disclosure of Being.

5.1.10 Heidegger's Conception of Freedom

Heidegger developed a new understanding of freedom in the context of his ideas on technology - freedom seen as an activity, event or happening. Freedom, for Heidegger, is proposed as a disclosive letting-be - a freedom that celebrates care taking, rather than mastery.

> The essence of freedom is originally not connected with the will or even with the causality of human willing. Freedom governs the free space in the sense of the cleared, that is to say, the revealed. To the occurrence of revealing, i.e., of truth, freedom stands in the closest and most intimate kinship…All revealing comes out of the free, goes into the free, and brings into the free. The freedom of the free consists neither in unfettered arbitrariness nor in the constraint of mere laws.[44]

For Heidegger, every act of freedom is a foreclosing of alternatives and possibilities. Freedom is not absolute liberty in the sense of an unbounded power to do, move and create. Freedom is freedom to reveal what is. Human being, as a bounded circle of disclosure, displays its freedom to the extent that it remains open to the inexhaustible mystery of Being in its bounded disclosing of beings.

For Heidegger, freedom is then fundamentally and foremost, an openness, as well as a letting-be. By attending to technology as enframing, Heidegger tells us that we are

...already sojourning within the free space of destining, a destining that in no way confines us to a stultified compulsion to push on blindly with technology or, what comes to the same, to rebel helplessly against it and curse it as the work of the devil. Quite to the contrary, when we once open ourselves expressly to the *essence* of technology we find ourselves unexpectedly taken into a freeing claim.[45]

Heidegger's rejection of the traditional conception of freedom as a power-to or a power-over has been severely criticized. I will explore whether these criticisms are justified in Chapter 6, in the context of a discussion on the ethical dimensions of Heidegger's thought.

5.1.11 Science in the Heideggerian view

The word 'science' is one that usually evokes awe in us. When we speak of science, we have in mind an activity that, through disciplined observation and experiment, attains knowledge concerning all kinds of phenomena. Modern research scientists, guided in their experimentation by the ideal of exactitude and objectivity, have achieved dramatic successes. Nevertheless, they have entered into a state of crisis. This crisis, according to Husserl[46], was a crisis evidenced by the modern failure to relate the sciences to human subjectivity and to the life-world, and also by the absorption of human being into the sciences as though he himself were just a complex natural object. Heidegger begins then, in an effort to understand this crisis.

Pure science probes phenomena in a disinterested, objective fashion. Yet, for Heidegger, there is no pure, disinterested science.[47] Rather, modern science always approaches reality with a predetermined outlook and predetermined intent; ' ... it orders its experiments precisely for the purpose of asking whether and how nature reports itself when set up this way'.[48]

Far from disinterestedly pursuing discovery for discovery's sake, modern science sets out always toward a specific goal, in accordance with prescribed criteria that it never fails to provide for itself. To Heidegger, it is this character of modern science which distinguishes our science from the science of every previous time and marks it as distinctively modern.

Modern science always proceeds as to discover reality as something calculable. It looks for sequences of cause and effect that it can follow out, and confidently expects to find patterns and coherences that will allow it to deduce 'laws' on the basis of which it will be able to predict phenomena not yet met with. In comporting itself in this way, modern science invariably approaches the reality toward which it looks with a prior knowledge that at once defines and makes possible its work. Thus, Heidegger asserts that modern science is always and everywhere 'mathematical'[49]. What does he mean here?

Heidegger gives the name *Befindlichkeit* to the first and determining awareness of oneself in the world[50]. *Befindlichkeit* is a given sense of the way in which one finds oneself in one's world. This sense is manifest in the different modes of attunement to the world. Although there is always already some mood present, certain moods are relatively permanent, while others are transitory. Heidegger discusses the mood of fear as an example of the latter. Fear is a response to a threat that tends to organise all one's intentions and behaviours around itself. In general, then, one's whole way of being in the world is always polarised in a characteristic manner by some mood.

But Heidegger's ideas on mood are not only applicable to human being, but also to epochs. To understand the fundamental orientation of an epoch, according to Heidegger, one must first discover its dominant mood or attunement. To understand the scientific and technological era, we must then discover the mood that motivates this era.

In *The Question Concerning Technology*, Heidegger inquires into the mood-basis of modern techniques. He proceeds by contrasting modern and ancient techniques. Both reveal nature as changeable by human being's manipulation, but they reveal its subordination to different kinds of intentionality. Ancient Greek techniques (the Greek *technē*) rearrange the parts and energies of nature for human being's use. Modern techniques, on the contrary, work over and release hidden energies, so that they may be used in turn to release other energies. If ancient techniques merely rearrange or change the place of objects or energies, modern techniques dis-place, pro-voke (*herausfordern*) and transform (*umformen*) them.

The mood or attunement that Heidegger identifies as prevailing when objects are seen as standing reserve (*Bestand*), is what he calls *Ge-stell*. As we have seen, *Ge-stell* is the skeleton or general pattern of modern technological culture. In this mood,

everything is seen as standing reserve. In his essay, *What is a Thing?*, Heidegger describes the type of understanding which is determinative of *Ge-stell*. In this essay, the term 'the mathematical' is used to refer to that which is taken by an epoch to be axiomatically or self-evidently true, and this is known in advance about the whole world. The quantitative mathematical properties of the world are, for *Ge-stell*, presupposed in this manner. They were divined by the Greeks, but only reached clear and explicit expression with the Newtonian laws of motion. Thus, these physical-mathematical laws became for the seventeenth century and for much of later metaphysics the invisible but real skeleton in which the experienced world is constructed. Only the mathematical physicist has the discipline and knowledge necessary for acquiring insight into the articulation of this reality. Scientific knowledge becomes the most powerful and efficient instrument at our disposal in the modern world.

Thus, modern science is commonly described as mathematical, in contrast to medieval and ancient science. It is distinguished by the fact that it is mathematical. For Heidegger, modern science is able to proceed mathematically because it is in a deeper sense already mathematical, and this sense of mathematical must be discovered if we are to gain clarity as to the essence of modern science.

Heidegger pursues the recovery of this deeper sense of mathematical by meditating on the meaning of the Greek *mathesis, ta mathemata*[51]. Heidegger sees that for the Greeks, the mathematical signified that about things that we already know, which we do not first come to know from things themselves, but which we already bring to these things. It was only because numbers are those things most obviously known beforehand and because numbers are the most apparent of mathematicals, that the term mathematical came to take on a narrower meaning. Modern science is thus distinguished as mathematical, not because it makes use of numbers, but because it is based in the deeper sense of mathematical as pertaining to that which is known of things independently of things.

The mathematical character of science does not lie in the fact that science works with numbers, although this is often the case. *Ta mathemata* means in Greek, '…the things insofar as we take cognisance of them as what we already know them to be in advance, the body as the bodily, the plant-like of the plant, the animal-like of the animal, the thingness of the thing, and so on.'[52] Number is only one salient instance of such defining characteristics that are always already known. But, because of its

prominence, the numerical in time drew the name mathematical to itself.[53] In understanding the mathematical character of modern science, we must go behind this specialized usage. Our science is mathematical because in coming to reality it always already knows what it is seeing. It has a prior conception of what it will discover and it necessarily views reality from out of that knowledge.

Heidegger describes the basic approach of modern science as the projecting (*Entwurf*) of a fixed ground plan (*Grundriss*) of the reality with which it has to do.[54] Each science views its specific object-sphere as a vast theatre of events whose basic character and manner of interrelation it can stipulate in advance. This results in the fact that a specific science cannot question its own presuppositions. Since Heidegger asserts that physics is not a possible object of a physical experiment, it follows that science cannot be the measure of knowledge, at least in that it cannot be a measure of itself. Heidegger does not mean that a scientist cannot interrogate science, but only that when he does so, he thinks outside the project that defines the domain of his science, i.e. in a philosophical way.

The projecting of a ground plan presupposed in advance and the rigorous adherence to that plan and its requirements, when taken together, are the fundamental 'event' (*Vorgang*) that always underlies the 'procedure' (*Vorgehen*) of modern science. The actual methodology (*Verfahren*) of science only arises out of and follows upon the self-constituting event in which the latter projects its determinative plan and accepts the stringent obligation of adherence to it.

The crux of that methodology lies in its character as an 'explicating' (Erklären) of the actual relationships subsisting among the elements composing an object sphere that appear within the purview of the ground plan that governs specific work.[55] The plan provides a fixed perspective that captures reality and sets it over against the viewer in some kind of predictable pattern.

In each of its forms of procedure with regard to its subject matter, modern science, starting from a premise that posits beforehand the explicability of reality with which it is concerned, is able indeed to explicate that reality – complex and varied though it may be - solely from out of the knowledge that it itself has gained and is continually gaining.

The explication that the methodology of modern science accomplishes is always provisional, since each science finds itself able to undertake only limited observations of its object sphere. The evidence provided by the phenomena investigated always remains incomplete. This evidence does not suffice to establish absolutely the validity of the laws in question for all the phenomena with respect to which they would be applicable; or to ensure that those laws exhaust the range of interrelations that are in play among the elements constituting the object-sphere. In this way, science remains aware that the laws that it propounds are in fact not laws at all, but rather 'hypotheses'. They are established bases for its work, fixed in accordance with known data and accepted as deserving of acceptance. Yet, at the same time, they are always in need of verification and always being tested. Thus, the explication of reality that science accomplishes has a twofold character: 'It accounts for an unknown by means of a known, and at the same time it verifies that known by means of that unknown.'[56]

It is basic to the character of modern science that it is what Heidegger calls an 'on-going activity'[57]. Thus, science never proceeds in a random manner, but rather, all its workings and activities are directed towards the solidifying of its position and to draw more and more of reality into its scope of comprehension. Science builds itself forward.

Science has become and is becoming increasingly specialised. Heidegger tells us that this should not be viewed as nothing but a necessary evil. It is rather a direct expression of the character of modern science as such.[58]

For science in the highly institutionalised and specialised form that it has now assumed, rich opportunities lie open. Results of research can be exchanged and confirmed, joint projects can be undertaken and methodologies can be borrowed or modified.[59] Thus, far from losing themselves in fragmentation as a result of their specialisation, the sciences are actually establishing themselves with a solidarity and unity appropriate to them. Increasingly, in our age, science has succeeded in bringing all manner of entities to stand before it in a secured, surveyable formation.

In contemporary times, science has begun to display clearly the character that Heidegger sees as most intrinsic to it, a character that is inherently technological in cast. This is then, where Heidegger identifies an intimate connection between modern science and technology.

In science, incessantly, ever newly projected inquiry and observation are being carried out, and through that on-going activity the reality that is under investigation is being ever more thoroughly ordered and categorised in accordance with the presuppositions from out of which science projects itself forward. Under the dominion of modern science, the particulars of the reality that is brought under observation are systematically emptied of their significance as the particulars that they are.

More and more, calculating is becoming dominant in every science.[60] Increasingly the information that is handled in all the sciences is stripped of extraneous details regarding the phenomena it concerns. Today cybernetics, the statistical study that aims at controlling the flow of information in particular systems, is the place where all the sciences meet.[61]

Increasingly, the elements composing the object-spheres of the various sciences are being reduced to a state very much like that of the contents of the standing reserve that is continually being set in order under the reign of modern technology. The very destining of Being that rules in modern technology rules in modern science as well. As that destining comes more and more overtly into play, the comportment of science and of those who further its work presses ever more intently forward into the realm where technology is already carrying itself out in its assigned manner.

It is the most abstract of modern sciences – mathematical physics - which according to Heidegger has played the most salient role in preparing for technology's very concrete work.[62] Firstly, physics, with its fundamental concern to exhibit reality as a coherence of motions among units of mass viewed in spatio-temporal relations, has always grasped and displayed nature as a 'surveyable network of forces'[63]. In doing so, physics provides to technology that assessment of nature as a vast storehouse of reserves of available energy that is fundamental to the latter's happening.[64] The demanding summons that so rules in technology as to command forth what is into the standing reserve, does so ultimately through revealing nature precisely in the guise that physics has already discerned. Secondly, the exactitude of measurement that mathematical physics pioneered is absolutely indispensable to technology in the execution of its mandate to order everything as standing reserve.[65]

Thus, the relationship between physics and technology is in some respects reciprocal. The research of modern physics can proceed and its precise

determinations can be gathered only through the use of the sophisticated apparatus that technology provides. Scientific achievements that technology makes possible take place ultimately for the sake of technological advance. Technology relies on the precision and accuracy of these scientific achievements.

Science, as harbinger of the manner of holding sway that is bringing itself to fulfilment in the modern age, displays the very characteristics that are definitive for technology. Science therefore has prepared in thought and attitude and action for the ascendancy of technology. The revealing presently holding sway as decisive is a revealing via which only calculable relationships stand forth, and the interrelated is but standing reserve placed in some needed order to serve some intended end. Science as science has been superseded – the day has come when science can display its true character and appear as technology itself.

In the modern world, Being has become evident primarily as an object. It is also true that human being is now also counted as an object, one that can be measured, analysed, predicted, controlled and exploited. Man and his world are regarded as human and natural resources. What does it mean to exist under conditions such as these?

According to Heidegger, science is the theory of reality. Reality is the translation for the German *Wirckliche*. Heidegger connects this with the word *wirken*, meaning to effect or to establish as present[66]. The word theory he relates to the Greek *theorein*, which has to do with contemplative seeing, with an intelligent viewing of the aspect of being which comes to human being through appearances. Heidegger then interprets his definition to mean that a science acquires its object by 'working it over' until it can be viewed as present and real. This working is nothing other than the bringing forth into presencing that Heidegger names *Ge-stell*. Heidegger does not use the word *Ge-stell* specifically when speaking of the engagement of the sciences with the objects whose components are its concern, but it seems evident from the texts on science where he speaks of science as an observing of the real that reference to *Ge-stell* is pertinent here. For Heidegger, the mathematical and experimental sciences historically preceded the development of modern machine-power technology; nevertheless, they are a single growth in Heidegger's eyes. Neither would have been possible in a world not dominated by *Ge-stell*. He tells us:

Chronologically speaking, modern physical science begins in the seventeenth century. In contrast, machine-power technology develops only in the second half of the eighteenth century. But modern technology, which for chronological reckoning is later, is, from the point of view of the essence holding sway within it, historically earlier.[67]

This 'working over' of the real is accomplished by a change in the more common and practical relation to a being. It modifies certain of the relations that constitute a thing as being in the life-world. For modern science, this working over has come to be understood in the Cartesian tradition and is initially effected through the operations of measurement. By means of the techniques of measurement, the object is disposed in a new way – it is reduced to its mathematical structure that may then be symbolically transformed and managed by mathematical methods.

The Cartesian procedure is to presuppose that any object belongs to the mathematical and objective world and can be exhaustively known only within it. But within this context, the object can be seen to obey exact laws that are discoverable by means of experiment. But the experiment, in its planning and execution is guided and carried along by the basic law, in order to confirm or refute that law. Science is specifically modern when it has thus conceived, in advance, of the possibility of experiment as taking its departure from mathematically expressible laws hidden within experience or nature. When such laws are established, a new relation to the object is made possible. By utilising this new relation, modern man seeks to place objects altogether according to his will in a world subject to his technology. Technology embodies this new relation – it profits from the predictable results of mathematically grasped laws in order to take the object into its control.

Thus, the scientist works over the object until it can pass into the standard concepts of modern scientific theory – the object is subjected to calculation and control. But, in making its measurements, physics leaves behind much of what the life-world presents - physics conceals or forgets the non-physical. Physics unveils objective nature, and the other sciences take their cue from physics.

Heidegger points out that physics itself cannot take itself as its own object of study, for its methods cannot work the whole science over into a single item within the same science. Thus, it cannot investigate itself. In general, then, the sciences are non-self-reflexive.

Heidegger's aim is neither to replace the sciences nor to reform them, but Heidegger's interrogation of modern science in which it is understood in terms of the mathematical project prepares the way for a decision as to whether science is the measure of knowledge, or whether there is a knowledge in which the ground and limit of the sciences are determined.

The technological interpretation of knowledge leads quite naturally to the vision of human being in the grip of *Ge-stell*, a human being who is possessed by the Cartesian motive of becoming the master and possessor of nature. It is notable that in Heidegger's view, this mood (*Ge-stell*) comes first.

According to Lingis:

> The relationship, therefore, between modern, mathematized science and modern technique is indeed superficially conceived when we say that technique would be the application of science. Their relationship is already conceived reciprocally when we notice that modern science, inasmuch as it is experimental, is mediated, in its turn, by modern technique.[68]

It is important to note that Heidegger's philosophy is not a Romantic rejection of the natural world and its sciences, since for him, natural science and technology are not ontologically independent beings. They are founded within the life-world and so their evaluation must be related to this dependence. Authentic Dasein could definitely pursue the sciences and technology, since it is Dasein and not technology, which may be called authentic or inauthentic. Thus, Heidegger's appraisal of the sciences is to be determined rather by what he believes contemporary man has made of them, rather than by their independent character. According to John Sallis:

> Heidegger does not seek to give an *evaluation* of science, for to understand his task as one of evaluating, would be to remain totally under the domination of the essence of the modern scientific project … Heidegger is in search of clarity regarding the essence of science.'[69]

Heidegger's criticisms and warnings are addressed to contemporary human being and are provoked by his recognition of the danger inherent in the modern

technological outlook (*Ge-stell*). Human being today is tempted to become completely absorbed by the very demanding universe of natural objects studied and manipulated by the sciences. The temptation could then follow to interpret the self on the model of an object, and so authentic Dasein is lost. Thus, the threat of *Ge-stell* is the seductive promise of infinite power over the world offered upon one condition: the forgetfulness of Dasein. For Heidegger, modern human being continually yields to this temptation. Heidegger thus sees the danger associated with *Ge-stell* neither in science or technology, nor in machines as such, but rather in human being who has lost his insight into human being and behaves towards himself and others as if they were all non-Dasein-like objects. Thus, it is not technology or science per se that constitutes the danger, but rather that the essence of technology as a way of revealing threatens to eclipse all other modes of revealing, and reduce human being to standing reserve.

5.2: The Turning of Being and the Saving Power

Heidegger believed that a genuine surmounting of technology that would allow the what-is to once more stand in true appearing can happen only from out of Being.[70] Rather than close itself utterly away, Being will suddenly turn about in its way of happening. Being will then claim human being to co-accomplish in heedful responding, the self-opening that it itself is bringing to pass. Then, the real will again stand forth determinatively, appearing in a way that will let its particulars belong to one another; that, in belonging, they will come truly into their own. But as for now, Being happens as the gathering summons taking place in modern technology. Therefore, that which is itself the danger of all dangers is at the same time that which alone can rescue and restore – ' … in technology's essence roots and thrives the saving power.'[71]

We cannot know with certainty when and how this turning in Being may take place, nor can we bring it to pass. The possibility is real that man might be engulfed by the standing reserve and Being might shut itself away. But does this mean that we are totally powerless against the tightening grip of technology in Heidegger's view?

When in interviews Heidegger was asked whether from his thought constructive proposals could be derived, his answers were emphatically negative[72]. Yet, he does hint at some possibilities. In the concluding part of *The Question Concerning Technology*, for example, he asks whether the arts 'may for their part expressly foster the growth of the saving power, may awaken and found anew our vision of, and trust

in, that which grants?'[73], a suggestion that has been taken up by some philosophers of technology in urging artistic practice as a counterforce to technology[74]. In addition, Heidegger tells us that we can foster the saving power 'here and now and in little things'[75].

Heidegger also addressed the question of what can be done in the well-known *Der Spiegel* interview. He elaborated on the notion that waiting, not willing, was the proper response to the nihilistic, technological frenzy of our age. He stated that philosophy as well as all purely human reflection and endeavour would not be able to bring about any immediate change in the current state of the world.

> Only a god can save us. The sole possibility that is left for us is to prepare a sort of readiness, through thinking and poetising, for the appearance of the god or for the absence of the god in the time of foundering (*Untergang*); for in the face of the god who is absent, we founder.[76]

A mistaken notion has arisen that Heidegger is suggesting that we fatalistically abandon reflective thought and action to abide in religious faith. Rather, we must see the 'waiting' he advocates as an attending upon the reawakening of our capacity for fundamental questioning. No all-powerful entity will redeem our finitude or fallenness. The moral, redemptive god is every bit as dead for Heidegger as for Nietzsche. Yet, Heidegger does not aim to promote a disbelief in God or to promote a belief in the non-existence of God, but rather encourages remaining oriented in awe to that which is unknown and escapes comprehension. He finds pretensions to a familiar relationship with a deity to be blasphemous. He advocates a 'god-less' thinking which abandons God insofar as God comes to be metaphysically constructed, which keeps God from becoming known as an object that we as subjects evaluate and elevate[77]. Basically, Heidegger rejects both atheism and theism, since both doctrines provide answers where, at the present time, questions rightfully reign alone[78]. This does not mean that we are condemned to remain insensible to transcendence. Heidegger hopes that our wonder at the transcendent might somehow survive this event to unfold as the question of Being.

Those who would interpret Heidegger's words about waiting for a god politically rather than religiously are also mistaken.[79] His point in speaking of gods is not to

suggest the possibility of salvational figures, but to orient us disclosively to worldly life in a way that marks the limits of human power and ingenuity.

To wait for gods is to acknowledge that the disclosure of the transcendent is not solely under human control. The transcendent would not really be the transcendent if it remained within our power to procure it at will. Heidegger concludes that the loss of the question of the transcendent within the technological world is not completely within the scope of human being to redress. The opposite is also true: If only a god can save us from technological nihilism, then this nihilism itself must also exceed the ambit of human directives. The point is not that nihilism is not our concern, but rather that it is not solely our doing. To assume that nihilism is of our making, and so completely within our capacities to exorcise it, is itself a nihilistic position characteristic of a technological frame of mind. The belief that we might subdue technological nihilism at will is part of the disease and not the cure.

Heidegger does give us a hint about the nature of the thinking that might loosen the grip of technology. The restoring overcoming of technology is similar to what happens when one gets over grief or pain[80]. One cannot surmount grief through a wilful overcoming, since this only displaces grief and makes its reappearance at a later time likely. Grief is not overcome by mastery, intellect or will, but rather by another mood. Moods cannot be created, but only summoned. One gets over grief through a mood of rediscovered sanctuary, by once again coming to feel one's belonging in the world.

5.2.1 *Gelassenheit*

Heidegger suggests an attitude of *Gelassenheit* (releasement), whereby thinking listens to language and allows it to move back into its element (Being). In the modern era, dominated by an increasingly technologised use of language, the caring for the word requires us to reach back into the abyss of silence, in search of a language capable of speaking Being in all its otherness and unpredictability. Heidegger suggests that by means of poetic thinking, the priority of logos over logic can be reaffirmed, in a time when the reign of a purely instrumental logic has reached dangerous proportions.

Heidegger borrows the term *Gelassenheit* (releasement) from Meister Eckhart. It literally means a letting-be. Heidegger's 'turning' is often described as a turning away

from existential concerns such as anxiety and resoluteness and a turning towards mystical concerns with releasement. Yet, *Gelassenheit* is already at work in the analysis of the anxious Dasein in *Being and Time*, and anxiety in the face of death remains central to *Gelassenheit*.[81]

In Heidegger's *Conversation on a Country Path about Thinking*, the teacher indicates that when we let ourselves into releasement, 'we will non-willing'. This attempt to overcome wilful mastery confronts us with a paradox. The willfulness required for the overcoming of will is precisely that which we are trying to escape. Willfulness must be abandoned, but having done so one wonders what remains to be done. Heidegger admonishes us to wait. Waiting, not awaiting, since awaiting already links itself with re-presenting and what is represented.

It seems that waiting is a good antidote for the technological hyperactivity to which we are prone. Once we escape the seduction of calculative thought, we realise that our most basic existential situation remains a mystery in every way. This realisation is the prerequisite for releasement. Life is, in actual fact, a waiting - a waiting for death. It is not an awaiting, since no one knows what death is. Waiting for death is fully apprehending human being in its finitude. Acknowledging, understanding and accepting finitude of human being constitutes wisdom. Thus, philosophy, the love of wisdom, has, from ancient times, been identified with learning how to die. For Heidegger, the essence of a human being is to be 'one who waits', the one who attends upon the coming to presence of Being in that in thinking he guards it. Only when human being as 'the shepherd of Being'[82], attends upon the truth of Being, can he expect an arrival of a destining of Being and not sink to the level of a mere wanting to know.

Heidegger's main concern is that the essence of technology comes to light in its undisguised form. The shackles that bind us to technology are strongest when we naively believe in the neutrality of technology. Complex machinery and techniques are not dangerous per se, but rather the philosophic somnolence that may overtake us if we fail to think of what *das Ge-stell* means.

Our opportunity to remember our homelessness in the face of our consuming penetration of the earth is the saving power. The peril of losing our ability to find a home on earth and an abode in thought stirs us to recollection. The philosophical and historical task before us today is the challenge of technology, for technology

threatens human being's capacity for disclosive freedom. The question of Being, properly understood, comes down to the question of technology in the end.

Homelessness is the mood of the technological age. Rediscovering our worldly home as threatened signals the 'restoring surmounting' of technology. Memory or recollective thought chiefly summons this sense of a threatened sanctuary. Recollecting our worldly habitat not only fosters resistance to *das Ge-stell*, but also provides guidance in negotiating relations with the products of technology, i.e. machines and techniques. Heidegger acknowledges that we should neither reject nor do without the products or skills of technology. He says that we cannot repudiate the technological world of today as the 'work of the devil' nor should we destroy it, assuming that it does not do this to itself.[83] Heidegger does not advocate a retreat to a pre-technological state of being (in the ordinary sense of the word 'technology'). Nor does he suggest that we fatalistically resign ourselves to the victory of *das Ge-stell*. Fatalism is no answer because it reflects the same absence of thought that is evidenced in a naive complacency with technological progress.

Although it is crucial to perceive the danger of our technological constructions in case they dominate us, it is unnecessary to reject them completely. But the alternative to becoming slaves of our own machines is not simply to become their masters. The goal is to integrate technology within a bounded worldly dwelling no longer structured by possessive mastery. Heidegger describes the comportment required to disengage ourselves from possessive mastery and achieve an appropriate relation to technology: We can say both 'yes' and 'no' to technology by having an attitude of releasement toward things. Awaiting and receiving, openness and releasement are summoned by recollective thinking. Releasement towards things and openness to the mystery grant us the possibility of dwelling in the world in a totally different way: a way where the mood of homelessness has been displaced. Until this occurs, our attempts to control the products of technology will only maintain our subordination to its imperative. The greatest irony is that the 'freedom' that has been systematically nurtured and cherished for two and a half millennia in the West has fostered this technological servitude.

How does Heidegger describe this meditative and receptive thought or releasement in *Gelassenheit*? Firstly, only Dasein whose vision has been rectified by becoming authentically itself can achieve it. Secondly, it is a will-less and non-representative thinking. Releasement is a waiting that is a release into openness or an acceptance

of the coming forth of truth upon the initiative of Being. In this way, we can say with Paul Ricoeur that *Gelassenheit* is the gift of the poetical life[84].

Genuine philosophical thinking is summoned by Being rather than human being, it is a matter of Being 'presencing' to human being, rather than human being 'representing' Being to itself and thereby reducing all things to objects present-to-hand. For Heidegger, the most essential form of thinking is thanking[85] - an openness to and guardianship of the truth of Being. In contrast to technocratic thinking, the 'Denken' that Heidegger counsels is a non-objectifying, non-systematic receptivity that enters the play of Being by giving thanks.

Heidegger's main concern is that the essence of technology comes to light in its undisguised form. The chains that bind us to technology are strongest when we naively believe in the neutrality of technology[86]. Complex machinery and techniques are not dangerous per se, but rather the philosophic somnolence that may overtake us if we fail to think of what enframing means. Yet, Heidegger tells us that the danger posed to human beings by technology reveals a 'saving power' in the very thinking of its profound threat.

Our opportunity to remember our homelessness in the face of our consuming penetration of the earth is the saving power. The threat of losing our ability to find a home on earth and an abode in thought stirs us to recollection. The philosophical and historical task before us today is the challenge of technology, for technology threatens human being's capacity for disclosive freedom. The question of Being, properly understood, comes down to the question of technology.

The problem with the creation of the world picture is that everything is reduced to two dimensions. Whatever is disclosed, is disclosed uniformly as a product of human ingenuity. As such, it becomes measurable, calculable and exchangeable in a free market of resources. Although values vary within the technological marketplace, everything is assessed in terms of its rank within standing reserve. Heidegger observes that we cannot simply ransom our escape from Enframing through pure willfulness. The problem of technology is one of willfulness itself. Technology is symptomatic of a subjectivist and anthropomorphic Enframing of the world and so the attempt to master Enframing is self-defeating.

Neither heroic action nor religious faith can overcome Enframing and deliver us from our technological addictions. Only a non-wilful doing grounded in reflective thinking will avail. Thought, however, can provide us with no answers. It can only keep questioning alive, and once the nature of modern technology is brought into question, its hold is loosened.

As we have seen, for Heidegger, homelessness is the mood of the technological age. Rediscovering our worldly home as threatened signals the 'restoring surmounting' of technology. Memory or recollective thought chiefly summons this sense of threatened sanctuary. Recollecting our worldly habitat not only fosters resistance to Enframing, but also provides guidance in negotiating relations with the products of technology, i.e. machines and techniques. Heidegger acknowledges that we should neither reject nor do without the products or skills of technology. He does not advocate a retreat to a pre-technological state of being. Nor does he suggest that we fatalistically resign ourselves to the victory of Enframing. Fatalism is no answer because it reflects the same absence of thought that is evidenced in a naive complacency with technological progress. Heidegger wants us to respond to the question 'What shall we think?' rather than 'What shall we do?' Thought must first save us from our typical modes of behaving; namely those oriented towards possessive mastery.

As long as we continue to see technology as a tool, we will remain caught up in the will to master it. Heidegger does not deny that from political, social, cultural and environmental standpoints, technology has many virtues, but technological instruments and innovations may become addictive. They become an escape from our worldly finitude and a denial of boundaries. This denial expels us from the fourfold[87]. Thus, the question to ask when confronting any technological development is whether it develops or hinders the philosophically, artistically or politically mediated disclosure that delivers us into the fourfold.

In *Building Dwelling Thinking*, Heidegger seeks further insight into the 'saving power' that begins to emerge in meditation on the essence of technology. The main issue of this lecture is the relation of 'building' to 'dwelling' and the kind of 'thinking' that is the result of giving attention to this relation. Heidegger explains that humans are inherently builders. He tells us that the proper meaning of *bauen* (to build) is really to dwell[88], and explains that the fundamental character of dwelling is to preserve the free sphere that safeguards each thing in its essence. Thus, the proper plight of dwelling in our age does not lie in the lack of houses, for Heidegger. Rather, it lies in the fact

that ' … mortals ever search anew for the essence of dwelling, that they must ever learn to dwell'[89].

Although it is crucial to perceive the danger of our technological constructions lest they dominate us, it is unnecessary to forswear them completely. But the alternative to becoming slaves of our own machines is not simply to become their masters. The goal is to integrate technology within a bounded worldly dwelling no longer structured by possessive mastery. Heidegger describes the comportment required to disengage ourselves from possessive mastery and achieve an appropriate relation to technology: Neither pessimism nor cynicism, nor heroic self-assertion is called for. We can say both 'yes' and 'no' to technology by having an attitude of releasement toward things. Awaiting and receiving, openness and releasement are summoned by recollective thinking. Releasement towards things and openness to the mystery grant us the possibility of dwelling in the world in a totally different way: a way where the mood of homelessness has been displaced. Until this occurs, our attempts to control the products of technology will only perpetuate our subordination to its imperative. The greatest irony is that the 'freedom' that has been systematically nurtured and cherished for two and a half millennia in the West has fostered this technological servitude.

5.2.2 What about art?

Heidegger's interpretation of art is fundamentally in service to his thinking of Being, as we saw in Chapter 3 and 4. Heidegger insists that human being discovers its home in the world primarily by means of poetic thinking, the thoughtful disclosure of Being through language. Human life is full of wondrous deeds and accomplishments, yet our capacity to dwell, to find a home in the world is defined not by our productivity, but by our poetry. To dwell is to discover and accept the world as a fourfold marking the human horizon. Such discovery and acceptance is a poetic act, an act of thankful and thoughtful disclosure.

In *The Age of the World Picture*, Heidegger discusses the conversion of the realm of art to that of aesthetic experience. Works of art enter our world as objects used to stimulate a special kind of experience. A business develops for marketing such stimuli and the more original function of art is lost. Once, art could open up or change the world in which men live. Now, art is used to manipulate our feelings. The whole

phenomenon of art is absorbed into a way of thinking and living centred on the subject-object division.

Through his descriptive analysis of Greek ideas about art and language, Heidegger shows that modern ways of experiencing works of art and thinking about them are not the only ways of doing so. He argues that for the Greeks, to encounter something as real was to encounter it as coming to presence with other beings in the open space provided by *physis* (nature)[90]. Nature was not seen as the sum total of laws and objects, but rather as the process by which things rise out of hiddenness into the luminous clarity that reveals them in their order and their tensions. It was not man who brought the world out of its hiddenness, but rather, it was man's task to harmonise himself with what was revealed. In this way, art was not seen as being involved with man's subjective responses, symbolising them or simulating them. Art was the skilful making present again of some thing or action that was already present on its own in the natural encounter[91].

This theory is usually referred to as the theory of art as *mimesis* (imitation)[92]. According to Gadamer[93], the Greeks distinguished between two kinds of productive activity: Manual production which fabricates utensils, and mimetic production which does not create anything 'real' but simply offers a representation. The original mimetic relation is not an imitation in which we strive to approach an original by copying it as closely as possible. On the contrary, it is a kind of showing. In this sense, showing does not intend a relation between the one who shows and the thing shown. Showing points away from itself.

5.2.3 Science and technology in *Being and Time*

In order to support my contention as stated in Chapter 1 that the 'early' and 'later' Heidegger's thought exhibits a unity, I will now discuss how the 'later' essays on science and technology serve as an extension and critique of themes that are already present in *Being and Time*. I am not asserting that there are no differences between the various texts, but only that their examination in this manner will cause them to reveal an underlying unity intrinsic to Heidegger's paths of thinking.

Don Ihde, in his essay *Heidegger's Philosophy of Technology*[94] examines the relationship between the ideas stated in *Being and Time* and those of *The Question concerning Technology*. Ihde admits that technology is not an explicit thematic

concern of *Being and Time*, but proceeds to use the tool analysis in *Being and Time* to explicate the significance of *Being and Time* for an understanding of technology. In his article, Ihde shows how the phenomenological distinction between *noesis* and *noema* is maintained from *Being and Time* through the essays on technology. He does, however, also note the differences that become evident. The tone of wholeness and approval in the tool analysis yields to a sharply critical view of technology; and the distinction between contemplative science and circumspective praxis in *Being and Time* is collapsed in the *Ge-stell*, which is the origin of both science and technology.

Being and Time seems to be ambiguous (it is not clear whether it promotes or opposes technology), since Heidegger's illustrations are drawn from both the pre-technological workshop and the railway station. At one point, for example, Heidegger says with apparent approval that 'the wood is a forest of timber, the mountain a quarry of rock; the river is water power...'[95] Ihde claims that the Heidegger of *Being and Time* plays down the differences between scientific technology and the older handwork technology.

Despite the discrepancies pointed out by Ihde above, I believe that the later analyses of technology are also anticipated in *Being and Time* with the analysis of 'the they'. In *Being and Time*, the existence of 'the They' is explicated as neither a collection of definite Others nor a single definite Other.

> ... It is not a being or a set of beings to whom mineness belongs, but a free-floating, impersonal construct, a sort of consensual hallucination to which each of us gives up the capacity for genuine self-relation and the leading of an authentically individual life[96]

This inauthentic existing of Dasein that the Heidegger of *Being and Time* points out, exhibits the same levelling down[97], the restlessness and the aggressiveness that is so characteristic of modern technology for the 'later' Heidegger.

Hubert Dreyfus[98] argues that the analysis of equipment in *Being and Time* is neither pre-technological nor fully technological. He asserts that *Being and Time* rather plays a transitional role in the history of the being of equipment.

Dreyfus substantiates his thesis by constructing from Heidegger's hints a three stage history of the being of equipment, which loosely co-ordinates with the epochs in the history of Being: (1) The period of craftsmanship expressed in the Greek notion of technē; (2) Industrialisation and its attitude of pragmatism; (3) cybernetic control as articulated in systems theory. Each period is characterised by a different view of nature – as *physis*, raw material and *Bestand* – as well as fitting ideals of human use – fitting response, needs satisfaction and exploitation. In the light of this epochal history of Being, *Being and Time* can for Dreyfus, be seen as the decisive step towards technology[99].

From the above, I conclude that although there are differences between the various texts, which are highlighted by both Dreyfus and Ihde, there is an undeniable underlying unity intrinsic to Heidegger's paths of thinking.

5.2.4 Technology and Truth

As was demonstrated in Chapter 3, the theme of truth as *alētheia* or revealing is the centre around which Heidegger's thinking on the themes of technology and language turns. I also believe that the theme of truth is one of the 'bridges' that connects his thinking in *Being and Time* and the 'later' works.

With regards to technology, it is quite evident that Heidegger sees technology contrary to the usual way of seeing it, because of his connecting technology with revealing. As we have seen, Heidegger defines truth as unconcealment or revealing, rejecting the idea that truth can be reduced only to correspondence.

The essence of technology is a way of openness to the disclosure of Being. To forget Being is to lose contact with occasional revelatory events (*Ereignis*) by preoccupation with concerns about controlling the world. In the first or Greek period, truth was experienced as the immediate self-presencing of *physis*, nature in the inclusive sense of the flow of concrete temporal experience, i.e. of history. In the second, or Christian period, truth became certitude guaranteed by a highest timeless being – God. In the third, modern, post-Cartesian period, this certitude became guaranteed by the interior self-control of the knowing subject.

The noted physicist Stephen Hawking, in his book *A Brief History of Time* writes: 'The eventual goal of science is to provide a single theory that describes the whole

universe.'[100] Such a theory would be a theory to end all theories, a theory that would be the systematic arrangement of all knowledge that is theoretically possible. Following Heidegger, this is an example of the dream of technological thought in the modern era. We dream of knowing everything, for then we can control everything. It is then a dream of absolute power. All is revealed, nothing remains concealed.

As a constellation of truth, technology exhibits a strange ambiguity. It is dangerous because it is the supreme provocation. Yet, in our time, human being has no other access to the truth of Being other than through technology.

5.2.5 Technology and Language

In the previous chapter, I have demonstrated that Heidegger sees language in the technological era as being tainted by the calculative thinking that holds sway in these times. In other words, in the grip of technological thinking, language is brought totally within the framework definitive of modern metaphysics and science. Language comes to be regarded as a mere instrument for mastery over beings.

Philosophical thinking is now also radically affected by this demand placed on language, in such a fashion that the transformation of modern philosophy that had begun in the origination of modern metaphysics now comes explicitly to light. Philosophical thinking becomes the mere demand for explanations and proofs.

5.2.6 Summary

In this chapter, I have shown that when Heidegger speaks of technology, he means much more than machines. When Heidegger describes the essence of technology, he means a specific way of revealing. Heidegger is careful to distinguish between the mathematical nature of modern science and machine technology, but reverses the usual understanding of their relation. For Heidegger, the term technology involves a particular understanding of the being of human being and things. This understanding of how beings exist calls for natural science as the appropriate way of making available the things in the world. Today's science can exist only because nature is revealed as existing in a technological manner.

Heidegger calls the specific way in which Being reveals itself in the age of technology *das Ge-stell*, or enframing. In the age of technology, everything is revealed as standing reserve or *Bestand*. By this, Heidegger means that everything is ready for ordering and use. What Heidegger finds most worrying is that human being now also belongs to the realm of standing reserve.

Heidegger does not suggest that we try to change or escape modernity, or try to incorporate it into a fuller totality in the Hegelian manner. However, there is a sense in which modernity and with it technologico-calculative thinking can be 'overcome'. Heidegger suggests an attitude of *Gelassenheit* as a possible way in which this can take place, although *Gelassenheit* is all but an easy 'solution'. I evaluate *Gelassenheit* as a possible escape route from technological thinking in Chapter 6.

With regards to *Gelassenheit*, I have described Heidegger's ideas on the end of philosophy and the thinking that he believes can overcome the reign of calculative thinking, as well as his suggestions regarding the saving power of art. In Chapter 6, I will discuss whether these suggestions by Heidegger are in any way fruitful for modern human being in going beyond the hegemony of technology.

I now move on to a critical appreciation of Heidegger's conception of technology, truth and language as is set out in the preceding chapters, as well as this one. The point of such an endeavour is to highlight some of the possible objections to Heidegger's thinking in this regard.

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[3] Langenscheidt's New College German Dictionary. (Berlin, Langenscheidt KG, 1995).

[4] M. Heidegger, The Question concerning Technology in *Martin Heidegger: Basic Writings (Revised and Expanded Edition)* (London, Routledge, 1993), p. 318

[5] M. Heidegger *What is called Thinking?* (New York, Harper and Row, 1968), p. 24.

[6] M. Heidegger, The Question concerning Technology in *Martin Heidegger: Basic Writings (Revised and Expanded Edition)* (London, Routledge, 1993), p. 312.

[7] *Ibid.*

[8] See Chapter 3.

[9] H. Dreyfus. Heidegger's History of the Being of Equipment in H. Dreyfus & H. Hall (eds), *Heidegger: A Critical Reader* (Cambridge, Blackwell Publishers, 1992), p. 184.

[10] M. Heidegger, The Question concerning Technology in *Martin Heidegger: Basic Writings (Revised and Expanded Edition)* (London, Routledge, 1993), p. 320.

[11] *Ibid.*, p. 324.

[12] M. Heidegger, Letter on Humanism in *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1993), p. 244.

[13] M. Heidegger, The Question concerning Technology in *Martin Heidegger: Basic Writings (Revised and Expanded Edition)* (London, Routledge, 1993), p. 322.

[14] A. Feenberg, *From Essentialism to Constructivism: Philosophy of Technology at the Crossroads* (http://www-rohan.sdsu.edu/faculty/feenberg/talk4.html ,1998) p. 9.

[15] See his translators' note in W. Marx, *Heidegger and the Tradition* (Translated by Theodore Kisiel and Murray Green; Evanston Ill, Northwestern University Press, 1971), p. 176.

[16] See J.J. Kockelmans, *On the Truth of Being: Reflections on Heidegger's Later Philosophy* (Bloomington, Indiana University Press, 1984), p. 229.

[17] See his note in A. Hofstadter, *Poetry, Language, Thought* (New York, Harper and Row, 1971), p. xv.

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[19] *Ibid.*, p. 332.

[20] *Ibid.*

[21] *Ibid.*

[22] See M. Heidegger. *Being and Time: A Translation of Sein und Zeit* (Albany, State University of New York Press, 1996), p. 19 and M. Heidegger *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1993), p. 309.

[23] See Mehta, J.L. *The Philosophy of Martin Heidegger.* (London, Harper and Row, 1971), p. 56.

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[25] M. Heidegger. *The Age of the World Picture* in The Question Concerning Technology and Other Essays, W. Lovitt (trans.) (New York: Harper and Row, 1977).

[26] For a detailed discussion see M. Heim, *The Metaphysics of Virtual Reality* (Oxford, Oxford University Press, 1993).

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[28] M. Heidegger, Letter on Humanism in *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1993), p. 244.

[29] M. Heidegger, *The End of Philosophy and the task of Thinking* in *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1993).

[30] *Ibid.*, p. 436, 437.

[31] See, for example, M. Heidegger, The Question concerning Technology in *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1994), p. 331.

[32] *Ibid.*, p. 332.

[33] *Ibid.*, p. 330.

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[45] *Ibid.*

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[53] *Ibid.*, p. 277.

[54] M. Heidegger. *The Age of the World Picture* in The Question Concerning Technology and Other Essays, W. Lovitt (trans.) (New York: Harper and Row, 1977), p. 118.

[55] M. Heidegger. *The Question Concerning Technology and Other Essays*, W. Lovitt (trans.) (New York: Harper and Row, 1977), p. 121.

[56] *Ibid.*

[57] *Ibid.*, p. 124.

[58] *Ibid.*, p. 123.

[59] *Ibid.*, p. 125.

[60] *Ibid.*, p. 122.

[61] M. Heidegger, The End of Philosophy and the Task of Thinking in *Basic Writings: Martin Heidegger (Revised and Expanded Edition)* (London, Routledge, 1994), p. 434.

[62] W. Lovitt (trans), *The Question concerning Technology and Other Essays* (New York, Harper and Row, 1977), p. 21.

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[64] *Ibid.*

[65] *Ibid.*, p. 23.

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79 See H.L. Dreyfus, Heidegger on the connection between nihilism, art, technology and politics in C.B. Guignon (ed.), *The Cambridge Companion to Heidegger* (Cambridge, Cambridge University Press, 1993), p. 314 for an example of this view.

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89 *Ibid.*, p. 363.

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92 See S. Ijsseling *Mimesis: Over Schijn en Zijn.* (Baarn, Ambo, 1990), p. 36.

93 H.G. Gadamer, *The Relevance of the Beautiful and Other Essays* (New York, Cambridge University Press, 1986), p. 127.

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