

evaluator can knock a proposal out of the competition. Many scientists have deplored an evaluative system that they have seen as implicitly rewarding grant proposals that are not objectionable to anyone passing judgment, rather than proposals that are highly creative and therefore likely to offend at least some vested interest (1). The recommendation of the panel makes explicit what before had been implicit—the institutionalized view that scientific creativity is not a necessary condition for a grant's being reviewed favorably. Yet, the research that has mattered in science has always been that which is creative and thus often defies existing conventions. There is a problem with the rating system at NIH, but fixing the rating system won't fix the larger problem of priorities that fly in the face of the history and philosophy of science.

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The Economics of Contraceptives R&D

A recent report by an Institute of Medicine (IOM) committee on contraceptive research and development (R&D) (Robert F. Service, *News & Comment*, 31 May, p. 1258) clearly defines the global unmet need for contraception. It decries the withdrawal of the pharmaceutical industry from the contraceptive field and considers it important "to show drug companies the massive need and potential market for new contraceptives." That massive need may well exist, but not the potential market. Of the eight largest pharmaceutical companies in the world, not one is active in contraceptive R&D; not one seems to sell contraceptive drugs or devices. The pharmaceutical market, which has changed dramatically during the past decade, has spoken. It now focuses on blockbuster drugs dealing with diseases of aging or deterioration in the increasingly geriatric populations of affluent Japan, North America, and Europe, not the needs of the poor pediatric societies of Latin America, Asia, and Africa.

An item in the same issue (*Random Samples*, 31 May, p. 1269) features the ominous trends for infectious diseases, list-

ing the four biggest global killers: acute respiratory infections, diarrheal diseases, tuberculosis, and malaria. If we again consider the minute fraction of the huge R&D budgets of the top eight pharmaceutical companies dedicated to these fields, we see that unmet burning societal needs do not necessarily equal financial returns.

The most important point missed by the IOM committee is that the features of a truly novel contraceptive (say, a contraceptive vaccine or a once-a-month anti-implantation or menses-inducer pill) associated with major societal advantages (for example, low cost and long duration for a vaccine; short action and minimal pill consumption involving 13 pills per year for a menses-inducer versus 250 or more pills per year for current oral contraceptives) are precisely the economic disincentives keeping companies, which search for billion-dollar drugs used daily, from reentering the contraceptive field. The proposal "that commitments [by international aid agencies] to buy large volumes of contraceptives would induce companies to develop low-cost products" is a pipe dream. The only reason why some of the current oral contraceptive manufacturers will sell monthly pill regimens at 20 cents a pack-



Even Carl von Linné
would have difficulty
classifying us

age in lots of multimillion units to the Agency for International Development is the fact that an affluent American woman buying the same product in a drugstore pays more than 100 times that price. Absent that latter market, a pharmaceutical company would go broke if it focused on the low-cost public-sector market for a new contraceptive. More realistic, though politically unpopular, incentives for industrial involvement have been suggested earlier (1).

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Monbusho and CREST Grants

The News & Comment article by Dennis Normile describing the awarding of CREST (Core Research for Evolutional Science and Technology) grants in Japan (3 May, p. 645) was instructive and timely. However, I was not quoted accurately.

What I said to Normile was, "As a matter of policy, Monbusho [the Ministry of Education, Science, Sports, and Culture] Research Grants usually do not provide funds for hiring research personnel. In addition, because the Department of Neurology is a clinical department, it is difficult to hire permanent staff who hold only the Ph.D. degree. My goal for the Department of Neurology is to foster a high level of basic research while maintaining excellence in clinical areas. The CREST grant is therefore particularly welcome, since it will help meet this goal by allowing us to hire researcher who hold Ph.D.'s." Indeed, my research has received much-appreciated support from Monbusho in the past. The CREST grant is also welcome, however, as it is of surprisingly large size.

This, of course, does not mean I agree with the content or tone of the statement, "Monbusho typically doles out tiny grants to academic researchers."

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Response: I apologize for misinterpreting Kanazawa's remarks. I did not intend any criticism of Monbusho, but was trying to ex-

plain that previously available funding programs would not have allowed Kanazawa to undertake his planned research.

—Dennis Normile

What Is Holography?

The Research News article "Two versions of holography vie to show atoms in 3D" by Steve Nadis (3 May, p. 650) discusses exciting new developments in x-ray analysis at atomic resolution (1). Is it accurate, however, to describe these methods as holography? Coherent illumination is not required; and the methods described allow one to reconstruct a representative unit cell when many unit cells are rotationally (although not necessarily translationally) aligned, rather than a point-to-point image of an object in the usual sense. Can it be applied to a single unit cell (that is, a noncrystalline specimen)? Issues which must be dealt with include fundamental considerations of radiation damage (2), even for materials science specimens, and of the desired condition $|a| \ll |r|$ in holography between a reference wave r and an object wave a (diffraction analysis considers $|a| \gg 2$).

The Research News article states, "x-ray

Carl von Linné: 18th century botanist, researcher, physician, professor, lecturer and a resident of the Swedish university city of Uppsala (pronounced OOP-SA-LA). A consummate classifier, Linné systematized the plant, animal and mineral kingdoms as well as drew up a treatise on the diseases known in his day.

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