regulates energy balance and fat deposition may to a large extent be determined before an individual is born. Human epidemiological studies by an increasing number of groups worldwide have demonstrated that being inappropriately small or large at birth is associated with an increased risk of being overweight and obese in childhood and adult life [discussed in (*1*–*3*)]. This association is dependent on maternal rather than paternal characteristics and seems to operate independently of genetic factors.

Although it is undoubtedly important to understand the genetic, molecular, and environmental influences that contribute to the development of obesity after birth, we also need to look at the environment in which these systems first develop. Only if we can look at the "big picture" created by these different areas of obesity research will we be able to identify the key factors that are contributing to the alarming rate of increase in obesity in our society—and therefore identify ways in which we can curb the current obesity epidemic.

BEVERLY MÜHLHÄUSLER

Developmental Physiology Laboratory, Discipline of Physiology, University of Adelaide, Adelaide SA 5005, Australia. E-mail: beverly.muhlhausler@adelaide.edu.au

References

1. C. N. Hales, D. J. Barker, *Br. Med. Bull.* **60**, 5 (2001).
2. C. Yajnik, *Proc. Nutr. Soc.* **59**, 257 (2000).
3. A. Plagemann *et al.*, *Int. J. Obes. Relat. Metabol. Disord.* **21**, 451 (1997).

Building Biosafety Laboratories

MARTIN ENSERINK'S ARTICLE ON JIM Orzechowski's work in biocontainment laboratory construction ("The architect behind the new fortresses of science," News Focus, 7 Feb., p. 812) helps to perpetuate the dominance of Orzechowski and his associates in this field. In 1999, the Southwest Foundation for Biomedical Research opened a full suit biosafety level (BSL) 4 lab. The cost of this building was $11 million, which also included 12 BSL2 labs, 3 BSL3 labs, and a $1-million campus energy plant upgrade. This price tag is considerably less than the $70 million budget on the Orzechowski-designed Canadian Science Centre for Human and Animal Health. The architecture firm for the Southwest Foundation was Overland Partners in San Antonio, Texas. The building won the National Eagle award, first place for design and construction for a building costing under $25 million. If the United States is going to continue to build these buildings, then they should know that there is a way to do it that will not break the bank. Please get the word out so that Orzechowski and company do not dominate the construction of these buildings.

JEAN L. PATTERSON

Department of Virology and Immunology, Southwest Foundation for Biomedical Research, Post Office Box 760549, San Antonio, TX 78245–0549, USA. E-mail: jpatters@sfbr.org

Another Epidemic of Politics?

DONALD KENNEDY'S EDITORIAL "AN epidemic of politics" (31 Jan., p. 625) rightly takes the Bush Administration to task for its apparent manipulation of science advisory panels to favor particular political outcomes. But the issue of politicization of science is more pervasive and endemic than Kennedy suggests and requires serious attention from the scientific community to prevent this "epidemic" from spreading.

There are strong incentives to politicize science because political decision-making in many contexts relies on scientific information. Those engaged in political battles believe they can gain an advantage over their adversaries by influencing the availability and perception of information to increase the odds of their preferred (and often predetermined) outcomes. We see this frequently, for example, when advocates both for and against the Kyoto Protocol on climate change seek to "spin" the latest scientific findings to favor their long-held positions. This is business as usual when political issues involve science.

But what happens when scientists (and engineers) themselves act in ways that politicize science? Sometimes this occurs through institutional affiliations—for example, some members of the House Science Committee have expressed concern that the membership of the panel investigating the *Columbia* Space Shuttle disaster is too closely tied to NASA (*1*). At other times, scientists themselves are more explicit about the political stakes, such as when a number of scientists attacked Cambridge University Press because of their concern about the political ramifications of its publication of Bjørn Lomborg's book *The Skeptical Environmentalist*.

If political advocates are expected to resist seeking to influence political outcomes by manipulating science, it is also fair to expect the scientific community to resist using science to seek desired political outcomes. Particularly uncomfortable questions are raised when the desired political outcome in question is more support for the scientific community itself (*2*). One way that the scientific community might

deal straightforwardly with the politicization of science is to better appreciate the distinction between politics and policy. From a political perspective, science is used to reduce choice among decision-makers to, typically, a single preferred outcome. By contrast, a policy perspective focuses on using science to expand the choices available to decision-makers (*3*). Too often, members of the scientific community conflate policy and politics and eschew the opportunity to participate constructively in connecting science with decision options, and instead set the stage for the politicization of science by scientists and advocates alike. Until dealt with by the community, this epidemic threatens the effective role of science in highly politicized policy settings.

ROGER PIELKE JR.

Center for Science and Technology Policy Research, University of Colorado, Boulder, CO 80309, USA.

References

1. See www.house.gov/science_democrats/releases/03feb06.htm.
2. R. A. Pielke Jr., D. Sarewitz, "Wanted: scientific leadership on climate," *Issues Sci. Technol.* (winter 2003), pp. 27–30.
3. R. A. Pielke Jr., *Nature* **416**, 368 (2002).

Exploring Sea-Floor Resources

OUTSIDE OF THE CAVEAT IN HIS LAST sentence, P. A. Rona's Perspective "Resources of the sea floor" (31 Jan., p. 673) reads very much like the commercial promotions implying the imminent development of sea-floor minerals that were common two and three decades ago. There's no current evidence that sea-floor mineral resources, such as manganese nodules, marine polymetallic sulfides, or cobalt crusts, are of "increasing economic value," particularly upon a close inspection of the markets for the metals that might be recovered. Prices have been flat or declining in recent years for all of the likely prospects. Except for a few nearshore deposits in shallow waters, such as the Namibian diamonds, most of these minerals cannot be described as "ore bodies," which by definition are commercially recoverable deposits; they must be understood instead as potential resources. The issuance of deep sea-floor exploration contracts notwithstanding, the economic activities of onshore exploration, substitution, recycling, and conservation all continue to work against the commercialization of sea-floor mining. Unfortunately, the main lesson that J. M. Broadus taught about "seabed materials" (*1*) is not being heard. Investments in exploration and R&D of sea-floor minerals are accelerated by the strategic behavior of firms and governments, but posturing is a component of those investments. Consequently, the advent of commercial production may be more distant than that suggested by "preproduction" activities. What science has brought to light is that the biological diversity and ecology of the sea floor are likely to be of greater significance than the economic geology.

PORTER HOAGLAND

Marine Policy Center, Woods Hole Oceanographic Institution, Woods Hole, MA 02543, USA.

Reference

1. J. M. Broadus, *Science* **235**, 853 (1987).

Response

HOAGLAND'S COMMENTS SERVE TO REINforce points in my Perspective. Our vision of sea-floor resources has expanded in recent years to include living biota, as well as the traditional nonliving marine mineral resources. In the case of polymetallic sulfides, the same hot, metal-rich solutions that concentrate the mineral deposits energize heat-loving chemosynthetic microbes, which are hosted in these deposits at hydrothermal vents on the deep sea floor. As noted in my Perspective, certain of these microbes already have commercial applications, and others are being tested for a variety of industrial and pharmaceutical uses. The economic value of sea-floor resources is most certainly expanding.

As correctly pointed out by J. M. Broadus in his article cited by Hoagland (*1*), "The eventual realization of the resource potential of seabed materials will be determined by their relative economic accessibility compared to rival onshore resources." An example is diamond mining offshore of southwestern Africa, which has become commerically viable since the Broadus article was published. The point is that marine minerals are being developed selectively, so that blanket statements about the commercial prospects of sea-floor mining—either pro or con—are misleading. I avoided the term "ore deposit" in my Perspective for the very reason that it implies that deposits are commercially recoverable.

Hoagland contends that my Perspective inappropriately promotes marine minerals. If it can be said to promote anything, then it is exploration of the ocean, because we are at the dawn of discovery of sea-floor resources.

PETER A. RONA

Institute of Marine and Coastal Sciences and Department of Geological Sciences, Rutgers University, 71 Dudley Road, New Brunswick, NJ 08901–8521, USA. E-mail: rona@imcs.rutgers.edu

Reference

1. J. M. Broadus, *Science* **235**, 853 (1987).