BERNHARD IRRGANG

Handling technical Power

Philosophy of Technology

Philosophie

Franz Steiner Verlag

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To

Albert Borgmann
Marc Coeckelbergh
Andrew Feenberg
Larry Hickmann
Don Ihde
Carl Mitcham
Robert Scharff

Friends in discussing Philosophy of Science and Technology

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FOREWORD

Hermeneutics is still valid to many as a purely humanistic methodology and phenomenology is still known for its strong critic of positivism. At first glance, both the methodologies do not seem to be adequate to substantiate the Philosophy of technics. In the meanwhile, works on a hermeneutic philosophy of science have become quite acceptable. Especially, the approaches on the philosophy of technoscience – the thesis of a technical basis of modern nature – as experimental sciences have offered support to a hermeneutic philosophy of technics. Almost all these approaches find their place in the US. But Heidegger is still recognised as a philosopher of technics also in Germany. Indeed, in the beginning of the 21st century, Heidegger influences more clearly, in the background of the Aristotelean conception of technics, the discussions on the theme of technics not only as a critic of technics after the so called "turn", but also before his "Being and Time". The turn on the philosophy of technics of the early Heidegger in "Being and Time" (I noticed it with the help of my friend Nestor Corona) can be fruitfully linked to the approach of "tacit knowledge" (Michael Polanyi) and "expanding hermeneutics" (Don Ihde). The philosophy of technics by, for instance Albert Borgmann, Hubert Dreyfus and Carl Mitcham (to name only a few), Hans Lenk, Hans Poser and Walther Zimmerli in Europe as well as the historical approaches on technology by my colleague in Dresden Thomas Hänseroth have also inspired my hermeneutic philosophy of technics.

This work is a translation of my german book "Grundriss der Technikphilosophie. Hermeneutisch-phänomenologische Perspektiven" (Würzburg 2009), corrected and improved by the author. I offer special thanks to my assistant Michael Funk and my Ph. D students for the exciting academic discussion, and especially to Mr. Somasekharan Gokul, the translator of this book.

Dresden, early summer 2014 Bernhard Irrgang

INTRODUCTION: HERMENEUTIC PHILOSOPHY OF TECHNICS AND TECHNOLOGY

The philosophy of technics is a recent discipline, which is only around 130 years old. Still in the 19th century, thinkers like Hegel, Buckhardt and Dilthey did not attach any historical significance to technique. The manual and technical skills and their practical accomplishment of technical activities were seen as objects of lesser grade. They belong to the daily world. This has changed basically with the reassessment of the themes of Lebenswelt and Alltaeglichkeit by Edmund Husserl and Martin Heidegger respectively. Moreover, technics has become a dominant factor in the daily life of mankind, something which was not the case in previous times. Philosophical reflection on technique and its mouldings as well as different conceptions of the understanding of technology would not allow to reduce the analysis of the development of technique merely to the determination of productivity. It must preferably take into account several factors of development and should methodologically inquire into its significance, meaning and value. What is attempted here is a convergence of perspectives, in which the development of technics can be interpreted. A respective understanding of technics and technology has to be derived and the arguments which are for and against a particular interpretation have to be discussed for this purpose.

The words technics and technology are used in multiple forms. The concept of technics originates from the Greek word “technikos”, manual and artificial, which means the knowledge of processing, transferred individually or by guild, and its products. At first identical with the concept of art in the sense of handicraft, technique describes the measures and processes, with the help of which, man manufactures things through the appropriation of natural laws and natural resources and make them available for production. In this respect, technics includes an approach, which integrates the knowledge of natural sciences. The concept of anticipation (prior understanding, tradition, pre-structuredness of paths of development), contains a new dimension in the framework of hermeneutics of understanding. The hermeneutic situation of understanding depends on a pre-structure of understanding of a world-design, which contains anticipation. In the daily conception, anticipation means an expectation of the future behaviour. A particular vision of future manifests itself in such an anticipation. From the perspective of hermeneutics of technics, technics can be understood with recourse to technical traditions and manifestations of technical actions in history. Simultaneously on the other hand it can be understood only with the help of an anticipation of the technical development in future. Hermeneutics of daily life observes along with Martin Heidegger, an essential element of technics in the skills of handling or operation and the knowledge, which serves as its basis.

One can find in Aristotle an early form of the thesis of handling of technics. He writes: since we partly produce the material in different sectors of our manual labour, partly to process it for further use, we treat everything, whatever there is, as means for our ends- for in a certain sense we are also in fact an (nature's) object. The term "object" is ambiguous, it refers to the scripture on philosophy, "now there are two trades every time, which determine the material and the knowledge about what the material contains, that is to say, the trades, which (out of which the material can be produced) are applied and on the other side, the ones, which have a leading function during the process of manufacture […]. We distinguish the manufacturing manual labour, which includes the knowledge of the material. That is how a navigator conceives the rudder of a ship and states, how it can be designed. But the other one (the ship manufacturer) knows and states from which wood it can be made and which processes can be adopted for its manufacture. The end-use should have only the knowledge of the object, which the concerned has to accomplish each time" (Aristotles 1979, 37f). My own definition ties in with Aristotle's. Technology means 1) knowledge of skills of construction and manufacture of technical artefacts. 2) Knowledge about the structure, function and efficiency of technical artefacts. 3) Knowledge of skills of use, handling, disposal and application of technical artefacts (Irrgang 2008a).

The point of departure for a hermeneutic concept of technical knowledge and understanding is implicit or tacit knowledge (Irrgang 2001a). An understanding of the technical action based on this develops, which builds upon a conception of the use of tools and respectively also of the handling of natural processes, in the instrumental understanding as the implicit knowledge of handling. What is of pre-eminent significance is not the analysis of tools, instead that of success, which can be achieved with the help of a technical resource. What is explored is the way of realisation of an intended effect. The interpretation of implicit technical knowledge goes in the process beyond Martin Heidegger's existential analysis of technical handling of the material world (Corona, Irrgang 1999). The point of departure of the philosophy of technics is the concept of an implicit knowledge of handling on the basis of a process of understanding of the possibilities of application of natural processes or of tools. This implicit knowledge of handling should be reconstructed in the sense of a mutually interwoven knowledge and skills, determined by the material structure which is dealt with and the habituality of the person handling. Only thereafter becomes the explicit knowledge, mathematicisation and a scientific basis crucial for technics.

Technics and its user meet in a particular referential connection, for example, a stone which can be used as a hand-axe and a nuclear plant which generates electricity. The programme of philosophy of technics suggested here interprets the technical artefacts in the context of their social application with reference to its cultural significance, and hence more or less institutionalised forms of technical handling. Research until now limited itself mostly either to the renewal of construction laws of the technical artefacts or to the formation of social projects. A methodologically

verified mediation of both the approaches after taking into account the socio-cultural aspects seems to be badly essential as a point of departure for the philosophy of technics.

Technical knowledge is not theoretical knowledge in the traditional philosophical sense, instead it is the knowledge of handling or know-how, which can be reflexively worked upon. A hermeneutic approach is apt for exactly this kind of knowledge. The processes of interpretation set horizons of explanations as a prerequisite. Ex: Models, basic settings, guidelines as well as basic anthropological and cultural assumptions in the framework of analysis of technical handling. A hermeneutic analysis of technical handling begins normally not with an individual, instead with social "systems" (forms of praxis), which use the artifacts. Social systems use artifacts for a certain purpose, i.e. with a certain intention. An interpretation-theory of technical handling is assumed to be an art of framing questions regarding technics, which develops its context of use in its cultural significance and in its future potential. The phenomenology and hermeneutics of technical handling as a theory of methodology of the philosophy of technics analyses assumptions and preconditions of interpretations, which serve as the basis of the way of use and development of technical praxis. The analysis of technics means in such a process a form of description of not only the technicised daily world and the know-how, which serves as its basis, but also the reflection and metareflection on technics.

Traditionally, the interaction between man and technics is treated as explained in the concepts of labour and production. But the high-tech society has changed the traditional concepts of labour and production. An analysis of technical handling intervenes here and demonstrates that the daily world right from the beginning has been interspersed with the economisation of technical handling. Technical handling through its processing of nature and artifacts shows a non-specific tendency for symbiosis with natural sciences to the extent they exist. The intended effects, aims and purposes and the non-intended effects are the determining starting points for such a theory of application-contexts of technics, which is shaped communicatively and instrumentally. Traditionally, technical action orients itself initially towards archetypes, models, designs and concepts of technical and non-technical kinds. Its cultural embedment lies in that. One of the essential tasks of such a theory of interpretation of dealing with technics (hermeneutics of technics) is the interpretation of models and images, which guide its handling. Structures, which constitute the technicised life-world and the metaphors, which guide it in its social (for example, in the model of car-free inner city) and ecological dimensions (for example, in the image of our blue planet) constitute, develop and make the technical praxis possible. Also, the social dimension of technical action cannot be understood without the communicative action.

Technical megasystems, especially for the supply of energy, have transformed the daily life in the industrial socities in a drastic manner. The information technology systems and our systems for food production have also had the same impact. Even if there are no convincing theories to account for the interspersing relation between technical artifacts and the ways of their social application and also between social groups and individuals, a glance at the history of technical praxis and its

cultural embeddedness in its formulation can perhaps help in this regard. The determining aspect in the description of technical application is not the contrast of the instrumental and the communicative, instead the mutual engagement of communicative and instrumental behaviour in order to achieve a particular goal. It turns out in the process, that the hermeneutics of technics overcomes as a rather integrating concept the classical dichotomies in the interpretation of technics.

The hammer in the tool box has no purpose and may be interpreted as value neutral (although most of the technical tools have their own particular purpose, which is more, the more specialised they are and still have only less application possibilities). The hammer, which is used by a carpenter to construct a roof truss exists in a particular social use-context. The apparently value neutral equipment has now a purpose, which can be assesed. It exists in a different use-context and acquires a different significance if it is used as an instrument for committing murder. It is not an instrument as such, which explains a purpose or an aim as implied by the traditional theories of technics, instead rather definite applications, which qualifies more as an artifact. These can be related to different levels of communicative interaction forms, which make in a specific form the living together of humans possible. However, technical artifacts are completely value neutral as technical equipments, since they are created for particular applications and are used accordingly. The technical artifact achieves its significance in the technical praxis. This applies for invention as well as application.

A hermeneutic interpretation of the technical praxis links Edmund Husserl's theory of life-world as world of obvious evidences, on which every theorisation is based, with Heidegger's concept of mundaneness or every-day-life (Alltaeglichkeit). Technical praxis in this sense is not at all self-evident, instead it is enforced by contingency. Technical daily activities help to come to terms with contingencies, achieve use satisfaction and organisation of the survival and is characterised by technical knowledge of handling, tradition, occasionally by inventions and innovations as well as by success and failure. Technical activities in the daily world, technicisation of daily world, technicisation of science and the technologisation of technics, science and daily world all lead to different types of technical uses and to an emergence of these types in a non-linear "logic of development" (paths of technical development). The mutual effects of technical uses on the daily world, handicraft and trade, later industry and automatised production, technical sciences and technology, technical empirical research as well as society, culture, politics and nature all lead to a complexity, which cannot be comprehended completely by a theory. Different restraints are necessary on this ground (Irrgang 2002a).

Conflicts of interpretation, which can as much as possible be interpretatively, argumentatively and discursively explained, do not originate least on this ground. Hermeneutics of technical-instrumental action links a humanistic understanding of cultural embeddedness, natural scientific-technical explanation of use-contexts, empirical and social scientific model formation and methodically reflects the technical philosophical reflections on the significance and purpose of technical images (and their evaluation) in their specific social ways of use. Hermeneutics is indeed

traditionally a methodology of humanities. But it has to be made fruitful for a science of action of instrumental-experimental and technical reasoning. The reflection on the methodology of technical sciences is one of the prerequisites of a philosophy of interpretation of technical action. We must learn to interpret technics productively. The moralising of technics or at least certain technics leads us aloof and would fail us in the task of evaluation of technics and the appraisal of its impacts. Technics has become a dominant cultural factor in our civilisation. Man may regret the fact that at least in industrial nations he cannot escape the domination of our lives by technology. Hence we need a philosophical response to the challenge of contemporary technics. The very first prerequisite for that is an adequate understanding of technics, technology and technoscience. This does not mean that we must learn to understand thoroughly the ways of its functioning. This is the task of engineers and technical sciences. Instead, the philosophy and the new hermeneutics of technics aim to highlight the significance of technics in its use and bring to light the sense and nonsense of it. The right guidance about its right handling and if need be, also its disposal should be placed next to the hermeneutics explaining the significant ways of functioning and principles of effects of technics. The discourse in the circle of experts can only have the preparative, or rather structuring character. The power of public opinion must be used in the best possible way for the interpretation of technics.

The understanding of the daily language as the metalanguage is the first approach towards a hermeneutics of technics. To understand a technical artifact means to know under which circumstances it can be used (and what consequences it can have). To understand a technology is to know under which conditions its process achieves its aims (and what consequences it can have). Hermeneutics of technics works on a clear interpretative speech on technics and its use. The hermeneutics of technical praxis is not itself a technical praxis but rather its linguistic penetration, reflection and elucidation under an operative-theoretical consideration. It means further that the motivation, situation, the design, the structure of the object and the consequences of operation of technics and technology respectively are explained here. The technical construction is not at all a self-objective (other than the playful-experimental handling of technical artifacts in Hellenism and other forms). The playful dealing with technics also has mostly its own objective, vaguely a religious, artistic or an entertainment-oriented one. Hermeneutics of technics is hence preferably the analysis of goal or meaning. But it should not also do away with the analysis of its consequences.

Hermeneutics of technics is moreover a methodologically verified and reflected introduction of an academic language of the hermeneutics of technics, which is obviously built on the foundation of an everyday language of technics and society. Its main tasks consists of re-construction of genesis, ways of functioning and the impacts of technics and technology respectively in working out its aims and also accordingly the meaning of ways of application of technics or technology and its argumentative evaluation with respect to its acceptability. Hermeneutics of technics is a search for an adequate language on technics. It must include explicit and implicit knowledge. It deals with the modelling of technics, the technical praxis and

the competences that are its basis as well as the leading paradigms. The introduction of a terminology can be explained from the perspective of its factual and potential use as well as from that of its ways of functioning. With regard to the cultures of innovation, it is a matter of interplay of changes in use and design between the manufacturer and the user with a view to the formulation and development of paradigms. The question: what is the purpose of this technical artefact or this technical process is a prominent one in the methodological introduction of technical-hermeneutic formulation of questions and problems. It is about the conditions of possibilities of uses of technics, its success and failure. These conditions are the embedding factors. The analysis of these is central to the hermeneutics of technics.

This task is the most pressing one. We have been experiencing the digitilisation of the technologicised daily world for a few decades. The experience of the upheavals that accompany it leads to loss of tradition and change in values. Philosophy acquires new significance of life in the face of the lack of orientation in the technicised daily world. It is a matter of public philosophising outside the academic walls. Philosophy has to recognise the inevitability of technicising of the daily world and will lead to other forms of organisation of philosophy. Philosophy should take into account modern technologisation and should not develop a philosophy of technics in the sense of a discipline (Zimmerli 1997b, 9). In all, technics and science should be understood as culture. The hybrid of technics and science developed in the second modernisation has brought about a second dialectics of enlightenment (Zimmerli 1997b, 13). The most important characteristic of this second modernisation is the microelectronic revolution and its complete penetration of our world. It is clear here, that the development of technics cannot be described solely as a logic of development of technics in itself, instead it should be seen in the social and cultural context.

Technics is more than the entirety of technical artefacts. System concepts in technics can be described by the Heideggerian expression “Gestell” (framework). “Gestell” is the direct translation of the system-technics. Technics as system applies to every technics, not just to modern technics. The earlier technics can certainly be understood as an accident in the sense of an accidental success of technical operations. This technics exists also among the higher animal species. Higher technics can certainly be viewed as regulated technics. It is a technics, in which the sources of disturbances are sealed off in the sense of cybernetics. Safeguarding means to guarantee the preservation of functions. To that extent system-technics is safe. In the epochs it is a matter of accidental development of resources, energy sources and material. In the second phase of the development of technics, experiments are discovered and they become the central point of a new understanding of technics. There is a structural analogy between experimental knowledge gaining and technical invention. The central concept today is the expansion of stock rather than its protection. This leads to the hybridisation of man in the sense of man-machine interface and new forms of insecurity. The cultural pessimistic interpretation amounts to the statement: the modern technics has outstripped its subject (Poser 2008, 112–129). The decisive problem in the hyper modern technics for me certainly is the structuring of the knowledge of operation under the changed conditions of a new

man-machine interaction. The user preferences should in any case be taken into account.

The idea, that science can all solve all problems started to fail in the beginning of the 20th century. The quantum theory, Goedel's theory and Kuhn's theory were major milestones in this account. It became clearer, that there is a lack of exact understanding of scientific aspects. Science and technology had to be understood better on account of this. A new sociology of expertise was developed. One of the models in this connection was the linguistic competence. Apart from that commonsense or daily understanding was also taken into account. It deals with the claim, that the normal crowd is more intelligent and wise when it comes to mundane problems than the experts in many technical fields. It is hence necessary to analysis the expertise and define different types of experts, for example to distinguish technical experts from meta expertise. The unhealthy monopoly on scientific and technical judgment had also to be done away with. It is so to say not a problem of the methodology, instead that of the consensus of experts. In this respect, the critic of science and technology is linked to the critic of scientism and points to its dissociation from mundane analysis (Collins, Evans 2007, 13–40). Intelligence is a bodily affair, which requires altogether the social embedment of corporeality (Collins, Evans 2007, 78f). Different levels of trusts and criteria of separation between the individual levels have to be distinguished from each other (Collins, Evans 2007, 114).

PART I: DEVELOPING TECHNICAL POTENTIAL: THEORETICAL TECHNOLOGY

The ahistorical nature of several popular technology societies was put an end to by the Society for the History of Technology (SHOT) with the publication of its journal "Technology and Culture" from 1959 to 1980. Kranzberg, Rae, Condit and Hughes can be considered as the most important authors in the first phase of this movement. Melvin Kranzberg belonged to the early group, which published articles before 1964. Lynn White, William Fielding Ogborn, Cyril Stanley Smith, John B. Rae, Peter Drucker, Louis Mumford and Rupert Hall became later members of the "history of science society". They turned against a pure internalistic style of scientific and technological description. The social milieu of technology was also used in its description. Mistakes, coincidences and multifactorally constituted components belonged to the social milieu. The dominant function of the society was still not seen in the early period, but its dynamic social context was anyway considered. The existence of a corpus of specialised internalistic histories of technology could not be denied. But there existed no standardising concepts, which could unify different technologies with an individual singular of the universe of discourses. Technological necessities mesh together with the lack of consideration of social decisions in the processes of technological development (Staudenmaier 1985, 3–7).

The contextual history of technology contains also works by Jacob Schmookler und William Fielding Ogborn, which made the non-historical analyses acceptable. The methodological problems especially were part of them. Basic methodological problems and the methodological style in the journal "Technology and Culture" were contextually internalistic, externalistic, non-linear, non-historical and historiographical reflections. Dornberger's study on V-2 rockets and V-2 Team did not go beyond the hypotheses. The historical process, which Lyon White describes in his article on the nature of invention could appear only in particular situations, in which the historians had declared pure critic as their goal. It was about developing hypotheses. Those approximately ten articles, which are considered externalistic in the first seven years, dealt with themes, which were not characteristic of historical research. Externalistic studies increased in the second and third periods. SHOT began as an internalistic trend of studies, but limited itself to historical investigations in a cognitive world view. Cognitive anthropology insists, that all individual activities can be encountered in one cultural milieu. They can be seen in a cognitive universe, which is multifactoral and complex. It is to a certain extent a culturally learned universe. The significance of acquired prejudices was singled out here as the origin for fresh research. It dealt with textual and sociological analyses (Staudenmaier 1985, 9–25).

Lynn White turned to the technological order and the process of invention, development and innovation. He described the technologically supporting network, the technical tradition, the system and the technical supplementary network. The process of technological change and the process of development were based on the negative-feedback metaphor. Research and development were mutually interlocking and were based on the three steps of invention, development and innovation. The idea of technical tradition was central here. The historiographical status of system-approach and the contextual approach of the history of movement of technology were mutually interlocking (Staudenmaier 1985, 35–80). Detailed discussions on the interaction between science and technology followed in the scientific societies (SHOT) of 70s and 80s. Technology was considered here as an applied science. A language of science and technology was formed and developed. The relation between science and technology was thereby investigated and the following model was developed: (1) Scientific activity is motivated by curiosity and its technology is motivated by the solving of problems. (2) The desired artifact is a theoretical model in sciences, whereas what stays in the foreground in technics is the desired effect of the artifact. Edwin Layton and Cyril S. Smith were among the authors in the heydays of the discussion. (3) Science brings about technological creativity and leads to rationalisation of the existing technological practices. These trends developed case studies on Rankine and Redtenbacher, Lavoisier and Maxwell. Robert P. Multhauf, A. Rupert Hall and Lynwood Bryant also belonged to the authors. (4) Technology associates with science the development of instruments, posing scientific questions and creating new conceptual models for the later science. (5) Scientific and technological activities develop in human societies and influence scientific and technological interaction. Arnold Thackeray is one of the authors of this model. (6) Technology as applied science. Mario Bunge represents this model. (7) Technology as non-applied science was represented by Joseph Agassi and Cyril Smith (Staudenmaier 1985, 83–99).

Scientific verification through controlled varying experiments was represented by Hendrik Skolimowski, who singled out four characteristics of technological knowledge. It deals as much with scientific concepts as with the demands of technological designs. This became clear in the project Whirlwind of MIT. Milton wrote on the prison of Newcomen. Lynwood Bryant's study of the later thermodynamics and its effects on the construction of machines follow this direction. Problematic data led to an engineer’s theory of machines. Idealisations of machines, rays, steam-machines or similar tasks were developed. Edward Constant followed this direction. What remained thereby the basis was a certain experience in engineering, which rested on technological capabilities and competences. The tension between competence and theory was identified and recognised by the representatives of two types of education along engineering lines, of the “shop culture” and that of the “school culture” (Calvert).

Lynn White’s contributions in “Technology and Culture” dealt with technology transfer and the verification of specific types of transfer. It was about developing the vehicle for technology transfer and supplementary networks of technology. Transfer and culture were mutually dependent. Hacker, Hughes, Jensen and

Rosegger were among the authors of this shade. The debate on technological determinism was central to it. Technological progress in a deterministic sense was viewed advantageous and it fixed particular sequences, which were considered necessary. The relation of society to technological change consists certainly always in a way of adaptation. A deterministic history of technology was seen therewith in relation to the increasing triumph of the West. That is how an autonomous technology-hypothesis emerged. The instant of the movement counted as an explicit model for the history of technics. The leading concepts for this period of "Technology and Culture" were provided by Kenneth Bailes, Daniel J. Kevles, David Hounshall and Hughes. The concept of body in motion was also discovered in a non-technical sense. Bell's amateur approach to technics and Gray's professional style complemented each other. The theory of a political style of technological progress evolved in this way. Its protagonist was Loenes C. Hunter. The persisting nature of regime-like policy of promotion of technological development and the significance of financial interests for this process of designing, the persisting nature of cultural values and how values shape construction, all these became the object of cultural studies of technology transfer (Staudenmaier 1985, 121–158).

1. TECHNICAL PRAXIS AND TECHNICAL POWER: TECHNICAL ARTIFACTS AND STRUCTURES BETWEEN CONSTRUCTION, USE, MAINTENANCE AND DISPOSAL

Heidegger's philosophy of technics after the turn of 1949 is well-known. After his departure from the European central idea of subjectivity and rationalism, he brand marked, on the basis of his principle of reason, "the rush of cybernetics" and demanded a new sober thinking after the "end of philosophy", which goes beyond rationality and irrationality. The technical age is of a non-secretive rationality, which is characterised by efficient computation (Heidegger 1971, 168). The essence of modern technics, for Heidegger, consists in transition into its own self-validity. It does not serve man anymore, instead it rules him and the nature. The idea of causality in the western metaphysics is to be blamed for that, which stretches from the Aristotelean four-nature-theory to Descartes' concept of "causa efficiens" (reason, which causes) and to the concept of mechanism in the 17th and 18th centuries (Heidegger 1962, 8). The idea of causality has in its miscalculation brought philosophy to its end (Heidegger 1976).

Less well-known is his philosophy of technics in the early period. Heidegger develops a philosophy of technics in the sections 14 to 18 of Being and Time, which addresses the issue in a totally different manner from the hitherto known philosophy of technics. In his analysis of the human Dasein as one of "being in the world", he comes across the phenomena of "Mundaneness" (Alltaeglichkeit) or of the mundane of being in the world (Heidegger 1972, 66). In the analysis of "taking care", he develops the concept of knowledge which examines. "Taking care" by using and handling has its own knowledge. The human "Dasein" in the world is always in a use-form. Heidegger reached the pre-phenomenological ground in this manner. The structure of things can be elucidated by putting oneself in the act of "taking care". The things were called Pragmata by the Greeks. For Heidegger praxis meant handling or association in a caring manner. For the Greeks Pragmata meant plain things. Heidegger's inaugurates a way to understand the use of things in the sense of praxis. The structure of value-afflictedness can also be determined in the use of things (Heidegger 1972, 68).

Heidegger interprets Pragmata and things as equipment. Automobiles are things, which can be used for travel. In his analysis of Being-as-equipment Heidegger comes to the conclusion that the equipment is essentially "in order to", which refers to something else. The handling which is most cut out for the equipment calls Heidegger readiness-to-hand of the material (Heidegger 1972, 69). The ready-to-hand marks a being, which calls for handling. While dealing with the anxious world, the being can meet the not ready-to-hand. The not-ready-to-hand is that, which the Dasein cannot obtain, what remains left as unfinished. The availability

of the ready-to-hand is characterised by conspicuousness, intrusiveness and recalcitrance. The world consists thereby not only of the ready-to-hand. Taking care rests on the familiarity with the world (Heidegger 1972, 76). The existential constitution of the Dasein as affectivity is the most well-known and mundane, that is to say the mood, the state of being tempered. Without defining it further Heidegger begins the analysis of human corporality as the state of being tempered (Heidegger 1972, 135). Heidegger apostrophizes thereby this being (Dasein) as human corporality and enigmatic. The affectivity develops the dasein in its thrownness mostly in the manner of an evasive estrangement (Heidegger 1972, 136).

Heidegger's philosophy of technics in Being and Time owes predominantly to his engagement with Aristotle (Corona, Irrgang 1999). Heidegger begins his early phenomenological statements with a self-reflection of the hermeneutic situation (Heidegger 2002, 5). The where-upon of care is the where-by of handling. The emotion involved in taking care shows multiple ways of execution and of drawing upon the where-by of handling: to handle, to prepare, to manufacture, to ensure through, to put in use, to use for, to own for, to preserve for and to miss. The where-by of the execution of handling, which corresponds to these ways, stays each time in a particular relation of familiarity. It is a matter of ensuring and increasing the familiarity with the object to be handled. The factual life moves always in a particular existing, re-contructed or newly acquired state of configuration (Heidegger 2002, 14–17). For Heidegger it is about the original phenomenological hermeneutics of facticity (Heidegger 2002, 29).

Heidegger likes to offer a concrete interpretation of the Aristotelean philosophy, oriented by a radical phenomenological anthropology (Heidegger 2002, 37f.). The field of the object, which provides the original meaning of being, is that of the one manufactured and existing in local use. What characterises the beings as being in ready keeping and as possession is its manufacturedness (Heidegger 2002, 41f). Husserl's theory of the intentionality of consciousness does not take into account the dimension of instrumental handling of the reality of things. The instrumental and creative-playful handling of the object is always mutually interspersed. What has to be accounted for is the perspectivity of intentionality, which does not nearly follow from Husserl's analysis. Like what Hans Georg Gadamer asserts, Heidegger worked out an understanding of Aristotle in 1922, which, because of the phenomenological talent of the young professor, introduced a true revolution. For he turns his attention to the performed act of handling of things in order to ensure familiarity. Phronesis is seen therewith not as a dianoetic virtue, but as a hexis, i.e a competence. Heidegger brings out the significance of phronesis, of practical knowledge, which is inclusive of the Kantian idea of judgement. For Heidegger, it is all about substantiating in detail, why one should go back again to Aristotle, if one wants to really understand the Christian history of the west in its productive possibilities and make our own situation in the present more transparent (Heidegger 2002, 80f).

One must thereby observe, that Aristotle was for Heidegger a disguising traditional figure, which does not let occidental thought come to itself and have a free reign (Heidegger 2002, 83f). Heidegger is convinced that Aristotle was a phenom-