

## Abstract

### **The philosophical and existential roots of Norbert Wiener’s ethical ideas about cybernetics**

by Leone Montagnini

From the early intuition of cybernetics, during the second world war, until his death, in 1964, the ethical aspects were central in Norbert Wiener’s reflections about that new field of science and engineering, that now we call robotics, bionics, artificial intelligence etc. Therefore we can consider Wiener not only as “the father of the cybernetics”, as newspapers called him in the past, but also as the father of the ethics of cybernetics. In this sense I agree with Teller W. Bynum that “computer ethics as a field of study was founded by MIT professor Norbert Wiener”.

In this paper I’d like to summarize Wiener’s ethical reflections on cybernetics, tracing its philosophical and existential background, which I have outlined in my book *Le armonie del disordine. Norbert Wiener matematico-filosofo del Novecento* (2005).

Wiener (1894-1964) was an infant prodigy. He was fourteen when he got his B.S. in mathematics, and eighteen when he got his Ph.D. at Harvard University, in philosophy. William James, George Santayana, Josiah Royce were the philosophers that influenced him the most in this period. Without neglecting the influence of Lawrence J. Henderson and, especially, of Percy W. Bridgman. Wiener will be all his life a strenuous defender of the operational views in all fields, starting from some sort of finitism in logic and mathematics up to a behaviouristic approach into the study of the behavior of machines and organisms. From 1913 to 1915, he was at Trinity college in Cambridge for a postdoctoral period in philosophy. His main interest there was in modern logic and philosophy of mathematics, Bertrand Russell becoming his real mentor; but Wiener would attend also the lectures of the ethical philosopher George E. Moore, the neo-hegelian John McTaggart, and during the second term of his first postdoctoral year, he was at Göttingen attending Edmund Husserl's lectures.

From 1914 to 1919 Wiener wrote several articles. Some of those were dealing with logic but many others with philosophy *strictu sensu*. One of the earliest ones was just on ethics, *The Highest Good*, where – it seems to me - we can find an original synthesis of the ethical views of William James and Santayana; on the one hand a moderate cultural relativism, on the other an attempt to found human values on the animal nature of man.

In 1916 the Department of philosophy of Harvard did not accept the application of the young philosopher as an instructor. During the academic year 1916-17 Wiener taught

mathematics. Then, on the two following years, he published a large amount of philosophical papers for *The Encyclopedia Americana*, but his choice for mathematics became definitive when finally in 1919 MIT accepted him to teach mathematics. While articles as *Soul* and *Metaphysics* were being published, Wiener began a brilliant career as a mathematician for the rest of his life.

Between the two world wars, while Wiener was working hard together with physicists and engineers, most of the philosophical ideas of his early years were helping his scientific discoveries, in particular the ideas of “the essential irregularity of the universe” and that of the impossibility of an absolute foundation of every type of knowledge. Wiener was also anxious for the future of the humanity (he was thinking in particular to the crisis of 1929 and, afterwards, to the advent of Nazism). He feared - like many others - that science would have created further situations of social instability, but - in those years - he also thought that it would have been neither possible nor desirable to control science and to limit in some way the scientist’s activity.

The situation changed for him with the second world war. The war investigations led him to comprehend what cybernetics was and what should have been; in particular his researches on high speed computing machines and on anti-aircraft directors, the cross collaboration between experts on automatic machines like mathematicians, logicians and engineers and experts on biological and intelligent organisms like neurophysiologists.

In the autumn of 1945, after a deep crisis of conscience caused by the atomic bombing of Hiroshima and Nagasaki, Wiener decided to change his mind concerning the responsibility of the scientist. The first public statement in this sense is the passionate letter that *Atlantic Monthly* published under the title “A scientist rebels” on December 1946. In 1948 followed *Cybernetics*, the book where he presented all his research during the war and the discussions of the early Macy Conferences. He wrote in the book:

«We have contributed to the initiation of a new science which, as I have said, embraces technical developments with great possibilities for good and for evil. We can only hand it over into the world that exists about us, and this world is the world of Belsen and Hiroshima».

Wiener thought that a new time was coming, a time in which all social aspects would hinge on information, as in the past the main interest had been in energy and matter. Two years later he wrote:

«society can only be understood through a study of the messages and the communication facilities which belong to it; and that in the future development of these messages and communication facilities, messages between man and machines, between machine and man, and between machine and machine, are destined to play an ever-increasing part». It was Wiener who taught the humankind of the second half of the Twentieth century to rethink its present as the age of information. But he also thought that men would not yet be able to treat such new and pervasive reality: information.

In *Cybernetics* we find also the idea of a new industrial revolution based on automatic factories in which a fundamental role would have been played by digital computers. The new

field would have given men a «collection of mechanical slaves to perform its labor». But Wiener advised that «any labor that accepts the conditions of competition with slave labor, accepts the conditions of slave labor, and is essentially slave labor».

Wiener saw cybernetics itself as an usurpation of human activities:

«It will be seen that for the second time I had become engaged in the study of a mechanico-electrical system which was designed to usurp a specifically human function – in the first case, the execution of a complicated pattern of computation; and in the second, the forecasting of the future. In this second case, we should not avoid the discussion on the performance of certain human functions».

Those ideas are developed in the next book *The human use of human beings* (1950), in which he notes that some of these cybernetics machines «have shown an uncanny ability to simulate human behaviour, thereby to throw light on the possible nature of human behaviour». But also «they have even shown the existence of a tremendous possibility of replacing human behaviour, in many cases in which the human being is relatively slow and ineffective». Adding that «the purpose of this book is both to explain the potentialities of the machine in fields which up to now have been taken to be purely human, and to warn against the dangers of a purely selfish exploitation of these possibilities in a world in which to human beings, human things are all-important».

Cybernetic machines push the contemporary humankind, according to him, to ask the question on the difference between human and mechanical behaviour, human and mechanical use.

According to a style of thought that recalls *The Highest Good*, in the book Wiener suggested the idea of a foundation of a human ethics on the basis of a sort of evolutionary vocation of man to be a free, flexible, communicative being, in opposition to that of insects and in particular of ants, that are animals whose same biological constitution tends to the direction of forming ordered societies with preassigned roles. On the contrary – Wiener says – «for man to be alive is for him to participate in a world-wide scheme of communication. It is to have the liberty to test new opinions and to find which of them point somewhere, and which of them simply confuse us».

People often used to reply to Wiener's preoccupations by stating «the assumption that machines cannot possess any degree of originality»; on the contrary he thought that «machines can and do transcend some of the limitations of their designers, and that in doing so they may be both effective and dangerous».

Another way to challenge Wiener's ideas consisted in applying the old method to solve the question about the differences among human beings, animals (and now machines) proposed by the Christian Church and by spiritualist philosophers: by referring to a human soul or conscience. Wiener restated that the only method that science could accept was the behaviouristic approach, which doesn't allow us to solve the debate about soul in a conclusive manner.

Those are themes on which Wiener will go back until his death in 1964. In that very year he published *God & Golem, Inc.* Wiener seemed to suggest to theologians or spiritualistic philosophers: I agree with you, when you defend human integrity, but you have to understand that the usurpation of human field by the new cybernetic machines and the new scientific approaches in the sciences of life are technologically and scientifically effective. Therefore by stating that man has a soul it does not make him immune from losing it. The way out must not be found abstractly but in new concrete behaviours and attitudes.

In general I think that Wiener might have been inspired by Aristotle when setting the distinction between information and matter/energy, as well perhaps for some sort of immanentistic mood that we can breathe in *Cybernetics*, or for the ubiquitous notion of teleology. In any case, Wiener was rereading Aristotle mediated by his old teachers. As for the foundation of ethics in *The human use of human being*, I think that the most important direct influence was that of Santayana. Above all these references the prevailing issue is a resolute operational, finitist, behaviouristic approach, he had matured when he was getting acquainted with William James' thought, and afterwards when studying the paradoxes of logic with Russell.