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The Separation of Facts and Values

Arthur Kantrowitz*

During the Renaissance science fought for and won a degree of independence. It then became possible to state facts even when they were uncomfortable to arbiters of values (e.g., that the earth was not the center of the universe). Independent science flourished, and its cumulative power dispelled the traditional pessimistic view of what humanity could accomplish in this world. The rapid expansion of knowledge gave rise to the wonderful optimism of the Enlightenment epitomized by the idea of progress. When science joined hands with technology, productivity and social progress such as the world had never seen became possible. Optimism can be a self fulfilling prophesy.

World War II exhibited science's importance in policy and made policy important in science. With this, its independence was dramatically reduced. By controlling funding, policy makers reduce freedom to choose areas of concentration. But more important is the lack of control over information addressed to the public that claims the credibility that science had earned. Today, anyone claiming to be a scientist can hijack that credibility, and hijackers will be heard if facts asserted advance the purposes of those who control media access. Thus, Lysenko's genetics advanced Stalin's visions, and the Malthusian "Limits to Growth" enhanced the self importance of those who felt displaced from center stage by science-based technology. With the dependence of science on arbiters of values, a pessimism reminiscent of that which prevailed before the independence of science, returned. And pessimism is also a self fulfilling prophesy.

It may be useful in understanding today's pessimism to look at the work of one of the most celebrated pessimists, the Rev. Thomas Malthus. He regarded the idea of progress and the Enlightenment

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notion of the perfectibility of man as blasphemous. His 1798 tract against William Pitt's socially progressive "poor laws" depended on his observation that population growth was inevitably limited by food supply. His observations were useful to both Darwin and Wallace in their understanding of the mechanism of evolution. Although Malthus was generally correct, he was dead wrong about the particular population for which he predicted mass starvation, namely England in the Industrial Revolution. He based his prediction on postulates that the "utmost" increase of the food supply would be arithmetic while the population would grow exponentially. In Chapter 5, he proclaimed:

the absolute impossibility from the fixed laws of our nature, that the pressure of want can ever be completely removed from the lower classes of society.

Malthus could not foresee the unprecedented growth of England's industrial and agricultural power that emerging science-based technology made possible. He also did not foresee that with increasing wealth and general education the birth rate would drop.

But that is just the point. Malthus could not foresee all of humanity's responses to a new challenge, especially when new technology multiplies options. His pretension to prophecy was written in defense of his faith against the inroads of social progress. It was a classic case of mixing facts and values to force an allegedly scientific conclusion.

It is my intention to attempt an analysis of our relapse into pessimism and to reiterate a proposal for ameliorating our fears. When a conjecture inspires new hopes or creates new fears, action is indicated. There is an important asymmetry between hope, that leads to actions which will test its basis, and fear that leads to restrictions, frequently preventing attempts at falsification. As we well know, many hopes do not survive testing, but fears accumulate. An inventory of untested fears has always made us vulnerable to thought control. Independent science's greatest triumph was reduction of that vulnerability.

Scientists accept disturbing facts when repeated and varied attempts to falsify them have failed. When the acceptance of facts is determined by anybody's values, we depart from science. An arbiter of values must

always consider how effectively a statement can be propagated and how its acceptance will affect current power struggles. Arbiters of values have always employed the asymmetry between hopes and fears in the pursuit of power. Thus they emphasize protecting their target audiences from unfalsifiable fears or invisible evils.

Today many of these invisible evils are presented as products of science, and their credibility is as closely as possible tied to the credibility of science. The resulting cacophony has raised the question basic to today's pessimism: *Which scientist do you believe?*

Let's consider global warming. Jonathan Schell quotes Stephen Schneider (one of the most prominent climate modelers):

[W]e have to offer scary scenarios, make simplified dramatic statements, and make little mention of any doubts we may have. Each of us must decide what the right balance is between being effective and being honest.

Schneider's mixing of facts and values has paid off:¹

Schneider is a hot property these days — so hot that at least four universities have been trying to recruit him. They want Schneider to help them move into a trendy — and well funded — area of science: the study of global change.

Al Gore's recent book² illustrates today's pervasive pessimism. He assembles a case for crisis by citing witnesses who appeared before hearings he chaired. He never mentions the well-known Washington phenomenon that witnesses who come forward to report problems, and to ask for money to deal with them, will always vastly outnumber those courageous enough to cast doubt on this way of making a living. Gore goes to great lengths to heap scorn on doubters, repeatedly comparing them to Hitler's appeasers. He never mentions that the passage of decades has made clear that his predecessors in raising alarms have indulged in a great deal of the kind of hyperbole to which Schneider confessed.

Gore's chapter, "Environmentalism of the Spirit," seeks to explain the origins of the crisis. In Francis Bacon's philosophy, that he correctly notes played an important role in the scientific and technological revolutions, he finds the root of the evils of the 20th century. We read:³

¹ 256 *Science* 1146 (1992).

² *Earth in the Balance* (1992).

His [Bacon's] moral confusion — the confusion at the heart of much modern science— came from his assumption, echoing Plato, that human intellect could safely analyze and understand the natural world without reference to any moral principles defining our relationship and duties to both God and God's creation. ... The atrocities of Hitler and Stalin, and the mechanical sins of all who helped them, might have been inconceivable except for the separation of facts from values and knowledge from morality.

This is a direct appeal for a return to the ages when religion controlled. I found this indication of Gore's thinking profoundly disturbing. Fortunately, the founding fathers, deeply conscious of such a threat, began the First Amendment by providing that "Congress shall make no law respecting an establishment of religion...."

Let's recall the evils of the Renaissance. When the authority of the Church was threatened by the spread of faith in reason, the inquisition was invented. Witchcraft was seen as a powerful strategy for demonstrating the existence of God. Torture provided thousands of notarized confessions attesting to the reality of the devil and thus to the reality of the God the arbiters of value needed to enforce control.

Mixing facts and values extends the decision maker's power. If we do not separate the power to state the facts from the power to decide what is to be done, then arbiters of value will be tempted to defend their policies with factual statements biased to make those policies seem consistent with the values of their audience. This temptation is especially strong when the audience has no first-hand knowledge. Conflicting, biased, second-hand, facts are an important pollutant in today's political rhetoric. Hiding value differences between governors and governed, it conveys power that corrupts.

Science has lost its independence. Its status has not grown with its appetite for funds. As the squeeze has tightened, its institutions have become fixated on research budgets. Frank Press called raising money for basic research "the most important activity I can undertake as president of the National Academy of Sciences."⁴ Because the NAS is a prime source of facts needed by arbiters of values, this poses a serious

³ *Id.* at 256.

⁴ Letter to Members April 1984, at 9.

conflict. The situation was eloquently summed up by Margaret Mead:⁵

We need a new institution. There isn't any doubt about that. The institutions we have are totally unsatisfactory. In many cases they are not only unsatisfactory, they involve a prostitution of the decision making process.

Developing an institution dedicated to separating what science knows from what it wants is a major undertaking. Its purpose would be to provide the public and its arbiters of values with facts as free as possible from the scientists' biases. In pursuit of that end, I proposed that the scientific community should enforce a new norm namely:⁶

Any scientist who addresses the public or lay officials on public policy matters should stand ready to publicly answer questions not only from the public but from expert adversaries.

The media called procedures based on this norm "Science Court" procedures. Experience confirmed the expectation that we could reduce self-serving noise by enforcing the norm.⁷ However, this would restrict the freedom of scientists and politicians to state the facts as they would prefer them. Therefore it has met with resistance.

In his widely publicized "Reinventing Government," the Vice President notes that "Many Regulatory decisions made by federal agencies are founded on scientific judgements." After describing how such judgements are made, he notes "This process is understandably regarded as deficient among scientists who follow the regulatory process."⁸ He then briefly discusses and dismisses the Science Court "largely because it is doubtful that scientific and policy issues can be separated — in part because the process of defining the problem is often subjective and frequently laden with political considerations" He recommends that agencies "Create science advisory boards."⁹

Philosophers have discussed the separability of facts and values at

⁵ Proceedings of the Colloquium on the Science Court 25 (1976).

⁶ See, e.g., my piece, *Elitism vs. Checks and Balances*, 4 Risk 101 (1993).

⁷ Kraft & Vig, *Technology and Politics* Ch. 13 (1988); see also Allan Mazur, *The Science Court...*, 4 Risk 165 (1993).

⁸ *Creating a Government that Works Better & Costs Less* 59 (1993). See also, Lubbers, *infra*, at .161.

⁹ *Id.* at 60.

least since Protagoras, Socrates and Plato (in the Meno dialog). David Hume maintained that *ought* cannot be deduced from *is* and that the difference “is of the last consequence.”¹⁰ Karl Popper says:¹¹

To sum up, It is impossible to derive a sentence stating a norm or a decision, or say a proposal for a policy from a sentence stating a fact.

To reach a decision after facts have been assembled, a normative statement must be added. I would put it this way — you can better separate facts and values if you *try*.

The decision to separate facts and values to the best of our ability is itself a value judgement. Where Gore maintains that he is “doubtful,” I am convinced he should have said that he does not *wish* to make the separation. He makes this very clear when he recommends regulatory Science Advisory Boards that will presumably not confine themselves to matters of fact. Whose values will they represent? Thus scientists willing to serve political purposes will also acquire power that corrupts.

When our values demand action before general agreement on facts has been achieved, we must base action on an interim statement of the facts. However, it is important to remember the uncertainties and not to consider the issue closed. When a political decision has been made, those who favored that decision will maintain a vested interest in its preservation. That interest could be challenged by advancing knowledge. Burying ignorance in political compromise conceals important avenues for advancing the knowledge needed to live in our world.

Among facts that must not be buried, the most important are acknowledgements of what science does not yet know. If we can defend science’s separation from religions old and new, science-based technology will retain the enormous power it has exhibited for centuries as part of a grand optimistic strategy for widening our horizons, doing our work, healing our sick, protecting our environment and empowering open societies.



¹⁰ A Treatise on Human Nature (1739).

¹¹ The Open Society and its Enemies, vol. 1 at 64 (1968).