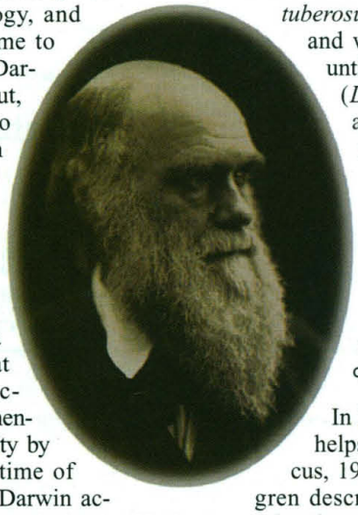
The ascent of human intelligence is described by Darwin, propelled by yams, and vaulted by the intelligence quotient. Consumers are given a chair at the table of research review. The claim "new paradigm," as made in many papers, founders. And physician-researchers are given a boost.

Evolving Smarts

In his book review (*1*), "The benefits of selective thinking" (2 Apr., p. 57), Mark Pagel states, "Perhaps [the 20th-century evolutionary biologist Theodosius Dobzhansky] hadn't realized that such diverse fields as psychology, genetics, economics, anthropology, and medicine would come to be...illuminated by Darwinian thinking." But, at least in regard to psychology, Darwin himself predicted this in the first edition (1859) of *The Origin of Species* when he wrote (p. 488), "Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation." By the time of the second edition, Darwin acknowledged that psychologist Herbert Spencer had already been applying evolutionary thinking. Spencer, in his 1855 book, *The Principles of Psychology*, had written (p. 578), "that Life in all its forms has arisen by a progressive, unbroken evolution ...."



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In the article "Did cooked tubers spur the evolution of big brains?" (News Focus, 26 Mar., p. 2004), Elizabeth Pennisi describes the work of Harvard anthropologist Richard Wrangham, who hypothesizes that "tubers—and the ability to cook them—prompted the evolution of large brains, smaller teeth, modern limb proportions, and even male-female bonding." Wrangham could have added one more interesting bit of speculation about human male-female size differences. Many of the leguminous tubers of Africa contain estrogenic isoflavones, and the African yams (*Dioscorea*) are sometimes so loaded with phytoestrogens (diosgenin) as to be used more for medicine or soap than for food. Today, we hear that estrogens enhance the thought processes, if not the size, of the brain.

Pennisi should perhaps not have mentioned the cassava and manioc (both *Manihot utilisissima*) and potato (*Solanum tuberosum*), which are native American and would not have reached Africa until this millennium. As for yams (*Dioscorea* spp), Africa, Asia, and America have their own assortment of edible species. But the sweet potato (*Ipomoea*) also would have been a post-Columbian addition from America to the African flora.

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In her fascinating article, "Nurture helps mold able minds" (News Focus, 19 Mar., p. 1832), Ingrid Wickelgren describes how J. Flynn (a political scientist at the University of Otago in Dunedin, New Zealand) has documented a 20-point rise in average IQ in every 30-year generation.

How far can the Flynn effect be extrapolated? Let's assume that the IQ tests are renormed at 100 in the year 2000. If the effect is taken in a purely additive sense (*1*), then we reach an IQ of zero in 1850, and the framers of the U.S. Constitution would have labored under a negative IQ. Granted that the Constitution may need some tinkering with, but this result does seem a little drastic.

So, perhaps the Flynn effect should be interpreted as an exponential (*2*). In that case, the IQ doubling time is 114 years, leaving the Founding Fathers with IQs of 26.

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Notes
1. IQ = 100 + [(year – 2000)/30] * 20
2. $IQ = 1.20^{(year - 2000)/30} * 100$

Inner Sanctum

The article " NIH invites activists into the inner sanctum" by Bruce Agnew (News Focus, 26 Mar., p. 1999) brings to mind the wisdom of the National Science Foundation in abandoning that term in favor of "merit review" several years ago. The first criterion for peer review by the U.S. National Institutes of Health (NIH) (*1*) is "Significance: Does this study address an important problem?" The arrogance of assuming that only scientific "peers," in a narrow technical sense, are in a position to judge this issue is breathtaking. Most biomedical research is highly experimental. Agnew describes a reluctance on the part of advisers to NIH's Center for Scientific Review (CSR) to experiment with the contributions of "consumers" on merit review panels. The U.S. Department of Defense and several institutes within NIH are doing such experiments, and more power to them. This is not a question that should be settled by rigid ideology on either side.

In study sections reviewing proposals that involve risks (participants contribute personal information or tissue, for example, or test a drug, device, or procedure), the absence of the participants' perspective is not just unwise, it is irresponsible. In study sections reviewing narrow, highly technical proposals such as DNA sequencing technologies or crystallographic methods, a consumer presence may not be of great benefit (because "significance" has been decided at a higher level than that of the study section). But many standing CSR study sections do cover a broad intellectual domain where the question of significance is real and important, requiring balanced perspectives outside the purely technical domains.

Fortunately, CSR's position not to invite patient advocates onto these panels anytime soon is belied by experience. If my memory serves me correctly, in the half dozen or so NIH study sections that I have been part of, at least two (organized by CSR or its predecessor, the Division of Research Grants) have included people who described themselves as "consumers," if not consumer advocates.

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1. www.nih.gov/grants/guide/1997/97.06.27/notice-review-criter9.html

As a breast cancer survivor and advocate who has participated in several review panels, I think Agnew does an excellent job of quoting scientists on both sides of the debate.

Patients bring another type of expertise to the table that is as important as technical know-how. Much of the progress made in breast cancer treatment has been patient-driven, challenging the prevailing scientific "wisdom" of the time. Some ex-