An Insiders' View of Science

Recently, scientists have taken to introspection. Articles increasingly have been appearing in the science literature in which accomplished scientists insightfully assess themselves, their methods, their thinking, and their flaws. What are they saying?

Scientists practice herd mentality. This means that their thinking is influenced if not dominated by how or what their peers are thinking. What this means is the entire scientific community converges on what may be an incorrect answer to a problem and, regardless what evidence is marshaled against it, refutation becomes impossible. Once a hypothesis becomes widely accepted, it becomes very difficult to refute it. Mere evidence is not sufficient to kill it. Scientists try to be rational, but they easily remain stuck on certain views in the face of contrary evidence. So science may not be self-correcting after all.

Here's how herd mentality works. Scientists pride themselves on being up to date on the latest discoveries in their particular fields – and even in unrelated fields. This means they adopt discoveries too easily. Instead of critically evaluating new ideas, they incorporate those ideas into their work and, as most scientists also have teaching responsibilities, they teach them. Pride motivates teachers to teach the latest without concern as to its correctness. Indeed, the explosion of discovery in many fields in the past decades has made confirmation or corroboration nearly impossible, as most scientists realize. That means what is taught is unlikely ever to have to be withdrawn as wrong. So a dynamic is in place for the widespread adoption of new ideas. Furthermore, all professionals are accountable for their work in some way or another. This means that there is intense pressure to conform to the latest ideas circulating. To be unconforming raises the possibility of being irresponsible – or even negligent – and that could destroy a career. Moreover, scientists are aware that all published results have

to pass thru the filter of peer review before publication. Scientists therefore assume that experts have evaluated the methods and the conclusions and found them worthy of acceptance. For these reasons, the herd mentality powerfully controls scientists' thinking.

Scientists don't work in their own private lab in their basement or in their garage. They work within institutions. If a scientist holds to an idea that is "at the fringe," or unpopular, or simply unaccepted by the majority (or by the elite of that field), censure takes place. He can be dismissed, relegated to the periphery of the institution, or blackballed from publishing. That ends a career, because what else can a scientist then do? Sell used cars? This threat very powerfully forces conforming behavior.

Scientists also are constrained by the "publish or perish" culture in which they operate. They must continually have their name in print to maintain and, hopefully, advance their career. This necessarily forces scientists (consciously or unconsciously) to gravitate towards results that support their conclusions. They might even make up data, or at least discard inconvenient or rogue data. Inconclusive results can't be published. To publish, the data has to be good and the conclusions have to be novel. Of course, bias is possible at many steps in the scientific method, and peer reviewers are not necessarily going to identify them or disqualify a paper because bias is present. The pressure to publish also means that the latest ideas have to be incorporated into a paper because editors and peer reviewers want their journal to be up to date. This too promotes the wide uncritical adoption of new ideas.

Worse, some scientists lie, cheat, and fight in their pursuit of fame or to advance their career. In science, wealth is not an option (rarely does a scientist develop something that can be marketed and bring home riches). The satisfaction that accompanies work in science is recognition by peers. And to get that, scientists may use whatever

means is useful and available regardless who gets hurt. Science is not for the meek and mild! Anything goes. This is what mainstream science is like, even at (or especially at) its highest levels. The public's view of science or of scientists is a caricature. At issue in science are prestige, the pride of ideas and, of course, funding. Scientists depend on funds to carry out their work, and those monies come from outside sources that allocate funds based on expected results. So scientists are under constant pressure to produce results that conform to the existing paradigm.

Scientists, as with all of us, hold to what we were taught. In school, students are not expected to critically evaluate what they are taught; they are expected to *learn* it. In graduate school, students are heavily indoctrinated with that particular field's beliefs so that they can use them in their future work. Then they have great pride in the knowledge they worked so hard to learn. And most scientists, like other professionals, are so busy with their own work they don't have the time to critically evaluate the ideas of other fields of science. Thus a biologist would likely accept the beliefs of geologists, and vice versa, rather than investigate the claims. Background in one field of science, even at the PhD level, doesn't confer expertise in all areas of science. For these reasons, in science, "majority consensus" is meaningless. Besides, scientists have their own personal religious beliefs. So the tenacity with which some scientists hold to evolution is not surprising.

Science can rise no higher than the fallible work of those who carry it out. Trust in the science community's adoption of evolution is misplaced. Non-scientists should use all means available (such as creation books and websites) to evaluate evolution, and not merely assume that because scientists hold to it, it must be valid.