

OFF THE BEAT

Science and the patchwork mouse

The following comments are excerpted by permission from an article by Nobel laureate biologist P. B. Medawar in the NEW YORK REVIEW OF BOOKS (April 15), reviewing *The Patchwork Mouse* by Joseph Hixson, an account of the Summerlin/Sloan-Kettering scandal. That case involved a scientist faking research results by, among other things, darkening with a felt pen skin grafts on laboratory white mice to simulate a successful graft from a dark mouse.

[William] Summerlin's sin is not now in doubt; but it is still worth considering precisely why his action was considered so heinous by all his fellow scientists. . . .

In the ordinary course of events scientists very often guess wrong, take a wrong view, or devise hypotheses that later turn out to be untenable. This is an ordinary part of human fallibility and calls for no special comment. Nor does it necessarily impede the growth of science because where they themselves guess wrong, others may yet guess right. But they won't guess right if the factual evidence that led to formulating the hypothesis and testing its correspondence with reality is not literally true. For this reason, any kind of falsification or fiddling with professedly factual results is rightly regarded as an unforgivable professional crime.

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It has come to be widely believed that given money and resources a scientist can bend the scientific method to the solution of almost any problem that confronts him. If he does not, it can only be because he is lazy or incompetent. In real life it is not like that at all. It cannot be too widely understood that there is no such thing as a "calculus of scientific discovery." The generative act in scientific discovery is a creative act of mind—a process as mysterious and unpredictable in a scientific context as it is in any other exercise of creativity.

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When the Summerlin affair became known, laymen shook their heads regretfully and exchanged long, significant looks as if to imply that they had learned something profoundly new about the scientific life and the morals of scientists. . . . In reality there are all kinds of different people who are scientists. I once put the matter thus [in *The Art of the Soluble*]:

Scientists are people of very dissimilar temperaments doing very different things in very different ways. Among scientists are collectors, classifiers and compulsive tidiers-up; many are detectives by temperament and many are explorers. Some are artists and others are artisans. There are poet-scientists and philosopher-scientists, and even a few mystics.

If only I had thought to add ". . . and just a few odd crooks," then I should have drawn a clear distinction between the scientific profession and the pursuit of mercantile business, politics, or the law, professions of which the practitioners are inflexibly upright all the time. □

The wings of science

I would just like to share something with you. Food for thought. It is printed every month on the first page of ICARUS, an international journal of solar system studies edited by Carl Sagan, director of the Laboratory for Planetary Studies at Cornell University. It was taken from a book, *Stars and Atoms*, written half a century ago by the distinguished British mathematician and astrophysicist Sir Arthur Eddington.

In ancient days two aviators procured to themselves wings. Daedalus flew safely through the middle air and was duly honored on his landing. Icarus soared upwards to the sun till the wax melted which bound his wings and his flight ended in fiasco. . . . The classical authorities tell us, of course, that he was only 'doing a stunt'; but I prefer to think of him as the man who brought to light a serious constructional defect in the flying-machines of his day.

So, too, in science. Cautious Daedalus will apply his theories where he feels confident they will safely go; but by his excess of caution their hidden weaknesses remain undiscovered. Icarus will strain his theories to the breaking-point till the weak joints gape. For the mere adventure? Perhaps partly, that is human nature. But if he is destined not yet to reach the sun and solve finally the riddle of its constitution, we may at least hope to learn from his journey some hints to build a better machine.

—Jonathan Eberhart

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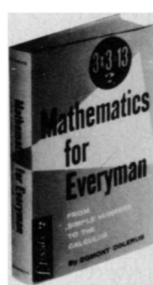
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