search in academia, we pointed to "obvious exceptions, both in federal programs and in university tenure policies. Certainly the most powerful exceptions are in the many research programs conducted in the federal laboratories and in industry, where the goals...force vigorous and effective interdisciplinary work." Noonan's citation of work done by EPA laboratories themselves or in concert with other agencies strongly supports this point.

We certainly applaud the vigorous efforts by the EPA to broaden this perspective to the universities, in the face of what we continue to believe are formidable barriers, most prominently that of a regulatory agency supporting academic research that is fundamental, stable, of high quality, and with sufficient scale. This issue is not new and, indeed, since our article was published we have received a significant number of e-mails from researchers supported by EPA agreeing with our comments.

Finally, Noonan's metaphor of a "Potemkin village" is apt: The successes of U.S. research—including, of course, major advances on environmental issues—have distracted us from what are some substantial weaknesses, of the sort we described in our Policy Forum.

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C. elegans as a Model

Elizabeth Pennisi, in her excellent commentary "Worming secrets from the *C. elegans*" (News Focus, 11 Dec. 1998, p. 1972), states that "The first person to sense that the worm might take on such a prominent role in biology was molecular biologist Sydney Brenner." I am sure that Brenner would wish to acknowledge the role that Ellsworth C. Dougherty played in this matter. Dougherty originally described in 1949, " [a] new species of the free-living nematode *genus Rhabditis* of interest in comparative physiology and genetics" (*1*). From 1949 until his death in 1965, Dougherty, working primarily in Berkeley, California, promoted the use of *Caenorhabditis* as a model metazoan organism. He and his colleagues Hansen, Nigon, and Nicholas, in particular, established culture techniques, determined nutritional requirements, and identified genetic mutants to facilitate the research usefulness of this organism. In the early 1960s he introduced it to Brenner during one of Brenner's sojourns at Berkeley.

Much of this pioneering work is summarized in many publications and in two monographs (*2*). Dougherty's work provided a solid foundation for the accomplishments that Waterston, Sulston, and Coulson have achieved. The availability of the nucleotide sequence of *C. elegans* will open the prospect of exciting new insights for metazoan biology.

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2. E. C. Dougherty, *Ann. N.Y. Acad. Sci.* **77**, 25 (1959); J. D. Tiner, *ibid.* **139**, 1 (1966).

Hot Zones

The public's perception of disease, especially infectious disease, changes as a function of perceived threat. Tuberculosis, scarlatina, diphtheria, and tetanus no longer cause the fear they did in my childhood. Conversely, anthrax and Ebola virus are usually described as "deadly," and we read in tabloids of "flesh-eating" microbes that can devour the infected. The solution to these "deadly" problems in the popular consciousness is to have "hot labs" in "hot zones" manned by spacesuit-clad personnel, as seen in films and on television.

The reality is that there are laboratories dedicated to containment of infectious agents, not only for human diseases but, perhaps more important, for plant and animal diseases. Such laboratories, as we know, are classified by the degree of isolation they provide, ranging from Biocontainment Level I (BCL 1) through BCL 4 (P4), which is the technologically maximum barrier between infectious material and the world outside.

Containment facilities were originally developed as a concept with the challenge of importing lunar samples that could have been contaminated with pathogenic extraterrestrial organisms. Because these early facilities were designed by engineers, hardware prevailed, in the form of laminar flow hoods, improved glove boxes, and air filtration systems. Before that time, containment was left to an investigator's discretion, with the exception of biological warfare facilities. Activities at these facilities were kept secret, although rumors of breaches of containment (and fatalities) have circulated. Industry has had a different class of containment, now referred to as Good Manufacturing Practices, that was designed to keep products from being contaminated.

The number of P4 laboratories that exist is unclear. A web site called ProMED-