

THE KNOWABLE NATURE OF SCIENTIFIC TRUTH

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Abstract: I will describe a sphere of human activity that is characterized by faith and passion. It seeks to understand the human condition. It addresses our deepest concerns. You may imagine I am referring to religion. But on the contrary, I am speaking about science. I wish to explain why it, too, is an expression of the human spirit, suffused with emotion, and inseparable from our existence.

Before continuing, I must disclaim expertise in any aspect of what I speak about today except science. I am not a religious man, and I am not a philosopher; I am not even well read on these subjects. I will speak of them only in broad terms, and focus on what I know best, the life of a scientist, and a life scientist in particular. My contribution is therefore of a personal rather than general academic nature.

I will speak about five aspects of a life in science: the purposes and aspirations, the nature of the activity, the feelings that it engenders and our response, the limitations of our innate abilities, and the implications for the human condition. Much of what I have to say will be self evident, and indeed, I make no claim to originality. But the way in which I frame the ideas, with particular reference to my own experience will, I hope, be of interest.

The goal of science is understanding. This is remarkable in a number of ways. It is remarkable that we even try, that we feel a basic urge to explain our existence and our fate. It is no less remarkable that we succeed, and will clearly continue. And our success is attributable to our dedication to the undertaking. Of course, religion includes amongst its purposes a similar goal of explanation and rationalization.

The pursuit of science is assumed by lay people to be utterly dispassionate, reliant entirely upon reason and objectivity. But the motive forces in science are the same as in any other activity: a primal urge to explore, the desire to succeed, love of the pursuit itself. The practice of science is driven by intuition, by judgment, and by an inner sense of right and wrong. The reaction to every major advance is a profound awe of nature. It is doubtless same sense of awe

that inspires religion, or at least the narratives that form an important basis of religion.

The challenge of science is abstraction. The limitation is the difficulty of understanding outside of our regular experience. The realms of geological time, cosmic scale, atomic size, and high energy create conditions and behavior we can describe but not fully comprehend. The concepts are utterly unfamiliar and so require leaps of faith. They depend on belief in the power of reason.

It may be thought the value of science lies in its application to real world problems. It obviously contributes in practical ways to the betterment of the human condition. Religion may be regarded as the wellspring of moral sustenance. But the pursuit of knowledge for its own sake is a lofty value; it is the source of progress; and it is the ultimate distinction of humankind.