

6. The ontology of the scientific revolution and the new real

The natural philosophers of the 17th century longed for a unique, universal and unambiguous truth. To this end, they created a worldview: "The book of nature is written in the language of mathematics." In the Renaissance, the "study of the humanities" was opposed to the study of the divine. In the 19th century, the humanities became research-based scientific disciplines that defined themselves to the natural sciences. Modern politics must also be understood in the light of 17th century Europe, where authority collapses. For one, the church gradually lost its claim to truth about secular matters (physics proved better than the Bible). Religious conflicts led to disaster. The state comes to be conceived of as a human affair—a covenant with free men that benefits all. It should be justified by rational, transparent arguments, not by appeals to esoteric knowledge or a privileged relationship with God. However, there was chaos in politics and culture, but clarity and unambiguity in mathematics. There are two foundations in science: Bios and Geos. Bios speaks of the necessary and sufficient role of innovation, growth, adaptation, evolution, and the centrality of new and emerging sciences and technologies such as the life sciences and biotechnology. Geos is about the limits to growth, the finite supply of natural resources, and the change in human behavior and civilization that is necessary when human global influence has become a significant force on the Earth's ecosystems, material cycles, and climate systems.

A set of widely held views on the nature of science and its role in society can be identified. Science is an objective, universal and value-neutral truth about nature, if it is allowed to act according to its own method, unhindered by society. Scientific knowledge is a good. Technological development is the main driving force and a necessary condition for the economic development and growth of modern societies. In modern societies, public decisions should be based on and legitimized by scientific facts, "science speaking truth to power". However, these accepted parts are inadequate. An "accepted view" is a worldview that is passively accepted and adopted without much resistance or criticism from the one who accepts it. The accepted view of science and its role in the world is passed on daily in science education and popular culture. The external world - or "nature" - has an objective existence independent of man and science, and is able, through the gradual accumulation of facts and theories, to provide a complete and true (or nearly complete and approximately true) description of that reality. Reality is knowable and controllable accordingly.

The accepted view is the result of philosophical and scientific traditions. However, after the Thirty Years' War in the 17th century, a revolution took place and the result is what we can call modern science. Galileo began to use systematic observation, not just blind observation. Unlike Aristotle, he advocated methodicality and that the senses can deceive. He advocated preferring the abstract world of mathematics to the concrete world we observe. The scientific revolution was a product of the Renaissance, a reaction to rigid institutions, to scholasticism. Modernity thus created a new conception of nature, but it also displaced it. The European values associated with modernity, progress, knowledge and humanity are the result of several lines of development. "The 'two cultures': the humanities, which developed expertise in interpretation, multiple perspectives and dissent, promoted the value of reason, diversity and tolerance; the (natural) sciences, which developed expertise in reducing uncertainty, promoted the value of rationality, uniformity and control. The best of European culture can be seen as the result of the constant exchange and tension between these cultures.

- Rommetveit, Kjetil , Roger Strand, Ragnar Fjelland, and Silvio Funtowicz. 2013. What can history teach us about the prospects of a European Research Area? edited by A. Saltelli: Joint Research Centre, Institute for the Protection and the Security of the Citizen.