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Knowing, Making, and Human Values

It is sometimes thought, and said, that the quest of new productive capacities, "new discoveries and powers", which is characteristic of modern applied science and technology, has somehow been instrumental in causing an increasing alienation of science and technology from humanistic values. The purpose of this paper is to argue, by means of selected historical exmples, that this view is mistaken. I also believe that it is a profoundly dangerous idea.

Often, the historical origins of the allegedly dehumanized knowledge are referred to an instrumental concept of knowledge first exemplified by Francis Bacon's idea of "knowledge as power". What Bacon ~~nevertheless~~ said was not that "knowledge is power" but that "human knowledge and human power meet in one". Now this equation was almost a commonplace one among mediaeval and early modern thinkers. However, it was usually applied the other way round, to argue that what we cannot make, we cannot truly be said to know, either. This fascinating idea of "genuine knowledge as maker's knowledge" can be followed through the history of philosophy.

I cannot refrain from quoting the pithy expression Moses Maimonides gave to it:

There is a great difference between the knowledge which the producer of a thing possesses concerning it, and the knowledge which other persons possess concerning the same thing. Suppose a thing is produced in accordance with the knowledge of the producer, the producer was then guided by his knowledge in the act of producing the thing. Other people, however, who examine this work and acquire a knowledge of the whole of it, depend for that knowledge on the work itself. For instance, an artisan makes a box in which weights move with the running of water, and thus indicate how many hours have passed... His knowledge is not the result of observing the movements as they are actually going on; but, on the contrary, the movements are produced in accordance with his knowledge. But another person who looks at that instrument will receive fresh knowledge at every movement he perceives. The longer he looks on, the more knowledge does he acquire; he will gradually increase his knowledge till he fully understands the machinery. If an infinite number of movements were assumed for the instrument, he would never be able to complete his knowledge. Besides, he cannot know any of the movements before they take place, since he only knows them from their actual occurrence. (Guide for the Perplexed, Part III, ch. XXI, p. 295. Routledge and Kegan Paul: London, 1904)

Here the idea of genuine knowledge as maker's knowledge is used literally ad maiorem gloriam Dei, for Maimonides'

explicit conclusion is that "it is impossible for us in contradistinction to God to know that which will take place in future, or that which is infinite."

Thus the very same idea which Bacon used to extoll the rewards of applied science and technology was used by his pious predecessors to disparage man's alleged knowledge of nature which only God can claim to have made and to have in his power and hence only He can know. From this point of view, Bacon's novelty lay merely in his optimism vis-à-vis the prospect that "human life be endowed with new discoveries and powers." Or perhaps it can be said to be a mere matter of emphasis: "Human knowledge and human power meet in one", we should perhaps read his most famous aphorism.

Nor were the critical uses of the idea of genuine knowledge as maker's knowledge restricted to theological contexts. For instance, Sanchez the sceptic used it to infer the insignificance of human knowledge of nature from the insignificance of human power over nature. A long row of awe-inspiring philosophical ghosts are thus rearing their impressive heads when we read in Wittgenstein's Tractatus (as a part of his criticism of a priori knowledge), "Nur <sup>only</sup> was wir konstruieren, können wir voraussehen."

*that which we build, can we understand*

What is more, the same idea was used by Giambattista Vico to argue for the superiority of humanities

over natural sciences. Starting from the idea that "the rule and criterion of truth is to have made it", Vico argued that because the world of culture and society is man-made, our knowledge of it is superior to our knowledge of nature: "Whoever reflects on this cannot but marvel that philosophers should have bent all their energies to the study of the world of nature, which, since God made it, He alone knows; and that they should have neglected the study of the world of nations, or civil world, which, since men had made it, men could come to know."

It is interesting to note that the epistemological distinction between humanities and natural sciences apparently was not an absolute one for Vico. True to his beautiful epistemological pun, "verum est factum", he for instance favored in geometry the constructive or "synthetic" methods over the new Cartesian or "analytical" techniques. Somewhat reminiscent remarks are found in Hobbes, who bracketed mathematics with "civil philosophy" as superior sciences dealing with man-made entities.

As perceptive and historically sophisticated writer as Hannah Arendt has claimed that "no so-called humanistic considerations inspired [Vico's] turning away from nature" to culture and that Vico's attitude was somehow characteristic of the spirit of modern science. This is deeply misleading.

We already saw how firmly entrenched Vico's basic idea was in his completely non-scientific predecessors, and a closer analysis would uncover even earlier forms of the same group of ideas. (Even for the Socratic philosophers, a craftsman's skill was an important paradigm of genuine knowledge, culminating in the Timaeus myth of a divine craftsman or demiurge as the creator of the world.) What is more important; it is precisely Vico's idea of a fundamental connection between humanistic knowledge and human creativity that lends philosophical depth to his defense of humanities and his role as an actual precursor of several important types of humanistic studies. Other explanations of Vico's historical role, for instance his alleged historicity, do not suffice to account for his greatness.

In case further witnesses are needed, it may be recalled that the very same assumption that we can in the last analysis know only what we have ourselves brought about is the gist of Kant's ill-named "Copernican Revolution" in philosophy. According to Kant, "we can know of things a priori only what we ourselves have put into them." Elsewhere he says that human reason "has insight only into that which it produces itself after a plan of its own". It can also be shown how Kant followed this basic idea in the different

parts of his philosophy. Even in certain detailed matters of interpretation, it can be argued that the effects of the alleged assumption of human finitude in Kant are due to other reasons, and in a sense also to his faithlessness to his own basic ideas.

What makes the Kantian use of this assumption especially interesting for us is its connection with the idea of humanism and with human values. For what determines the "plans of its own" in accordance with which the human mind operates is its own creativity, governed only by the laws of human nature. It is no accident that of all major philosophers Kant was perhaps the most humanistic in his emphasis on the contribution of the human mind itself in all areas of thought and action and in his emphasis of the "courage to know" as a condition of human maturity. Kant himself found the contributions of the active human mind in the sphere of theoretical scientific thought as well as in the sphere of morality.

From this point of view, it is the optimistic heirs of Bacon who in our days are closer to the truly humanistic spirit of Vico and Kant than the so-called humanistic philosophers who disparage making and technology and who are denying the significance of mathematics and natural science as reflecting human creative constructions.

In general, it seems to me that an awareness of the special kind of knowledge we have of our own creations is largely missing from <sup>much</sup> contemporary philosophy, which partly explains its meager contributions to such studies of specifically human values as aesthetics. Probably the best known approximation to "maker's knowledge" to be found in contemporary analytical philosophy is the so-called "knowledge without observation" (cf., e.g., G.E.M. Anscombe, Intention). That the gist of "intentional knowledge" is indeed maker's knowledge has been argued by Christopher Olsen. The apparent scope of "knowledge without observation" is pitifully small, however, as compared with the Vichian knowledge we seem to have of all the products of our culture and society. (The typical case of "knowledge without observation" studied by philosophers is one's knowledge of the position of one's limbs.) Here the apparent timidity of contemporary philosophers may in the last analysis be a tacit reflection of our collective traumatic realization that the role of non-human and non-rational forces within what Vico called "the world of nations" - the world of history and society-is enormous, and maybe decisive. If the creative capacities which modern science has offered to mankind are felt to be neglected or misdirected, even this is from our present perspective due more to the failure of

man's self-expressive creative efforts in the field of  
social organization than <sup>to his failure</sup> in the field of science or  
technology. The alleged crisis of science and scientific  
knowledge, I suspect, is at bottom something quite different.  
It is a crisis of an individual's knowledge, that is, power,  
in the realm of society and history. It is not the knowledge  
represented by natural sciences that is really alienated;  
most of the so-called humanistic knowledge is.