

*Science* has to do with discovering the true facts and relationships of observable phenomena in nature, and with establishing theories that serve to organize masses of verified data concerning these facts and relationships. By boring into the secrets of nature, scientists discover keys that unlock powerful forces which can be made to serve man. It is through *technology* that these forces are then put to human use.

*Science is a body of systematized knowledge; technology is the apparatus through which knowledge is put to practical use.* The difference is important.

Because of the care scientists take to verify the facts supporting their theories, and their readiness to alter theories when new facts prove them imperfect, science has acquired great authority. What the scientific community accepts as proven is not questioned by the public. No one disputes that the earth circles the sun, or that atomic fission produces energy.

Technology cannot claim the authority of science and is therefore properly a subject of debate, not alone by experts but by the public as well. Little thought is customarily given to the possibility of harmful aftereffects by those responsible for technological exploitation of scientific knowledge. In consequence, technology has proved anything but infallibly beneficial. Indeed, much damage has been done because *no* thought was given to the interaction of technology with nature. More of this presently.

A certain ruthlessness is encouraged, in the mistaken belief that to disregard human considerations is as *necessary* in technology as it is in science. The analogy is false.

Rigorous exclusion of the human factor is *required* by the methods of science. These were developed to serve the needs of scientists, whose sole interest is to comprehend the universe; to know the truth; to know it accurately and with certainty. The searcher for truth cannot pay attention to his own or other people's likes and dislikes, or to popular ideas of the fitness of things. What he discovers may shock or anger people—as did Darwin's theory of evolution. But even an unpleasant truth is worth having; besides one can choose not to believe it. *Science, being pure thought, harms no one.*

Technology, on the other hand, is *action*, often potentially dangerous action. Never has man possessed such enormous power to injure his fellow humans and his society as has been put into his hands by modern technology. This is why technology can have no *legitimate* purpose but to serve man—man in general, not merely some men; future generations, not merely those who currently wish to gain advantage for themselves; man in the totality of his humanity, encompassing *all* his manifold interests and needs, not merely some one particular concern. Technology is not an end in itself; it is a means to an end, the end being determined by man himself in *accordance with the laws prevailing in his society.*

A word may be in order concerning the disparate meaning of the term *law*, depending on whether it is used in the ordinary sense—which is also the original sense of the word—or by scientists.

Law, as commonly understood, refers to those rules of human conduct prescribed and enforced by society. Its purpose is to resolve human conflicts by the application of definitive rules. These rules are always debatable and can be changed when there is demand for a change.

The scientists have appropriated the term law to describe regularities exhibited by physical phenomena—the rules by which the universe governs itself. In the transition, the word has taken on a new meaning.

From the layman's point of view, what the scientist calls law is fact, rather than law—immutable fact. Or, if you prefer, it is law operating in a sphere where human beings can exercise no influence. We cannot alter the laws of the cosmos; we can only discover them. A law of science expresses mechanical regularity where no choice of action, no free will comes into play; it deals with constancy of behavior in nature. It has relevance for us because it makes the universe comprehensible and so enables us to utilize the forces of nature for human purposes.

We are bound by the laws that science has disclosed when we exploit these forces by means of technology. Likewise we are bound by the manmade laws of our society, for our actions affect fellow human beings. Technology straddles, as it were, the law of the universe and the law of man; it is subject to both.

Much confusion in popular thinking arises from this fact. The two laws are confounded. Or, to put it differently, *they are thought to be part of a single system of law so that one or the other must perforce take precedence.*

Ever since scientists discovered that the earth is not the center of the universe, as had been maintained by the highest human authorities, we have been learn-