CRITICAL RATIONALISM IN TECHNOLOGY

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There are many problems that have been generated because of the misconception of science and technology. This misconception can be partially explained by the use of the same investigation method in both areas. Technology, as science does, begins with problems and ends with deeper problems. In its evolution technology uses the trial and error method and the elimination of failures to improve, together with the use of great doses of imagination in order to be innovative. Technology creates its own reality. On the other hand, science investigates reality. Technology makes use of the best corroborated theories of science. These theories represent restrictions on technology and contribute to planning the technological work in a rational way. At the same time, following these theories dogmatically could prevent the development of innovations otherwise possible. Even though science and technology are different, the transit between them is open for researchers of both areas. In their work the technicians can try to explain to themselves and others the reality of their inventions, and additionally to apply them. In this attempt to understand the reality they have created, the technicians will finally confront the unsolved problems of science. Here is a very important the role of philosophy, that of making it easy for technician to move to the different problems of science or to stay with the problems of technology without degenerating into justificationism or existentialism. The common use of the term 'applied science' is in some way the reflexion of the most frequently idea in technology about the final or secured character of knowledge. And this is in agreement with the instrumentalist conception of science, generally with the idea that science is exclusively an economic resource. It is worthwhile to consider that the sustainable development is guided by the principles of the piecemeal social engineering.

In this paper are briefly presented the method of technological research, some problems with the mathematical modelling and the presentation of the results of technological research, especially in postgraduate education, and some problems related to the responsibility of tutors and students of technology at universities. Finally some comments on the effects of the technological conception of science are made and some alternative solutions of this problem are given. These thoughts are the result of the critical examination of some of the problems I have experienced during my doctoral work in engineering. Fortunately I found the work of Sir Karl Popper at the right time and this fact gave me enough motives to stay critically in engineering without becoming an existentialist.