Knowledge, Power, and Hypermedia

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ABSTRACT: Our paper explores the relationship between knowledge and power first articulated in the modern age by Francis Bacon, in terms of M. Foucault's postmodern critique of Power/Knowledge that seems to reverse the meaning of Bacon's "knowledge is power" maxim. We apply Foucault's critique to instructional technology concentrating especially on hypermedia. We remark on the many similarities between Foucault's postmodern critique and the concerns of Theodore Nelson who coined the words "hypertext" and "hypermedia." We will combine Foucault's Nietzschean insights with Nelson's characterization of "the Information Lords" to conclude with the following postmodern questions: Who makes the categories and constraints that are translated into truth and power? Is God dead, and if so, who will become the Information Lord?

Neither the naked hand nor the understanding left to itself can effect much. It is by instruments and helps that the work is done, which are as much wanted for the understanding as for the hand. And as the instruments of the hand either give motion or guide it, so the instruments of the mind supply either suggestions for the understanding, or cautions (Francis Bacon, The New Organon, Bk. one, Aphorism III).

Onetime seventh-grade dropout, I have relatively little interest in improving the educational system within the existing framework (Ted Nelson, 1987).

The modern age, as an extension of the eighteenth century age of Enlightenment, places emphasis on the ideal end of securing progress through reason. Progress toward what and the meaning of the abstract noun "reason", are questions that yet remain at the center of conversation in modern liberal democracies. The early seventeenth-century philosopher Francis Bacon is commonly recognized as the herald of the wonderful possibilities of modern science and the instruments of technology. His famous phrase, "human knowledge and human power meet in one. . . ." (The New Organon, Bk. One, Aphorism III) which is frequently contracted into "knowledge is power", encapsulates the promise of human self-assertion and the control of the forces (powers) of nature.

In The New Organon, a book whose very title is a challenge to the old Aristotelian Organon of the Medieval scholastics, Bacon extols the wonders of "recent" discoveries as a harbinger of the greater wonders yet to come through scientific inquiry.

Again, it is well to observe the force and virtue and consequences of discoveries, and these are to be seen nowhere more conspicuously than in those three which were unknown to the ancients . . . printing, gunpowder, and the magnet. For these three have changed the whole face and state of things throughout the world . . . whence have followed innumerable changes, insomuch that no empire, no sect, no star seems to have exerted greater power.
and influence in human affairs than these mechanical discoveries (Bk. One, Aphorians XXIX).

Substitute electricity for magnet, nuclear energy for gunpowder, hypermedia for printing, and delete the qualifier "mechanical" and this (for its time) exaggerated statement becomes (in our time) almost an understatement. As the title of Eugene Provenzo's book Beyond the Gutenberg Galaxy (1986) suggests, computing in education, and especially hypermedia, will revolutionize communication as much, or more than, the Gutenberg printing press. If Ted Nelson is correct that hypermedia is "the most general form of writing", then it may well redefine what literacy means (see Theodore Nelson, 1987a). Certainly the force and virtue of the knowledge expressed in the production and use of hypermedia will exert a great deal of power and influence in human affairs.

In the next paragraph of the same "Aphorism" Bacon distinguishes three kinds, or levels, "of ambition in mankind'. The first two are forms of the desire for political power.

The first is of those who desire to extend their own power in their native country, a vulgar and degenerate kind. The second is of those who labor to extend the power and dominion of their country among men. This certainly has more dignity, though not less covetousness.

In the very next paragraph, Bacon makes it clear, however, that he is not concerned with political power:

But if a man endeavor to establish and extend the power and dominion of the human race itself over the universe, his ambition... is without doubt both a more wholesome and more noble thing than the other two. Now the empire of man, over things, depends on the arts and sciences (The New Organon, Bk. One, Aphorisms CXXIX, italics added).

At the end of The New Organon, Book One, Aphorism CXXIX, Bacon concludes: "Only let the human race recover that right over nature which belongs to it by divine bequest, and let power be given it; the exercise thereof will be governed by sound reason and true religion" (italics added).

Today the power and domination of the human race over nature seems a dangerous attitude from an environmental perspective. And, after the political ambitions and covetousness of individuals and nations have led to two world wars in which the power of technology caused millions of deaths and culminated in the development of weapons of mass destruction, it now seems naive and dangerous to speak as if scientifical-technological knowledge can be separated from socio-political power.

THE THREAT BEHIND THE PROMISE

The seminal article leading to the idea of hypermedia is widely held to be Vannevar Bush's "As we may think" that appeared in The Atlantic Monthly in the summer of 1945. It is sobering to remember that Bush had been appointed by Franklin D. Roosevelt to supervise and coordinate all federally funded research through the Office of Scientific Research and