

ation response in the 1996–1997 brochure of the Harvard Medical School continuing education course "Spirituality and Healing in Medicine-II." I believe they refer to the following passage in that brochure.

For more than 25 years laboratories at the Harvard Medical School have systematically studied the benefits of mind/body interactions. The research established that when a person engages in a repetitive prayer, word, sound or phrase and when intrusive thoughts are passively disregarded, a specific set of physiologic changes ensue. There is decreased metabolism, heart rate, rate of breathing and distinctive slower brain waves. These changes are the opposite of those induced by stress and are an effective therapy in a number of diseases that include hypertension, cardiac rhythm irregularities, many forms of chronic pain, insomnia, infertility, the symptoms of cancer and AIDS, premenstrual syndrome, anxiety and mild and moderate depression. In fact, to the extent that any disease is caused or made worse by stress to that extent this physiological state is an effective therapy.

I also stand by these statements. Many diseases have been documented to have stress as one etiologic or exacerbating component, but these diseases may also have other contributing factors that are best ameliorated by drugs, surgery, and other self-help treatments. Thus, my col-

leagues and I research and ultimately use multifaceted treatment approaches that include elicitation of the relaxation response as one component. Rarely do we advocate the elicitation of the relaxation response alone.

In addition, it is worth noting that the 1995 National Institutes of Health Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches into the Treatment of Chronic Pain and Insomnia concluded, "A number of well-defined behavioral and relaxation interventions now exist and are effective in the treatment of chronic pain and insomnia." (2).

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1. C. Wallis, *Time* **147**, 61 (24 June 1996).
2. National Institutes of Health Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches Into the Treatment of Chronic Pain and Insomnia, *J. Am. Med. Assoc.* **276**, 313 (1996).

Priority Setting

I disagree with the statement, "the [Department of Energy] Panel has provided a *rare* example of scientists setting some painful priorities (emphasis added)" at the end (p. 378) of the 17 October News & Comment article "Panel sets out cuts under tight budget" by Robert Service (p. 377). Within a given field, scientists have always contributed to the setting of priorities. It occurs through proposal reviews, scientific meetings, science committee meetings, and numerous discussions on a regular basis. In pursuing scientific research goals, funding levels for the operation of facilities are further complicated by a decision made years ago (for better or worse) to separate the funding of research done at the facilities from the funding of the facility operation itself. Thus, the self-regulating aspect of research users paying the cost is absent.

Service may be referring to the more difficult problem of setting priorities across fields, for example, the worth of a new astronomical telescope versus a new synchrotron radiation facility, prioritization of which would indeed be rare. An attempt to outline criteria for such prioritization is included in a National Academy Press report,

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Allocating Federal Funds for Science and Technology (1995), but little has been done to implement the recommendations.

Service's article, nevertheless, does prompt one to raise the questions of what criteria are appropriate for certain science-related funding decisions and with whom does the funding decision-making responsibility reside. Setting science priorities, even within a given field, is not the same as establishing funding levels, that is, scientific input may be necessary, but not sufficient. It is inappropriate to ask a committee to provide recommendations if they do not have or are not given the full understanding of such a complex task. That is why certain decisions have to be left to the governmental or political process, in the best sense of the phrase. Scientists should be involved, but they have no more or less ability to predict the future and make wise funding decisions than do economists, lawyers, or politicians. If scientists are asked to make recommendations that are not appropriate, it will only lead to frustration and further cynicism regarding the entire funding allocation process.

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Particulate Matter Policy

Consistent with Jocelyn Kaiser's News & Comment article "Showdown over clean air science" (25 July, p. 466), airborne particulate matter (PM) has been repeatedly associated with morbidity and mortality, even at concentrations well within the Environmental Protection Agency's (EPA's) 150-microgram per cubic meter ($\mu\text{g}/\text{m}^3$) upper acceptability limit on 24-hour average PM of 10 micrometers or less (PM_{-10}). Failure to identify plausible mechanisms by which PM_{-10} (or $\text{PM}_{-2.5}$, or both) might cause such effects at these low concentrations suggests to some that stressors associated with PM, rather than PM itself, might be causal.

Attributing PM effects to 24-hour averages reported under the National Ambient Air Quality Standard (NAAQS) is like attributing daily mortality reported in a war zone to 24-hour airborne lead concentrations instead of bullets. Real-time PM monitoring has revealed significant variability during 24-hour periods of low PM (1). Brief PM excursions have reached twice the estimated concentration prevailing during the 1952 London fog. Effects that EPA attributes to 24-hour average PM seem equally consistent with causation by excursions

to high PM concentrations, whose health significance is becoming increasingly evident. Excursions also could explain why a 24-hour PM effect threshold has been undiscernible, even though noncancerous effects typically exhibit thresholds. Effect thresholds can exist for PM too, but if they are threshold excursions embedded in 24-hour averages, their contribution to the 24-hour averages might be imperceptibly small, suggesting absence of a threshold.

This approach represents a more economical challenge for industry, whose compliance with the NAAQS could then focus on a small fraction of daily operations when PM control is least effective.

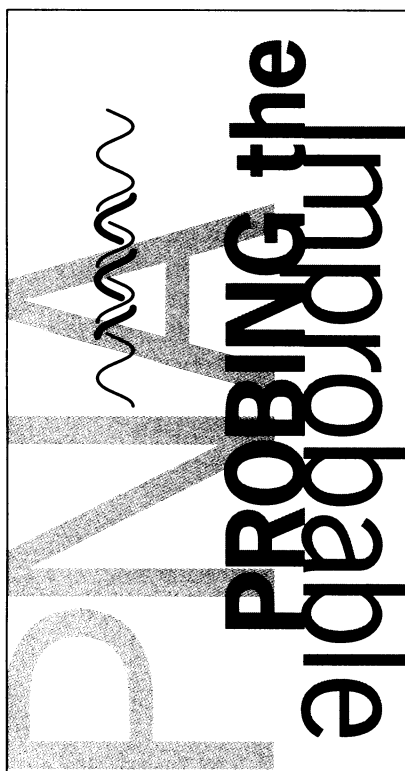
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1. R. A. Michaels. *Aerosol Sci. Technol.* **25**, 437 (1996).

Corrections and Clarifications

In the letter "Genetics of Parkinson's disease" (14 Nov., p. 1213) and in the Table of Contents for the same issue (p. 1198), co-authors of Timothy Lynch—Matt Farrer, Mike Hut-



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Direct fluorescence in situ hybridization with a PNA 18-mer probe (Flu-(C₃TA₂)₉) for the telomere repeats on metaphase chromosomes from cultured human fetal cells. Chromosomes were counterstained with propidium iodide.

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