

The integration of culture and production is both essential and possible. Building can combine economic growth with creativity and add to the accumulation of capital and knowledge. An important project built in the heart of a community can restore its creative capacity, especially when using local craftsmen and building materials best suited to the local environment. It helps to combine the skills of the stoneworker and his knowledge of geometry with the technician's ability to work from written instructions and drawings, the combination of which leads to innovation.

Chapter Ten

Reflections on Technology and Development: A Cultural Perspective

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The problem of bias lies at the heart of our cultural and scientific interests. Many terms related to modernization, development, and technology are still commonly used, equally by Western and Muslim governments and world institutions. Such terms cannot be used in different political and cultural contexts without a change in their meanings. Attempts at development that are based on Western concepts have failed in Arab and Muslim countries, as well as Third World countries. Insistence on using these terms indicates a desire to replace religion and cause Muslims to believe in modernization and Western technology. Muslims have been subjected to Western winds of change to varying degrees in the course of their cultural, scientific, and professional formation. Muslims have to change themselves first before they can change the world around them. They have to re-examine all the axioms, criteria, and values that have governed their cultural, scientific, and practical activities and that have been subjected to Western cultural bias.

The issue of bias is closely linked to the urgent issue of cultural independence. As time passes, Muslims become increasingly subservient to the West and face more restrictive terms and conditions in their independent cultural enterprise. It is difficult for an individual or group to be totally detached from its original cultural pattern and to adopt a foreign one. The process of cultural shift requires the constant operation of a large number of foreign cultural elements for prolonged

periods. With cultural invasion, a dominant culture attempts to subordinate another culture and deprive it of its independence. The process destroys integration and creates gaps in the structure of the conquered culture, eliminating vital creative potential and increasing subordination to the dominant culture.

To prevent misunderstanding, the use of the terms “technique” and “technology” regarding what is exported or transferred to a society should differ: technique links to the activity of production, while technology occurs in the mind and in the physical reality at a higher level than production. Just as some projects are delivered to us ready-made, some concepts are passed on to us in the same way, packaged for political and social use. “Technology transfer” assumes a one-way transfer between two parties, and assumes that technology is an “object” that can be transferred from one social-cultural context to another, which is untrue. Many experiments confirm that technology is non-transferable. It is possible to transfer elements of technological ability only at the stages of acquisition and operation. Unless great effort is exerted by the Arabo-Islamic world to build its own technological abilities, it will never be possible for it to reach the stages of adaptation and innovation, which are decisive for technological independence.

The dominant attitude in Third World countries is to formulate and implement development plans based on the transfer of techniques from the industrial Western societies or Japan, which can create social and cultural effects and a “nihilistic” attitude that expects to meet Western social goals via imitation of industrial organization. This dilemma could assume a more positive orientation if we ask: How can we assimilate technology as a potential and a feature of our cultural structure? The adoption of the Western development model in Arab/Muslim society created unbalanced exchange relations that turned its members into consumers of Western goods, techniques, and services.

Change did not occur through people’s self-development, awareness, and participation. One of the main functions of cultures is to produce and reproduce values. The Western model deprives cultures of this function, which leads to loss of cultural distinction. Modernization consists of self-realization that causes cultural and social changes necessary to fulfill scientific and technological imperatives. The Arab/Muslim world needs a cultural revolution in education, where current methods cause alienation. In Arab/Muslim culture, the dream

of achieving paradise on earth and material welfare has never been genuine, since the culture does not place humankind at the center of the universe nor view worldly life as separate from eternal life.

Chapter Eleven

Philosophical Beliefs Underlying the Formulation of Physical Laws

Mahjoob Taha

The popular view of physics regards its laws and theories as a unique product on which no two persons could differ. This outlook rests on the premise that all scientific disputes may be settled in the lab, and that the scientific experiment is the final arbitrator. However, this applies only to natural science, and observations are just a starting point. Human theorization is essential and represents the true spirit of scientific work. Science emerges when the human mind comprehends facts and views them from every angle. Empirical methods have evolved over centuries, and progressed not only due to technological breakthroughs but also to the theorization and methods of scientific thought. This progress allowed us to establish a methodology leading to the formulation of general laws from experimental observations. There appear to be three different levels of abstraction: the conservation law level, deduced directly from observation and measurement; the general law level, a postulate that guarantees the validity of the known conservation laws; and the comprehensive theory level, which gives a unified mathematical formula for the fundamental interaction being studied. Human thought is a major factor in the generalization of experimental facts.

Natural sciences are based on a fundamental assumption that we live in a rational universe where natural events are causally connected. Causal correlation remains an essential ingredient of the scientific method but modifications in the postulate of determinism were tailored to agree with the results of experimentation. The view of the natural world entails the adoption of a philosophical standpoint, although defending such a standpoint by completely persuasive logic is impossible. Sometimes a scientific theory is rejected on philosophical grounds despite its accordance with experimental results. At a level of fundamental interactions, scientific research has always been associated with