



The True Character of Science

This is the conventional understanding of science and the scientist. Besides being popular, it is also appealing and even grandiose.

But it is also an out-and-out fiction from which no slight degree of mischief has sprung.

Although what we today call “science” is commonly identified with modernity, in the interest of historical accuracy, it is imperative that we take stock of the conveniently forgotten fact that the origins of the study of “the *natural* world” trace back much further than this. Over 2500 years ago, the “[pre-Socratic](#)” philosophers of ancient Greece labored long and hard to achieve a “scientific,” as opposed to a *mythical*, account of the cosmos. To the objection that [Democritus](#), [Pythagoras](#), [Empedocles](#) and others weren’t doing real science but only philosophy, three replies are in the coming.



First, insofar as their analyses characterized the universe in natural, basic, quantifiable terms, they were indeed engaged in a scientific enterprise.

Second, since the pre-Socratics were the progenitors of Western philosophy, since it is *they* who are responsible for enriching the Western mind’s vision with the yearning to move beyond myth in exploring the world, science and philosophy at this juncture were one.

Third, if by philosophy critics refer to a set of metaphysical assumptions underwriting the “science” in question, unspoken yet controversial suppositions that foreclose from the outset those possible lines of inquiry that fail to comport with them — and this *is* indeed the conception of philosophy that such critics typically have in mind — then we need to point out the painful fact that *no science is devoid of them*.

So-called “modern science” is as dependent on non-empirical, “philosophical” presuppositions as any other. That there is something that can aptly be called the *universe*; that this universe is a candidate for study; and that it is orderly are just some of the assumptions without which science wouldn’t exist. Yet there are others.

Scientists make predictions. *The laws* of the universe are nothing more or less than probabilities regarding future patterns that scientists predict on the basis of their observations of past patterns. The operative principle here is what the eighteenth-century Scottish philosopher and empiricist [David Hume](#) called “[the principle of induction](#).” This principle, he said, is simply the assumption that the future will



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resemble or be continuous with the past. That it is an assumption and *not* the product of scientific discovery must be readily admitted once it is grasped that there is no way to prove it: because, by definition, the future has not yet occurred, it cannot be known what it will be like. Logically speaking, it is conceivable, however unlikely, that tomorrow could be radically discontinuous with today.

In addition to the assumption that Hume characterized as the principle of induction, the modern scientist also has a tendency to suppose that reality is ultimately composed exclusively of *material* entities. His map of the universe resolutely disallows any place for considerations with so much as a whiff of what we would be inclined to call “the supernatural” (thus, [the derisiveness](#) with which the theory of “[intelligent design](#)” is met by the vast majority of scientists). Yet this robust “naturalism” which pervades the contemporary scientific project is not scientific; it is philosophical.

There are other considerations to behold.

However brilliant or talented any given person may be, he will not become a scientist unless and until he immerses himself within a tradition of science. That is, science, not unlike *any other* thing with which we are familiar, is *an activity* or *a habit* distinguished on account of the considerations that are proper to it. A person becomes a good scientist in the same way in which he becomes a good anything: through practice. So, for example, the knowledge of how to formulate hypotheses is something that only a practitioner of science can have. And “the facts” that the scientist investigates, far from being self-explanatory, derive their intelligibility from the theories that they inform.

Science is a good and noble thing, for sure. But its character has for far too long been radically misunderstood.

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