

For anyone interested in the far frontiers of basic science and philosophy of science, not to mention the peculiar people who excel at such work, this book will prove absorbing.

Among the personas explored, all are cleverly and accurately depicted, although Horgan's likes and dislikes, his stylistic and even political sympathies, come through, whether by accident or design. His aversion to, for instance, Nobel laureate immunologist (and now neuroscientist) Gerald Edelman and the late Sir Karl Popper, philosopher of science, contrasts sharply with his deference to paleontologist Stephen Jay Gould and mathematician Roger Penrose.

But then, these are simply opinions. What of the author's claim of an ongoing abandonment of the great goal of science, which was to obtain not just answers but *the answer*? Horgan seems to have two main reasons for making this claim. First, he accepts the well-worn argument that we are in an era of diminishing returns from research, a view lately bolstered by the assertion that in seeking a "theory of everything" particle physics has finally overreached: neither "superstrings" nor any other mathematization of what is already mathematical, hence untestable, is likely to produce *the answer*.

Second, Horgan deduces from interviews with unquestionably powerful minds (and from meetings in which they assemble for metascience and bagels) that these good people are *troubled*. Asked whether they anticipate the end of science, many of them squirm but do not deny it.

Yet engaging as these glimpses of angst-ridden greatness may be, they are not fully persuasive. As Horgan properly notes, greatness has often announced that its work is done—only to be proved wrong. Granted, natural selection was a 19th-century idea, as were atoms made mostly of empty space. But genetics, apart from Mendel's pioneering insight, is a 20th-century story. So is the fusion of genetics with biochemistry, natural history, ecology, development, and earth history. The mystery of quantum gravity may or may not be solved, but whole territories of physics remain unexplored.

Finally, a certain gloom is bound to settle over any business that has grown exponentially and must now grow, if at all, linearly. Ask the brilliant, egotistical leaders in any field if their own achievements are likely to

be trumped; most will stroke their chins and think not. Interview the youngest, most up-and-coming scientific geniuses, and you will get a different answer.

—Paul R. Gross

HISTORY OF THE HOUR:
Clocks and Modern Temporal Orders.
By Gerhard Dohrn-van Rossum. Trans.
by Thomas Dunlap. Univ. of Chicago
Press. 451 pp. \$29.95.

There is nothing more distinctively modern than the ordering of all existence by days, hours, minutes, seconds, and, it sometimes seems, nanoseconds. How did time become the tyrant of modern life? The answer is not as obvious as it might appear. After all, time (or more accurately its measurement) is as old as the Babylonians, who invented the sundial and the 24-hour day. Yet the Babylonians didn't live by the clock.

Modern time began with the invention of the mechanical clock during the 13th century. Nowadays, scholars eager to find Eurocentrism lurking under every bed suggest that medieval Europeans borrowed the technology from the Chinese or Muslims. This hypothesis gets little more than a cold stare from Dohrn-van Rossum, a historian at Germany's University of Bielefeld. At great length, he shows that while much of the mechanical clock's history remains obscure, many different inventors in scattered European towns and cities had a hand in its development.

Dohrn-van Rossum observes that what really brought time to the public realm was the use—beginning in Orvieto and other northern Italian towns early in the 14th century—of *public* clocks capable of striking the hours. By the early 15th century, he notes, "life in [Europe's] cities was equated with



life by the clock.” But he attacks the scholarly consensus that urban merchants and traders who demanded standardized forms of time were chiefly responsible for this change. He shows that churchmen—usually seen as foot-draggers—gladly advanced the cause of time and that local aristocrats in towns and cities across Europe regarded public clocks as civic status symbols and rushed to install them. Nor was standardized time an instrument solely of workers’ oppression, Dohrn-van Rossum argues. As early as the 15th century, workmen turned it to their own advantage, using the clock to win hourly wages and limited working hours.

Despite prose charitably described—even allowing for the vagaries of translation—as uninviting, Dohrn-van Rossum paints a highly nuanced picture of time’s conquest of modern life. The old idea that time consciousness was imposed by a rising bourgeoisie intent upon reordering and rationalizing the world no longer seems solid. Dohrn-van Rossum paints a more complex (and untidy) picture of scattered and spontaneous generation; it makes time seem less our tyrant than our duly elected monarch.

—Steven Lagerfeld

AN ISLAND OUT OF TIME:
A Memoir of Smith Island in the Chesapeake.

By Tom Horton. Norton. 352 pp. \$25

“Two things I never felt bad over—poachin’ oysters or takin’ waterfowl.” Who is speaking, a friend of the environment or one of its enemies? When it comes to the Chesapeake Bay, the answer is far from simple. The speaker is a Smith Island waterman, a member of a community that has long depended on the bay for its survival. Yet as native son and environmental journalist

Horton shows in this lyrical memoir, the watermen no longer enjoy an untroubled relationship with their home. Instead, they must deal with the fact that the bay is, as Horton observes, “a world-class resource, polluted big time, and now the object of unprecedented restoration efforts.”

But Horton’s main concern is not with the politics of conservation. It is with the interconnectedness of people who have for generations lived as intertwined with one another as the salt marshes are with the bay. As one islander says, “You know just how to avoid an argument, and you know just how to start one.” Sustaining this balance is a deep sense of tradition—some Smith Island families go back to the 1600s. Only recently has modern life intruded: electricity in 1949, telephone lines to the mainland in 1951. While younger islanders struggle with the enticements of the outside world, pattern and routine remain strong among the older. As one remarks, “I’m 55, and I’ve been crabbing right here for more than 40 years. This boat is nearly the same age. . . . If you were to put me in a new boat, I don’t think I would even know how to crab.”

Still, hovering over Horton’s vivid account is the clash between environmental activists and communities that, like this one, are part of the “ecosystem” the activists are crusading to save. The waterman who doesn’t regret poaching oysters or taking waterfowl tells Horton how “one freezing winter we sent up to Crisfield for corn and fed thousands of starving redheads [ducks] right off the stern of our boats.” Such people should be heeded when they protest. “Whenever you make a law that applies to everywhere,” the same waterman says, “it can’t apply over here. We got no industry and no farmland—just our marsh and the water, and nobody takes care of us but ourselves.”

—Debbie Lim

Contemporary Affairs

THE SOCIAL MISCONSTRUCTION OF REALITY:
Validity and Verification in the Scholarly Community.

By Richard F. Hamilton. Yale Univ. Press. 278 pp. \$32.50

Mozart was buried in a pauper’s grave. The Duke of Wellington said “the Battle of

Waterloo was won on the playing fields of Eton.” Protestant Christianity nurtured the “spirit of capitalism.” Hitler’s greatest support came from the lower-middle class. Totalitarianism began with the Enlightenment project of reforming criminals instead of punishing them.

Are all of the above true? Or are they