

Bacon's promise

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At the dawn of modern science, a promise was made. If society would but support the new enterprise, the resulting knowledge would (in the words of Francis Bacon) “establish and extend the power and dominion of the human race over the universe” for the benefit of all humankind. Now, centuries later, has the promise been kept? Science has brought us food in ever greater variety and abundance, but the food is tainted with every manner of pesticides, herbicides, antibiotics, growth hormones, and other harmful chemicals. Science has brought us more comfortable homes and more convenient modes of transportation and communication, but the costs of these benefits include ever-rising mountains of garbage and toxic wastes and, more alarming still, global climate change. Finally, the benefits that science *has* provided have improved the lot of only some of humankind, not all of humankind. What has gone wrong? It helps to get concrete. In this lecture I consider three areas that have largely failed to deliver on Bacon's promise—chemistry, food science, and biomedical research—and I explore some of the factors that have led to the failure. In the process, I show that common explanations for the failure are woefully incomplete, and I suggest a different explanation together with a different way forward that promises better results.