

much to revive Liza Minnelli's recording career for about ten minutes a few years back. So we find Hoare describing "Dance, Dance, Dance Little Lady" as "virtually an early rap," a comparison its author would have disdained: there's

*Coward would have  
despised a world where  
sexuality is something  
to march down  
Fifth Avenue about*

still a world of difference between "Dance, dance, dance, little lady./ Youth is fleeting to the rhythm beating/ In your mind" and, say, "Yo, bitch! Sit on this." Coward came to fame at a time when popular culture was still literate, and he would surely have deplored the debasement of his craft into a lot of half-baked hoodlum exhibitionism.

But it's best to read this as Hoare's attempt to stake out his own turf in a crowded field. Coward's first, approved biographer was Sheridan Morley, who was forbidden to mention his homosexuality. In the years since Coward's death in 1973, Morley, perhaps a little defensive about his sins of omission, has advanced the theory that the Master was bisexual—mainly on the grounds that, in one adolescent fumble, Gertrude Lawrence vigorously attempted to demonstrate the facts of life to a reluctant Coward. By the same token, I once saw an over-excited dog try to hump Sheridan's leg, but I'd be reluctant to conclude from that that he was into bestiality. Morley did a more convincing heterosexualization in his efficient compilation show *Noël and Gertie*, suggesting that, notwithstanding that he could never love her "in *that* way," this was the most important relationship in his life. In Hoare's version, Miss Lawrence seems peripheral, but not for the reasons you might think.

For it seems Coward was averse to loving anyone in *that* way. According to his friend Esme Wynne, he was "terribly afraid of illness . . . he had said to me, I'd never do anything—well the disgusting thing they do—because I know I could get something wrong with me." Hoare adds that "it was a revulsion against penetrative sex which remained with Coward all his life." But, given the

subsequent fate of so many of his fellow homosexuals, maybe that's not such bad advice. In the Sixties a friend took him to Fire Island, where, despite the adulation, he was uncomfortable. "Thousands of queer young men of all shapes and sizes camping about blatantly and carrying on—in my opinion—appallingly," he said. "I have always been of the opinion that a large group of queer men was unattractive. On Fire Island, it is more than unattractive, it's macabre, sinister, irritating, and somehow tragic." Building to that forlorn and prescient climax, for once the adjectival accumulation works.

Coward would have despised a world where sexuality is something to march down Fifth Avenue about, where surrendering to human weakness is a cause for "pride." His entire life was an exercise in self-discipline, in subordinating everything to what mattered most: just as, during the Great War, he didn't want his career "hampered by the 'unimportant' needs of his country," so he didn't want it hampered by the unimportant needs of his sexual orientation.

The man who emerges in this account is vain, increasingly bitter, and not terribly likable. The most dismal moment is his absurdly theatricalized grief at the death of Miss Lawrence, with a couple of unfortunate visitors press-ganged into "the dignified consolatory parts he had intended they should play." The old line that deep down he was shallow

might have been written for Coward. The best of his comedies illustrate the paradox of his talent: his depth is on the surface; he's only profound when he's being trivial. He may have genuinely believed that *Private Lives* is "the lightest of light comedies," but it endures because in all that glib niggling and quibbling something bleaker can be heard, no matter that it's too close to the bone for the author to recognize.

While loathing this book's slapdash editing, Coward would have appreciated the exhaustive family tree that begins it. In it, Hoare shows that Coward's uncle's sister married the second son of the Earl of Durham; that his great-grandfather's sister's brother-in-law was the African explorer Mungo Park; that his cousin-twice-removed's second husband was Sir Robert Torrens, the first premier of South Australia; and that his aunt's husband's aunt married the great-grandson of the first Lord Spencer, which makes him a cousin by marriage of Diana, Princess of Wales. I hope it would have been a consolation to Coward, who fretted over his origins. Drinking in the cheers during *London's Calling*, he and Miss Lawrence stood in the wings. "That's for us," he said. "The two kids from the suburbs." Only in Britain would an actor, singer, playwright, composer, lyricist, director, producer, poet, and novelist regard it as an achievement to have crawled his way up from the middle classes. □

## In the Details . . . What?

JAMES A. SHAPIRO

VANNEVAR Bush had it right. Science is an "endless frontier." The sun replaces the earth at the center of the solar system. Microbiology supplants spontaneous generation. The concept of evolution makes it possible to invoke natural processes as the source of biological diversity. The indivisible atom yields to quantum physics, and relativity stretches Newtonian ideas of space and time out of all recognition.

Into this recurring intellectual revolution arrives Professor Michael J. Behe with the claim that random genetic change, natural selection, and gradual

evolution must move aside in favor of intelligent design as an explanatory paradigm for biological adaptations. Is this book a serious critique of orthodox

*Darwin's Black Box: The Biochemical Challenge to Evolution, by Michael J. Behe (Free Press, 292 pp., \$20)*

evolutionary theory? Or is it a misguided attempt to bring religion back into biology? Unfortunately, the answer to both questions is yes. *Darwin's Black Box* starts with the promise of taking us in useful new directions, but it ultimately disappoints the serious student of evolution by rehashing sterile disputes.

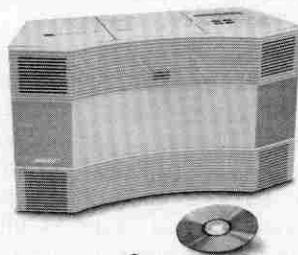
Professor Behe sets three goals in this

*Professor Shapiro teaches microbiology at the University of Chicago.*

book. The first is to introduce the lay reader to the fascinating world of biochemistry. Professor Behe views this science as uncovering the ultimate secrets of life. He calls cellular molecules "the bedrock of nature. Lower we cannot go . . . the cell—Darwin's black box—stands open." With the unqualified enthusiasm expressed by these statements, he guides the reader through the biochemical intricacies of several adaptive systems, ranging from the defensive artillery of the bombardier beetle to vision, blood clotting, and the immune response. His patient explanations reveal a conscientious teacher.

Professor Behe asserts that any credible evolutionary theory must account for biochemical inventions essential to survival. This assertion brings us to his second goal: to show that the Darwinian conceptual framework cannot explain cellular biochemistry. His basic argument is that each useful adaptation involves a system displaying "irreducible complexity." Irreducibly complex systems comprise multiple interacting components which are not useful in isolation but which are all essential to the function of the system as a whole. A mousetrap serves as the pedagogic paradigm of an irreducibly complex device. Collectively, its pieces serve to entice and ensnare mice. Individually, none of them has any trapping ability. Moreover, a mousetrap deprived of any single component is completely defective. Thus, there is no way a mousetrap could evolve by accumulating separate pieces in a random process because there would be no function to select until all the pieces were present and properly organized to work together.

Compared with mousetraps, biochemical systems are incredibly intricate, as illustrated by the blood-clotting system. Clots are meshworks of one protein, fibrin, whose molecules rapidly link together into a fine web. To prevent inappropriate clotting, fibrin is made as an inactive precursor. Another protein, thrombin, cleaves the precursor to liberate fibrin when clotting is needed. As a fail-safe backup, thrombin itself is made as an inactive precursor whose activation in response to tissue damage requires a cascade of half a dozen proteins, sequentially cleaving and activating each other. There are also additional regulatory factors which either stimulate or inhibit the activation cascade. A schematic illustration of these biochemical interactions resembles the wiring dia-



## Small as it is, we managed to find room for improvement.



Introducing the richer sounding, remote-controlled Bose® Acoustic Wave® music system. *Stereo Review* called it "...possibly the best-reproduced sound many people have ever heard." But that didn't stop us from making the Acoustic Wave® music system even better. We started by making the sound even richer, clearer, and more natural. The sound from our patented waveguide speaker technology is so lifelike, you'll want to turn it up. So we made that easier as well, by adding a credit card-sized remote control that lets you operate the system from your favorite chair. Whether you're listening to the AM/FM radio or your favorite CD, it adds up to big improvements, in a very small system.

Call today 1-800-898-BOSE, ext. A49.

Mr./Mrs./Ms.  
Name (Please Print)

Daytime Telephone

Evening Telephone

Address

City

State

Zip

Or mail to: Bose Corporation, Dept. CDD-A49, The Mountain, Framingham, MA 01701-9168.

**BOSE®**  
Better sound through research®

©1996 Bose Corporation. Covered by patent rights issued and/or applied for. Quote: Julian Hirsch, *Stereo Review*, 1995.

**"Beckerman's arguments are piercing . . .  
He's not anti-green. He is merely sensible."**

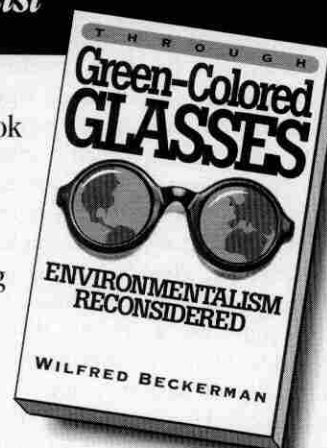
—*The Economist*

Oxford economist Wilfred Beckerman takes a skeptical and provocative look at such issues as biodiversity, global warming, sustainable development, and the question of what we owe to posterity. His defense of economic growth and his piercing examination of the acute but localized environmental problems of the Third World challenge the environmentalist conventional wisdom.

***Through Green-Colored Glasses***

by Wilfred Beckerman

248 pages, \$11.95 paper/\$21.95 cloth



**CAIO**  
INSTITUTE

Call toll-free to order: 1-800-767-1241 (noon-9 p.m. eastern time, Monday-Friday)  
1000 Massachusetts Ave., N.W., Washington, D.C. 20001

gram for an electronic circuit. This apparently baroque complexity is essential because, for circulation to be maintained, clotting must occur only at the right time and place. For Professor Behe, only intelligent design could explain such a complex, sophisticated, interdependent mechanism for sealing leaks in the circulatory system.

The argument that random variation

*There are no detailed  
Darwinian accounts  
for the evolution of  
any fundamental  
biochemical  
or cellular system*

and Darwinian gradualism may not be adequate to explain complex biological systems is hardly new. Behe quotes Darwin himself considering this possibility: "If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, slight modifications, my theory would absolutely break down." Surely, then, contemporary Darwinists have answers to rebut critics like Professor Behe. In fact, there are no detailed Darwinian accounts for the evolution of any fundamental biochemical or cellular system, only a variety of wishful speculations. It is remarkable that Darwinism is accepted as a satisfactory explanation for such a vast subject—evolution—with so little rigorous examination of how well its basic theses work in illuminating specific instances of biological adaptation or diversity.

Professor Behe's third goal is to herald the importance of the intelligent-design concept. Here he seems to lose his footing. Curiously, he treats intelligent design as a novel discovery. "Unlike Darwinian evolution, the theory of intelligent design is new to modern science." However, until the last century (well into the era of "modern science"), most serious thinkers considered it self-evident that the remarkable capacities of living organisms, so superior to mechanical devices, must have an intelligent basis. Historically, then, the real issue is not the recent "discovery" of intelligent design in biology but rather why orthodox science currently

denies what has seemed obvious for so long.

The second shortcoming of *Darwin's Black Box* is not pointing out explicitly how far modern biology has progressed in revealing the inherent intelligence of complex molecular and cellular systems. Professor Behe compares the blood-clotting cascade to a Rube Goldberg device, but it is actually a powerful real-time distributed computing system capable of evaluating the integrity of the entire circulatory apparatus and making appropriate clotting decisions. (The designers of Star Wars systems could do well to turn their attention to such biological defense networks as models for how to discriminate among potential dangers and make reliable decisions.) Contemporary cell and molecular biology focuses on the architecture and operation of "signal-transduction networks." These are cellular functions that process information about internal operations (e.g., DNA replication) and about the external environment to make decisions controlling growth, movement, and differentiation.

Professor Behe's most serious *faux pas* is suggesting that intelligent design may lie outside the domain of scientific investigation. "The dilemma is that while one side . . . is labeled intelligent design, the other side might be labeled God." The subtitle of the book (*The Biochemical Challenge to Evolution*) suggests that it attacks the idea of evolution, not just Darwinian theories of change. Even the scientific approach is questioned. In the third section of *Darwin's Black Box*, in a partially justified attack on groupthink in the scientific community, Professor Behe chides colleagues for asserting that scientists must strive for explanations exclusively in terms of natural phenomena. But his appeal to explanations beyond the realm of nature is premature. Darwinism and creationism are not the only conceivable intellectual frameworks for thinking about the evolution of biological adaptations and diversity. The pertinent scientific questions have not all been asked.

One can only guess that Professor Behe brings religion back into the evolutionary debate because he feels intelligence is somehow beyond nature. In this regard, there is an ironic conver-

gence with the neo-Darwinists who also want to exclude the possibility of intelligent action as part of the natural evolutionary process. Yet where does intelligence come from? Professor Behe cites human genetic engineering to bolster his argument that biochemical systems can be intelligently designed. Is human intelligence natural or supernatural? And what about animal intelligence in finding food, embryonic intelligence in overcoming mistakes and disruptions to produce healthy organisms, cellular intelligence to correct errors and imbalances in millions of coordinated biochemical reactions, and biochemical intelligence exhibited by systems like the blood-clotting cascade? Could these examples of intelligent action in nature relate to the appearance of intelligent biochemical systems in evolution?

*Darwin's Black Box* has the merit of showing us that evolution remains a mystery. Its fundamental driving forces have not been resolved either in detail or in principle. Where *Darwin's Black Box* undermines itself is in abandoning the effort to treat the question of intelligent design within science's own ongoing evolution. Professor Behe unfortunately expresses a static view of science. The accomplishments of molecular biology are presented as ultimate triumphs ("... the bedrock of nature. Lower we cannot go . . .") rather than as one stage in a continuous process of questioning, discovery, and reconceptualization. Science



repeatedly cycles back to basic issues. Biologists are debating anew whether life is purely mechanical. Two factors distinguish the current debate from the vitalism-mechanism conflict at the beginning of this century. One factor, well documented by Professor Behe, is our knowledge of the molecular components of complex biochemical systems. We cannot make simplistic assumptions because the hard facts of molecular genetics, DNA sequencing, and protein biochemistry tell us that complexity is truly the name of the game in biology.

The second new factor, strangely ignored by Professor Behe, is the existence of computers and information networks. Having exemplars of physical objects endowed with computational and decision-making capabilities shows



that there is nothing mystical, religious, or supernatural about discussing the potential for similarly intelligent action by living organisms. Information science also provides new conceptual frameworks for analyzing, formalizing, and ultimately exploiting the intelligent behaviors of complex biological systems. We need only think of the many applications of hybrid concepts like neural networks and genetic algorithms to realize the enormous potential of the

interface between information science and biology. Exploring this interface, science is about to enter a period as exciting and transforming as the physics of the early twentieth century. Sadly, despite its valuable critique of an all-too-often unchallenged orthodoxy, *Darwin's Black Box* fails to capture the true excitement of contemporary biology because it is fighting the battles of the past rather than seeing the vision of the future. □

## Good for Business

WILLIAM E. SIMON

**B**USINESS is under attack again. Companies seeking to improve their productivity are criticized for laying off employees. We hear renewed calls for "corporate social responsibility" and "socially responsible investing." Profit has become a dirty word, as the free-enterprise system is

*Business as a Calling: Work and the Examined Life, by Michael Novak (Free Press, 224 pp., \$22)*

*The Heroic Enterprise: Business and the Common Good, by John Hood (Free Press, 256 pp., \$24.50)*

besieged by people wanting it to be kinder and gentler, less concerned with the bottom line and more concerned with the bottom rung. These two fine new books argue persuasively that there is no contradiction between profit seeking and ethical responsibility, and in fact that a business that creates jobs and wealth fulfills a very important social objective.

The theologian Michael Novak and John Hood, president of the John Locke Foundation, both suggest that business has important moral responsibilities—and that successful companies are in fact meeting them.

Michael Novak is America's wisest commentator on the delicate relations between the life of the market and the life of the soul. In his new book, he maintains that those who pursue business are called to their work just as

much as the doctor or the man of the cloth. "All are trying to live fulfilled lives," he writes, "eager to mix their own identity with their work and their work with their identity. They want more satisfactions from work than money."

Those satisfactions can be obtained by working in business, and, indeed, as Novak reports, businessmen are more religious than the population as a whole. Refuting Marx's description of commerce as an impersonal "cash nexus," Novak argues that business serves as a force to bring people together. From the craftsmen who make our goods to the workers who deliver them, we are inextricably united by our business relations. As he puts it, "Commerce is the most solid, material sign of unmistakable human solidarity."

That solidarity, in his view, leads to a responsibility to uphold capitalism, because as a system of economic relations it 1) "better helps the poor escape their poverty" and 2) "is a necessary condition for the success of democracy." Novak maintains that capitalism is morally neither destructive nor neutral. Because it is so dependent on human capital, the most virtuous habits yield the most desirable results. Successful business executives practice three virtues, he writes: the virtue of creativity, the virtue of building community, and the virtue of practical realism.

One of the most provocative of Novak's chapters suggests that business has seven internal responsibilities that spring from the nature of corporate life, and seven external responsibilities that come from the religious teachings of Judaism and Christianity. Among the

internal responsibilities are the obligations "to satisfy customers with goods and services of real value," to "make a reasonable return on the funds entrusted to the business corporation by its investors," and to create new wealth and new jobs. Among the external responsibilities are the obligations to "protect the political soil of liberty," to "exemplify respect for law," and "to protect the moral ecology of freedom"—which includes resistance to the systematic corruption of a popular culture that "undermines the capacity of peoples for self-government." Novak concludes his book with the example of Andrew Carnegie, who gave away his fortune in his later years and whose essay "The Gospel of Wealth" sets forth a compelling ethic of social responsibility.

John Hood's work of business reporting is a marvelous complement to Novak's more philosophical treatment. Hood tells story after story of ways business is improving American life: bar codes that enable discount retailers to lower prices of clothing, plastic packaging that reduces the spoilage of food, pharmaceuticals that save lives and lower health-care costs, timber practices that increase the number of trees.

Take the emotionally charged issue of safety. Many people will remember the

*Those doors had been  
ordered locked by  
government inspectors  
from the Department  
of Agriculture*

tragic 1991 fire at a North Carolina chicken-processing plant, where 25 workers died in the flames, hopelessly clawing at exit doors that management had locked from the outside. The incident was widely reported as evidence of the need for greater governmental oversight of corporate behavior, but Hood reports one crucial fact that both Congress and the media failed to note: those doors had been ordered locked by government inspectors from the Department of Agriculture.

In similar fashion throughout this meticulously researched and well-written book, Hood repeatedly stands the received wisdom on its head by showing how the incentives of market competi-

*Mr. Simon, Secretary of the Treasury under Presidents Nixon and Ford, is president of the John M. Olin Foundation.*