From Mechanistic Philosophy to General Organology—Materialistic Dialectics of Machinery and Organs

Haoran He

School of Marxism, Beijing Jiaotong University, Beijing 100044, China.

Abstract: The French philosopher Bernard Stiegler's philosophy of technology is wide spread all over China, while the researchers do not pay the same amount of passion in critical analysis and uncritical applications. Few articles have been issued on the topic of the originality of general organology. Through problematic analysis and research of thought of history, the academic significance and contemporary value of general organology has been revealed, which is a synthesis of the study of the history of the body and the history of technology that helps to scientifically understand the technical reality and psychological reality in contemporary eras.

Keywords: Mechanism; Megamachine; Organ Projection Theory; General Organology

1. Introduction

Bernard Stiegler is a representative figure of in the field of philosophy technology, whose "technics and time" three volumes has caused great repercussions. However, general organology (l'organologie gérale in French), as one of his main doctrines, does not get the attention it deserves. In order to make it understand by potential readers in need, this paper will return to the essence of the problem in terms of the history of ideas and technology: what are the internal reasons for comparing organs to machines and machines to organs, and what are their external effects?

2. Mechanical materialism: the machine metaphor from organ to society

2.1 Mechanical metaphors of organs

The mechanical metaphor of the organ is indiscriminately based on Descartes' mind-body dualism: matter is reduced to res extensa, while life is abstracted to res cogitans, and the nature of the entity that is relevant to the extensa is called the first nature, while the nature that can only be thought of by the life is called the second nature, and the primacy of the first over the second defines a "mathematized" new physics, and the Aristotelian physics explanation of the purposive and dynamical causes of motion was replaced by the new physics explanation of dynamics, the metaphysics of the new physics introduced a mechanistic philosophical view of the world: that nature is the most subtle of clocks and watches, and that God is the most brilliant of watchmakers. From the point of historical view of materialism, this mechanistic metaphor of logical chain entered into cultural life with the technological development of 17th century.

In addition to the influence of technology, the achievements of the physiological sciences contributed to the formation of a mechanistic worldview: with the public publication of William Harvey's Theory of the Motion of the Heart and Blood, the Galenic doctrine, which had ruled the medical profession for millennia, was overthrown and the circulatory theory of the body's blood took its place, even though Harvey himself continued to take a cautiously vitalist view: "(For Harvey), organs are more like 'autonomous' creatures than clocks or mechanical pumps "[1], yet there was no shortage of Cartesian interpreters of Davy's findings, and in the case of the Italian physician Giorgio Baglivi (1668-1706), the human body was thoroughly sophisticated machine, and the organs were inter-coordinated machine parts:

> "Examine with some attention the physical economy of man: What do you find? The jaws armed with teeth: Are they anything but pliers? The stomach is but a retort; the veins, the arteries, the entire system of blood vessels are hydraulic tubes; the heart is a spring; the viscera are but filters, screens; the lungs are but bellows. And what are the muscles, if not cords? What is the ocular angle, if it is not a pulley?"[2]

2.2 The Machine Metaphor of Society

In The Myth of the Machine, historian Lewis Mumford introduced the concept of the "mega-machine" to refer to the "invisible machine" that organizes all the material activities of human society:

Because the components of the machine, even when it functioned as a completely integrated whole, were necessarily separate in space, I shall for certain purposes call it the 'invisible machine'.....But when all the components, political and economic, military, bureaucratic and royal, must be included, I shall usually refer to the 'megamachine': in plain words, the Big Machine. [3]

In his opinion, the best example of the ancient giant machine is the pyramid in ancient Egypt. In ancient times, the megamachine aimed at the mobilizing power of manpower;while in modern times, the megamachine aims at saving the cost of manpower. Despite their diametrically opposed attitudes toward manpower, both operate on the same logic, namely, the efficient functioning of the megamachine itself. In Mumford's view, Hitler was the main enforcer of the modern megamachine, and Hitler's totalitarian model was so tightly integrated with the most advanced science and technology of the time that Albert Speer, the Minister of Armaments in Hitler's regime, still insisted at his trial before the International Court of Justice at Nuremberg that:

"Earlier dictators needed highly qualified assistants, even at the lowest level—men who could think and act independently. The totalitarian system in the period of modern technical development can dispense with such men . . . it is possible to mechanize the lower leadership. "[4]

The modern "megamachine" represented by the German Third Reich embodied the ultimate pursuit of efficiency, and although the Third Reich still objectively contributed to the development of productive forces, the production-only mode of social functioning confirmed the limitations of the mechanical materialist understanding of productive forces and relations of production.

3. Organic idealism: from mechanical to social organ projection

The reflection on subjectivity and organicity in German classical philosophy inspired Ernst Kapp to think about technology and society, and Kapp's organ projection in Outline of the Philosophy of Technology laid down his pioneering position in the field of philosophy of technology. Kapp's originality lies in the fact that he explained the nature and power of technology for the first time through the organ projection of the human body, and regarded technological invention as the essence of human being's subjectivity.

3.1 Projection of organs in machines

According to Kapp, machinery is a projection of the human organism in form, structure and function[5] : for simple machinery, the projection is derived from similarities in form, e.g. the hammer is the projection of the hand, the saw is the projection of the teeth; for more complex machinery, the projection is derived from structural similarities, e.g. the steam engine is the projection of the nutrient system; for more complex technological systems, the projections derive from a functional similarity, for example, the railroad system was seen by him as a projection of the blood of the human body, since both have the function of circulation.

Organ projection is not a simple imitation of human organs, according to the textual interpretation of relevant scholars, this projection process is theoretically divided into three steps[6]: one is the unconscious projection, people unconsciously amplify the function of the official, manufacturing mechanical objects to extend the human body's perceptions and the body; the second is the projection of the manifestation of the process, people begin to realize that the mechanical object is a projection of their own organs, "the external world is the internal world"; the third is the projection back, man through the external world of the projection of the material conditions provided by the artifacts, mediated by technology to return to the human body. "The external world is a projection of the internal world"; and thirdly, projection back, in which man returns to himself through the material conditions provided by the artifacts of the external world's projection, mediated by technology, in order to better "know thyself".

3.2 Projection of organs in society

In Kapp's view, not only mechanical objects can be organically projected, but even the state can be regarded as products of organ projection, which might be juxtaposed as the organ projection of society.

In the lever of state, the division of labor in society corresponds to the functions of the organism's organs, such as the nutritional function of agriculture, the respiratory function of commerce, the neurological function of education, and so on. Although we can continue Kapp's analogy, for example, policing for the immune function, religion for the endocrine function, etc., such an argument is far from sufficient to illustrate the essence of the problem - how to prove the universal validity of this analogy? cleverly avoids the differences between the ancient and the modern, and with the aid of the naturalist Haeckel's theory of ontogenesis, he reduces the complexity of human society to the simple natural development of the cell. In other words, organs and human societies are products of cellular differentiation, and in this sense societies can be said to be projections of organs. Although the details of Kapp's and Haeckel's arguments are still somewhat theological, let's call them organic idealism, there is no doubt that Kapp left a place for technology in the field of philosophical anthropology, and perhaps this is the reason why Kapp was discovered by French anthropologists. So far this paper has dealt with the thesis and anti-thesis of the mechanistic-organic dialectic.

4. Organic materialism: from the mechanical to the social impact of the environment

Organic materialism, rather than technical evolutionary theory. In this paper, the term "organic materialism" is used in an awkward way, mainly to indicate the difference between the anti-thesis and the synthesis, and secondly to distinguish it from the Darwinian evolution theory of species, which refers to the technical evolution of organs.

4.1 From technical milieu to associated milieu

Based on paleontological evidence, Leroi-Gourhan argued that "the only undeniable criterion for defining human beings biologically is the presence of tools ."[7] From this argument, in his book Gesture and Speech ,Gourhan reconstructs the evolutionary process of human beings on the basis of the biology of posture (a technological tool that acts on the environment) and language (a tool for establishing contact with other species). According to Gourhan, man assimilates the external environment and fixes the posture of the body through the creation and use of technical tools. In this process, technology is like an organ of the human body - technology forms an envelope between mankind and nature, and the function of the envelope is like the selective absorption of the human organ into the external milieu, which is known as the technical milieu.

Simondon expresses similar views several times in different articles, most of which can be placed under the topic of general technology, for example in "Individualization and Invention" he argues[8] for the essential difference between the technician and other social divisions of labor, because the power of the technician is not only social, but also natural ; as an old proverb puts it, the king who is high in the heavens , too, has to bow down before the barber. The technician is synonymous with the "technological group" in the anthropology of Gourhan, where human groups are subdivided into racial groups and technological groups according to the level of technology, defined respectively as "racial groups are the material manifestation of the internal environment" and "groups that transcend the internal environment".[9]

In Simondon's view, the technician's transformation of the internal environment (social, cultural) of the ethnic group makes a society dynamic, which is what Bergson calls an open society, or in other words, technological evolution and biological evolution are synergistic, although they are not always synchronized.

Simondon argues that technicians in modern society do not refer in general to all those with technical expertise, but in a narrower sense to researchers with research capacity, who connect technological objects with human society, which allows them to tend to maintain a more conscious self-consciousness: for a technological object, it is constrained not only by the natural environment, but also by its own technological environment, and the joint effect of the two is to conjunctive environment; by the same token, for a human being, he is constrained not only by his cultural milieu, but also by technical milieu, and even by his natural milieu. Unfortunately, for most of the rest of the population, this kind of self-awareness is very rare, hence Simondon's appeal to the technician as a representative of the technical object to produce a technical culture, a process which, in turn, is long and difficult, and which can only be accomplished by means of the human resources produced by an encyclopedic technical education.

4.2 From general technology to general organology

Dr. Mingkuan Chen argues that Stiegler reconciles the interrelationships of the three individualizations in Simondon's philosophy of individuation, thus refining the connotation of general technology , "Stiegler's generalized organics is a refinement of Simondon's mechanology, a refinement whose main manifestation is to increase the constitutive significance of technology for the psychological and collective individual, i.e., admit technology individualization, and to rank this individualization as the leading position in the process of mutual individualization, recognizing its leading impetus for the evolution of human society."[10] Stepping back, whether or not one recognizes this as a refinement, the fundamental difference between Simondon and Stiegleris already at stake here: the reason for Simondon's insistence on the distinction between technical individualization and the individualization of living beings is that he believes that the fundamental difference between the evolution of technology and the evolution of living beings lies in the fact that the fundamental difference between the evolution of technology and the evolution of living beings lies in the fact that he believes that the evolution of technology is a fundamental one. The reason for this is that he believes that the fundamental driving force of technical evolution still lies in human invention, and that a machine without human beings is incapable of self-regulation; whereas Stiegler believes that technological individualization not only belongs to the individualization of living beings, but even plays an even greater role.

Perhaps the reason for this fundamental difference is that they lived in different times - Simondon died in 1989, before the Internet appeared, while Stiegler died in 2020, who has witnessed the development of the Internet. Simondon's regret is that he never saw the big language models of AI such as Chat GPT4.0, or in other words, if he had been able to travel to this time, would he have been able to stick to his previous assertions? Can machine learning of artificial intelligence be considered the self-regulation of machines? In the author's view, machine learning is still a form of training, and thus Simondon's distinction between training and learning is still not outdated:

"Machine adaptability is acquired by training, which is heavily dependent on a stable environment and regulates its actions according to defined goals, and is therefore limited by the environment; whereas human adaptability is acquired by learning, which integrates past experience and thus develops the richness of the human symbolic system. ."[11]

Therefore, human beings are not only able to adapt to complex environments, but also able to engage in a conversation with the environment and adjust their own goals in the process of adapting to the environment, and this self-creative ability distinguishes the adaptability of human beings from the adaptability of machines. In this sense, Simondon's general technology and Stigler's general organics are mutual refinements rather than linear advances in thought.

5. Conclusion

Mechanical, electrical and information technologies have shaped different people's imaginations of machinery in different times, while culture has shaped different people's cognitive images of the human body itself; the intertwining of these two mental images constitutes a dialectical movement of machinery and organs, while general organology is a philosophical attempt to grasp the images of the present.

Author He Haoran (1999-), China, MA in Philosophy of Science and Technology, Beijing Jiaotong University, with research interests in Philosophy of Technology.

According to Etymonline, an online etymology dictionary, the English word "chain" appeared in the fourteenth century with the original meaning of "a connection made of metal or other material" and acquired a new meaning around the seventeenth century "anything connected together".

References

[1] Thomas E. Wright. William Harvey: A Life in Circulation[M]. Published by Oxford University Press 2013, p.211.

[2] G. Baglivi, De praxi medica. in Opera omnia medico-practica et anatomica[M]. Venice, 1727 , p.78.

[3] Lewis Mumford. The Myth of the Machine: Technics and Human Development[M], Published by Harcourt Press, New York, 1967: 188-189.

[4] Lewis Mumford. The Myth of the Machine: The Patagon of Power[M], Published by Harcourt Press, New York, 1970: 248.

[5] Huang, Xinrong. Three basic problems of Kapp's philosophy of technology[J]. Studies in Dialectics of Nature,2012,28(08):27-31.

[6] Wu Jingwei,Mao Wanxi. Organ Projection: Kapp's Technological Thought and the Human-Technology Relationship in the Age of Intellectual Media[J]. Modern Publishing,2023,(04):56-71.

[7] Leroi-Gourhan, A. 1957. Technique et société chez l'animal et chez l'homme. In Le fil du temps. Ethnologie et préhistoire ,. Paris: Fayard 1983: 68-84.

[8] Glibert Simondon. Individuation and Invention[M]//In: L'individuation à la lumière des notions de forme et d'information. Translated by Taylor Adkins as Individuation in Light of Notions of Form and Information.London, Published by Minneapolis, 2020, p.410.

[9] Leroi-Gourhan, A. Evolution et techniques II. Milieu et techniques . Paris: Albin Michel, 1945: 369.

[10] Chen Mingkuan. Technological Substitution and Generalized Organs: A Study of Stiegler's Philosophy [M], Beijing: Commercial Press, 2021, p. 207.

[11] Glibert Simondon. Individuation and Invention[M]//In: L'individuation à la lumière des notions de forme et d'information. Translated by Taylor Adkins as Individuation in Light of Notions of Form and Information.London, Published by Minneapolis, 2020, p.418.