back by, for example, persuading the government to appoint members more sympathetic to their views to the board of health.

A more important cause of the environmentalists' undoing was the new germ theory of disease developed by Louis Pasteur and other European scientists during the 1870s and '80s. The discovery that germs are the main source of disease focused attention on sewage and reduced the pressure to regulate industrial pollutants. Indeed, the effluent from New England's wool and paper mills, tanneries, iron works, and other manufacturing works took on a whole new character. In the late 1880s, the Connecticut Board of Health concluded that "inorganic chemicals [are] harmless, or positively beneficial in counteracting the organic matter [sewage]."

All was not lost. Over the following decades, efforts were made in many states to bring sewage dumping under control. Perhaps the most important impact of germ theory, however, was the displacement of the reformers' broad view by a new and more narrowly technical view of the impact of environmental degradation.

Mammal Mommie Dearests

"Natural-Born Mothers" by Sarah Blaffer Hrdy, in *Natural History* (Dec. 1995), American Museum of Natural History, Central Park West at 79th St., New York, N.Y. 10024.

Despite Medea and other, more recent murderous moms, nothing is more synonymous with nurturing than motherhood. But researchers who study mammal mothers of various species now take a much more expansive view, reports Hrdy, an anthropologist at the University of California at Davis. Motherly behavior that just a few decades ago would have been looked upon as deviant is now thought to be as "natural" as tender loving care.

Motherhood, Hrdy writes, "is not as straightforward a matter as just turning on the milk. Mothers have to factor in recurring food shortages, predators, and social exploitation by members of their own species. Faced with poor conditions, a mother must weigh babies in hand against her own well-being, long-term survival, and—most important—the possibility of breeding again under better circumstances."

Take the cotton-top tamarins of South America, for example. These pint-sized monkeys can give birth as often as twice a year to twins whose combined weight adds up to one-fifth of the mother's. Only with the help of fathers, older offspring, or transient adults, who carry the babies when the mother is not suckling them, can the mothers cope. A researcher at the New England Primate Center found that 57 percent of cotton-top mothers without such help abandoned their young.

Abandonment is but one strategy. A pregnant house mouse that encounters a strange male likely to pose a threat to her offspring "may reabsorb her budding embryos," Hrdy says. Among the langur monkeys of India, a young mother with many fertile years ahead of her may, under persistent assault from strange males, "simply stop defending her infant, leaving more intrepid kin—usually old females that have not reproduced for years—to intervene."

Other mammals stretch the meaning of motherhood even further. A biologist who monitored a population of black-tailed prairie dogs in South Dakota found that low-weight mothers sometimes abandoned their litters, letting other prairie dogs eat the pups and occasionally even joining in the feast themselves.

Newton's Solitary Genius

"Presiding Genius" by Peter Richards, in *CAM* (Michaelmas Term, 1995), Univ. of Cambridge Development Office, 10 Trumpington St., Cambridge, England CB2 1QA.

Sir Isaac Newton (1642–1727), the greatest mathematician who ever lived, spent 35 years at Trinity College, University of Cambridge. But he "was too much his own man for Trinity to recognize his genius straightaway," writes Richards, editor of

CAM, the university's alumni magazine.

Newton's solitary nature was at least partly a result of his personal history. His father, a yeoman farmer, died before Newton was born. When the boy was three, his mother married a wealthy clergyman, leaving her son in the care of his grandmother. Newton endured "eight years of apparently loveless isolation," Richards notes, until his hated stepfather died and he went off to Grantham Free School.

Remembered later as "a sober, silent, thinking lad," Newton at Grantham was forever experimenting, Richards says, building wooden clocks driven by weights and other devices. Returning home at 17, Newton kept on experimenting, to his mother's dismay. "He was so surly that after nine months his mother finally gave up. Newton was packed off to Cambridge," with even the servants saying he was fit for nothing else.

Because his wealthy but barely literate mother refused to pay, Newton entered Cambridge in 1661 as a poor "subsizar," who earned his way by waiting on the Fellows and better-off students, until 1664, when he was elected to a scholarship.

Two years after entering Cambridge, Newton came upon René Descartes's *Geometry* (1637). "Thereafter," Richards says, "he immersed himself, learning 'of his owne inclination, and by his owne industry without a teacher.' " He received his bachelor's degree in January 1665 and threw himself into research. By the end of the next year, he had invented calculus, discovered that light was "a confused aggregate of Rays" which exhibit different colors, and, after noticing an apple fall to the ground at the family farm, begun to conceptualize his theory of universal gravitation.

Yet Newton's astounding discoveries remained known only to him for some years to come. Indeed, although he stayed on at Trinity as a mathematics professor, it was more than two decades before Cambridge and the world came to appreciate how great a genius was in their midst. That occurred with the publication of *Philosophiae Naturalis Principia Mathematica* (1687), in which he detailed his theory of universal gravitation and his laws of motion.

Suddenly, the reclusive bachelor, now in his mid-forties, was the toast of Cambridge and London, and he seemed to enjoy it. He left the university for a government sinecure in London in 1696, and became the first scientist ever knighted. At his funeral in Westminster Abbey in 1727, Voltaire recalled Newton's reply when asked how he discovered the law of universal gravitation: "By thinking on it continually."

ARTS & LETTERS

The Two Faces of Literary Stardom

"The Author as a Brand Name: American Literary Figures and the *Time* Cover Story"
by Joe Moran, in *Journal of American Studies* (Dec. 1995), Cambridge Univ. Press,
Journals Dept., 40 W. 20th St., New York, N.Y. 10011–4211.

In *Time* magazine's heyday, to appear on its cover seemed the height of American fame, especially for such obscure folk as novelists, poets, and playwrights. For five decades after its debut issue appeared in 1923, *Time* made "serious" writers from Sinclair Lewis to John Updike seem as important, in their way, as all the politicians, business executives, and popular entertainers who usually graced the cover. All well and good, perhaps, but the authors themselves, maintains Moran, a doctoral student at the University of Sussex, were often not so happy about it. The sedate painted portraits or sketches on the cover were flattering, as were the stories inside. *Time*, in those days, was seldom "intrusive" toward its cover subjects. But inclusion in publisher Henry Luce's steadily expanding gallery of culture heroes had other drawbacks.

The authors often feared—rightly—that the stories would reduce them to stereotypes, Moran says. *Time* turned Ernest Hemingway into "the man's man," William Faulkner into "the farmer," John Cheever into "the country gentleman," and J. D. Salinger into "the hermit." Readers unfamiliar with the work of the authors could thus have the illusion of knowing them. But for an author "trying to unpack his heart through the devices