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Book Review

The Twilight of the Scientific Age, Martín López Corredoira. Brown Walker Press, Boca Raton, FL (2013). 208 pp., $25.95, ISBN-13: 978-1-61233-634-3

Ever since the days of William Blake there has been an underground resistance against the soulless yet triumphant science and its unholy alliance with money, technology and political power. With the nearly undisputed hegemony that science and technological innovation has attained in the post-World War II era, this kind of resistance has resulted in numerous books and articles that in different ways warn against the dark sides of science and the socio-economic system that nourishes a science in degeneration. Classical examples include Herbert Marcuse's *One-Dimensional Man* (1964), Jacques Ellul's *The Technological Society* (1965), Theodore Roszak's *The Making of a Counter Culture* (1968), and Paul Feyerabend's *Science in a Free Society* (1978). A fair part of the literature written by sociologists and philosophers is not only critical to trends in modern science, but tends to or is overtly anti-science. The book under review belongs in some respects to this heterogeneous literary tradition, but *Twilight of the Scientific Age* is primarily directed against the institutional system of science and its associated ideology and not against science itself. Indeed, the author is himself a practicing scientist, an astrophysicist, and he emphasizes several times that he firmly believes in science, even that he loves it. He is not a "stupid cultural relativist," he asserts (p. 11), but a critical freethinker independent of dogmatic beliefs.

Whereas Corredoira is in no way against science, he is very much against technology, not only as an instrument and goal of science but also in general. He flatly dismisses technological progress as "something negative" and suggests that modern technology in conjunction with the dark forces of capitalism "is becoming a monster, difficult to control, threatening to devour all humans" (p. 49). Marcuse said the same half a century ago. One might imagine that some parts of modern technology, especially in the sectors of medicine, health and environment, are judged in a more positive light, but this is not the case. For Corredoira "technological progress" is an oxymoron. Apparently unaware of or unimpressed by the high mortality rates and harsh living conditions in the past, he presents technology as the main cause of the deterioration of culture and the destruction of our environment.

Corredoira seems to consider himself a white knight who, in anger and frustration, attacks the sick science system in order "to preserve the scientific values against the corruption and decadence spreading nowadays" (p. 17). The spirit of science has been lost, he complains, for science has been degraded to a bureaucratic machine that serves corporate capitalism and its utilitarian conception of knowledge as a profit-making rather than wisdom-seeking activity. The guiding theme of the book is the decline of science – both in a moral, epistemic and social sense – but Corredoira nowhere documents or seriously argues that science is in fact declining. The decline appears to be a premise, not a conclusion derived from an analysis of modern science compared with the supposedly progressive science of the past.

The *Untergangsstimmung* that permeates the book focuses on but is not limited to science, for according to Corredoira the decline is a general feature of modern culture, to be found also in art and literature. He suggests that much of the misery is due to what he calls the "democratization of culture," which inevitably produces intellectual dwarfs rather than giants. "Egalitarianism has, with few exceptions, converted all the intellectual classes in plebeians with the same habits," he laments (p. 127). Apart from his dislike of democratization (if not democracy itself) he also expresses disdain of the technicians and engineers who increasingly determine the course of modern science. It is probably fair to say that his position can be characterized as aristocratic, intellectualistic, romantic, idealistic, and strongly individualistic. The very meaning of science – proper science and not the poor substitute that currently counts as science – is "great ideas" that can only be discovered by the individual genius and never by the army of mediocre scientists engaged in big-science projects.

The book starts with a 40-page outline of the history of science, which is used, among other things, to contrast the glorious past with the misery of the present. Corredoira claims that the revolutionary phases relied on the curiosity and wisdom of a few geniuses who based their insights on ordinary experience without caring about either technological applications or mathematical speculations. The science of Galileo, we are told, was "close to human experience" – which was definitely not the opinion of contemporary natural philosophers, who objected that the double revolutions of the Earth were contrary to human experience. The book locates the last golden age of physics to the first decades of the twentieth century, a period during which physics was still about uncovering the secrets of nature and not about money and machines. Alas, "the conceptual level of development of physics today is far below what was reached in the beginning of the twentieth century" (p. 78). This is a surprising claim that would seem to require an explication of "conceptual level," but no such explication is offered. Although Corredoira does not go into detail, it is obvious that he dislikes the standard model of particle physics.

As to the astronomical sciences, we are told that the last important revolution took place about 1925, when the idea of the "island universe" was vindicated and the Milky Way understood to be a typical spiral galaxy. In the opinion of Corredoira, "nothing as important and undeniable as this has been discovered in astronomy since then" (p. 30). One wonders what he thinks about later discoveries, such as the expansion of the universe, quasars, exoplanets, and the cosmic microwave background, and why these discoveries are not of the same order as those of the past. The historical introduction is not meant to be a scholarly summary of the development of science, and indeed it is not. It is superficial, poorly documented, and anachronistic, filled with anecdotes and

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quotations of dubious authenticity taken from Wikipedia articles and similar sources. Moreover, it includes several factual errors, including that Rutherford's nuclear atom dates from 1909 and that Descartes promoted the atomic theory of the Greeks.

Many critics of modern science look toward philosophy as a remedy for the problems, arguing that unfortunately science has lost the fruitful connections to philosophy that once were a natural part of it. Corredoira includes in his book a chapter on philosophy of science in which he distinguishes sharply between the great thinkers of the past and the modern, professional philosophers of science. Whereas he praises the first group, he has nothing but scorn for the second, composed as it is by mediocre specialists for whom philosophy is a job rather than a vocation. Without any documentation and without mentioning any names he claims that most contemporary philosophers of science are anti-scientific postmodernists. On the other hand, among the few true philosophers worth listening to Corredoira singles out the somewhat odd company of Friedrich Nietzsche, Oswald Spengler, and Spanish writer Miguel de Unamuno. It is not very clear why he deals at some length with these thinkers or why they should be important to the problems facing modern science. What they have in common seems to be that they all espoused some kind of pessimistic *Lebensphilosophie* characterized by varying degrees of irrationalism and anti- or non-scientific existentialism. I find the chapter on philosophy to be quite confusing.

The key message that Corredoira wants to bring home is that modern science is in a state of possibly incurable sickness, not because of the nature of science but because of the institutional system that embraces and controls it. This system, he argues, stimulates mainstream conformity and blocks creativity and revolutionary ideas. Although the amount of knowledge and information has exploded, the amount and depth of wisdom has sharply declined. According to Corredoira, a major reason for the sad state of affairs is the peer review system, which effectively acts as a method of censorship that maintains normal science and standard theories. “A Copernican revolution is totally unthinkable within the current system,” he says (p. 72). His critique of the existing communication and evaluation system is shared by many scientists and scholars, who for good reasons are unhappy with it. But is there an alternative? In the last part of the book he considers the question, but his recommendations are neither realistic nor generally appealing. For example, he suggests that anybody with a Ph.D. in any scientific discipline should be allowed to publish in the major journals, presumably meaning that an author with a Ph.D. in microbiology should be able to publish in *Astrophysical Journal* without having his or her paper reviewed. Even more radically he proposes that if a referee has rejected a paper that later turns out to be important, he or she should be punished economically.

The system of modern science is in need of critical voices from within the system itself. Some of the problems that Corredoira highlights are real and very troublesome, and they should be taken seriously by the scientific community and its administrators. However, it is unlikely that the present book will make an impact in this respect. Its critique of science is too unbalanced and emotional to count as a convincing argument except to the minority already convinced. Besides, it relies to a large extent on the author's personal opinions and what he calls his own “sensitivity” to the problems of science. *The Twilight of the Scientific Age* is an honest book, a *cri de coeur*, but not a recommendable one.

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