

Random Walking

The Game of Science

Science fundamentally, is a game. It is a game with one overriding and defining rule:

Rule No. 1: Let us see how far and to what extent we can explain the behavior of the physical and material universe in terms of purely physical and material causes, without invoking the supernatural.

Operational science takes no position about the existence or nonexistence of the supernatural; it only requires that this factor is not to be invoked in scientific explanations. Calling down special-purpose miracles as explanations constitutes a form of intellectual "cheating." A chess player is perfectly capable of removing his opponent's King physically from the board and smashing it in the midst of a tournament. But this would not make him a chess champion, because the rules had not been followed. A runner may be tempted to take a short-cut across the infield of an oval track in order to cross the finish line ahead of his faster colleague. But he refrains from doing so, as this would not constitute "winning" under the rules of the sport.

Similarly, a scientist also can say to himself, "I believe that *Homo sapiens* was placed on this planet by a special act of divine creation, separate and apart from the rest of living creatures." While this can be a genuinely held private belief, it can never be advanced as a scientific explanation, because once again it violates the rules of the game. If that situation were true, and if *H. sap.* were indeed the result of a special miracle, then in view of Rule No. 1, above, the only proper scientific assessment would be: "Science has no explanation." The problem with any such statement is that we know from past experience that it probably should have been qualified: "Science has no explanation—yet." As people who have grown up amid the current scientific revolution know full well, last year's miracle is this year's technology.

The vital importance of excluding miracles and divine intervention from the game of science, as is advocated even today by the creationist movement, is that allowing such factors to be invoked as explanations discourages the search for other and more systematic causes. Two centuries ago, if Benjamin Franklin and his contemporaries had been content to regard vitreous and resinous forms of static electricity only as expressions of divine humor, we would be unlikely to have the science of electromagnetism today. A century later, a passive belief that God made all of the molecules "after their own kind" would have stunted the infant science of chemistry. And a contemporary who believes devoutly that there are no connections between branches of living organisms is unlikely ever to discover such connections as do exist. *The most insidious evil of supernatural creationism is that it stifles curiosity and therefore blunts the intellect.*

There are those who demand, in a bizarre misapplication of courtroom standards, that the claims of modern science either be proven beyond a shadow of a doubt at this present moment or else be given up entirely. Such people do not understand the structure of science as a game. We do not say, "Science absolutely and categorically denies the existence and intervention of the supernatural." Instead, as good game play-

ers, we say, "So far, so good. We haven't needed special miracles yet." The particular glory of science is that such an attitude has been so successful, over the past four centuries, in explaining so much of the world around us. A good maxim is: *If it ain't broke, don't fix it.* The game of rational science has been enormously successful. We change the rules of that game at our peril.

To be sure, many areas exist where we as scientists do not yet know all the answers. But these problem areas change from one generation to another, and that which might have seemed miraculous (to some) a generation ago now is seen to be perfectly explicable by natural causes. In hindsight we would have felt foolish had we written off those areas as the result of miracles fifty years ago; and we would be ill-advised to set ourselves up for ridicule by those who will follow us fifty years from now. It is a reasonable prediction that the attitude of future generations toward twentieth-century "scientific creationism" (an inherent oxymoron according to Rule No. 1, above) will be one of ridicule.

It would augur well, for both science and religion, if creationists and evolutionary biologists would realize jointly that the question of the existence or the nonexistence of a Deity is irrelevant to the study of biological evolution. Both the die-hard atheist and the theistic evolutionist can function as modern biologists with absolute integrity. The people who are entirely beyond the pale intellectually are those who can be characterized as short-Earth creationists and Biblical literalists—those who maintain that it all happened in 6 standard 24-hour days, with the celestial equivalent of a wave of a magic wand. A clear line of demarcation must be drawn between such people and evolutionists of either theistic or nontheistic inclination. Some creationist rhetoricians would like to draw the line between nontheistic and theistic evolutionists and to lump the second group (which probably includes the majority of nonscientists) together with the 6-day, Young-Earth modern "Know-Nothings." We absolutely must not let them get away with such a tactic.

Science is not a closed body of dogma; it is a continuing process of enquiry. A dry and querulous legalism that tends to inhibit or close off that process is antithetical to science. The cartoonist Sidney Harris once published a cartoon depicting two scientists in consultation before a blackboard filled with equations—obviously some kind of proof in the making. One scientist points to a particular equation and proclaims confidently, "And at this point a miracle occurs!" Real scientists don't talk that way—not because some of them don't believe in miracles, sometime, somewhere—but *because invoking miracles and special creation violates the rules of the game of science and inhibits its progress.* People who do not understand that concept can never be real scientists, and should not be allowed to misrepresent science to young people from whom the ranks of the next generation of scientists will be drawn.

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