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Science, like sports and politics, has its legends. One of science's most enduring truths is that Charles Darwin let decades pass before he published his landmark book, *On the Origin of Species*. It was only after he learned that Alfred Russel Wallace had independently developed the same theories about evolution that Darwin was swayed to publish his own observations. Otherwise, he might have waited even longer.

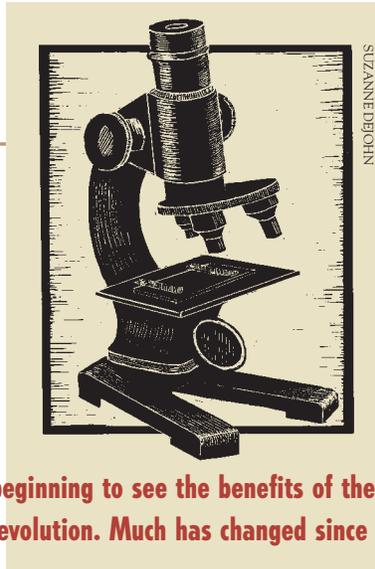
We don't know the source of Darwin's genius, but we do know how he managed to make his discoveries. He benefited from serendipity. And he had a financial benefactor: his family. Thanks to a fluke of biology, a field he would influence deeply, Darwin was born into the Wedgwood family—known even today for its artistry in pottery. Unlike Darwin, most of his contemporaries (including those with comparable talents) were unable to take advantage of their scientific gifts. Their financial circumstances constrained them, while Darwin's freed him to serve as an unpaid naturalist on the *Beagle*, the ship that brought him to the Galapagos Islands, where he conducted his research.

Long after Darwin's 1882 death, in the middle of the 20th century, the United States made the extraordinarily farsighted decision to invest in scientific discovery. As a result, a scientific revolution was born, permitting the quest for new knowledge to be based on merit and the findings thus gained to be widely shared. In contrast, not only was Darwin's pursuit of science predicated on his family's wealth, but his discovery was first presented to an elite society whose members included naturalists with backgrounds similar to his.

Dissemination: Fortunately, a far different approach now applies to the funding and dissemination of science. The merit of scientific work is judged competitively, by experts in the field. This means that the very best science is supported, even when it is proposed by those with the least personal financial means. And the findings that come about as a result of this funding are made freely available, both to other experts and to the public.

Yet in financially tight times like these, federal funding for science diminishes. The National Institutes of Health budget was doubled earlier this decade, but now inflation is taking a toll. Today, only about 1 in 10 new federal grant applications is funded; many meritorious proposals are not funded, resulting in many lost opportunities. Scientists, whose best work is done in a laboratory, are forced to spend

The Point of View essay provides a personal perspective on some issue in medicine or science. Dmitrovsky, a physician-scientist who joined the Dartmouth faculty in 1998, holds the Andrew G. Wallace Professorship. His research focuses on the prevention and treatment of lung cancer. Also former chair of the Department of Pharmacology and Toxicology and former acting dean of DMS, Dmitrovsky was recently named a clinical research professor by the American Cancer Society—the society's top honor. This essay is adapted with permission from the op-ed page of the August 17, 2008, Pittsburgh Post-Gazette.



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considerable time elsewhere, raising money when they should be pursuing their research.

All this has added intense pressure to the already difficult lives of scientific researchers. Their sights are too often set just on surviving—on getting their next grant funded. This has a serious hidden cost: as the next generation of scientists watches its mentors struggle, many are growing disheartened and turning away from biomedical research because of its insecurity as a career.

And yet the outcomes of scientific research have helped each and every one of us. We live in an era in which the consequences of unraveling the human genome are becoming known. Remarkable progress is being made in the life sciences. The genes and their protein products that make us human, that define each of us as a unique individual, are being determined. More is being learned about more subjects than ever before. This is no time to turn back—or to turn down legitimate, promising proposals.

Unimaginable: We are far along the road toward maintaining health and combating disease in ways unimaginable even a decade ago. Novel scientific insights have already led to successful therapies that target the causes and not just the symptoms of disease. But sustained reductions in federal funding are now endangering the pace of further discoveries and discouraging scientists. Both the diversity and the vibrancy of our scientific community will suffer if these reductions are not reversed. We need a renewed commitment to scientific funding and a new, long-term approach to this funding.

It has taken a long time to build our scientific enterprise, but it would take a short time to break it. We can create a scientific corps that will improve higher education and public health, advance the public interest by stimulating the economy, and ensure our nation's security if we take the necessary steps to fund this generation of researchers and to nurture the next. We need only look to other countries to see how their substantial scientific investments could jeopardize our current dominance in this area.

Powerful tools: We are just beginning to see the benefits of the life-science revolution that began in the middle of the 20th century. Much has changed since Darwin's time. More powerful tools are now in hand, and they are being intelligently used. Even as the virtues of a team approach to research are being championed, the importance of leadership from exceptional scientists, like Darwin, endures.

Federal funds have broadened the pool of outstanding individuals who become scientists. Their contributions can be seen in the long list of discoveries that now promise to keep us healthy. The national commitment to use public funds to support science must be preserved and enhanced. We might even have the good fortune to discover the Charles Darwins of our own time . . . or of tomorrow. ■