LETTERS

Energy Galactica

William D. Metz's interesting article (Research News, 25 Aug., p. 700) "Violently active galaxies: The search for the energy machine" should perhaps have been called "Violently active galaxies: Driven by black holes?"; for although these exotic objects could possibly act as adequate energy sources, it does seem unreasonable to describe them as the only sources not involving "new" physics. Indeed, a possible source which stands on a firmer experimental basis is the familiar annihilation of matter and antimatter (*1*). The lack of any substantial flux of annihilation radiation, among other things, has been held to establish a lack of antimatter in the universe (*2*), but this indicates only that intimate mixtures of matter and antimatter are scarce. As our realization increases that even the diffuse matter in the galaxy is violently nonuniform, the possibility of separate matter and antimatter clouds becomes ever more plausible (*3*), and there is no convincing case that our own galaxy does not contain substantial amounts of antimatter. In regions of violent mixing such as the galactic core, of course, annihilation and the consequent release of large amounts of energy is to be expected. Recent observations of annihilation radiation from the galactic core support this view (*4*).

WILLIAM B. THOMPSON
Department of Physics,
University of California at San Diego,
La Jolla 92093

References

1. H. Alfvén, *Rev. Mod. Phys.* **37**, 652 (1965); P. Carlquist and B. Laurent, *Nature (London)* **260**, 225 (1967).
2. G. Steigman, *Annu. Rev. Astron. Astrophys.* **15**, 332 (1977).
3. B. Lehnert, *Astrophys. Space Sci.* **46**, 61 (1977).
4. N. Levanthal, C. H. McCullen, P. D. Stang, "γ-Ray spectroscopy in astrophysics," T. R. Kline and R. Ramaty, Eds. (NASA Tech. Publ. 79619, Washington, D.C., 1978), p. 169.

On Prizes

It has finally happened. Similar to watching the Dow-Jones inching up to 1000, I have waited for the scientific jackpot prize to hit $100,000 for only one recipient. And now I have received an announcement from the General Motors Cancer Research Foundation, Inc., asking for names of, not one, but three, recipients for the $100,000 prizes each, in various aspects of cancer research. I am not surprised that the Mammon-indoctrinated business world does not see the obscenity of all this, but I am still being continually surprised that seemingly the scientific community takes all these prizes seriously, without any thought as to what is implied in their giving and receiving. What is implied is that scientists primarily work for the prize, for the money, not for the curiosity, for the excitement, for the scientific knowledge. What is implied is that gains in scientific knowledge are primarily achieved by very exceptional individuals, without any input from the tens whose work in the same field has led to a temporarily final formulation. The organizers of these prizes apparently have no idea as to how advancements in scientific understanding are obtained, do not understand the "communitas" of the scientific community, that it is not made up of individually isolated scientists, but is a true community composed of interacting individuals. Thus, the General Motors prizes are to be given for recent published work, as if all that has gone before can be ignored, and only the final step is to be recognized by the huge monetary award. Is it not about time that the scientific community try to put a stop to the prostitution of its procedures and goals and aims by a money-oriented segment of our society that recognizes no other achievements than those which can be monetarily inspired? Our community has no procedures, nor has it the right, to dictate to its fellow members, but if it were considered morally indefensible to accept these monetary prizes, then perhaps the shame of it all would penetrate the minds of the recipients, and the subsequent refusals would cause the appropriaters, and these prizes, to dry up and wither, to be blown away like chaff before the wind.

PHILIP SIEKEVITZ
Rockefeller University, New York 10021

Transporting Coal: A Suggestion

Luther J. Carter's article on the Alaskan Pipeline and the proposed Northern Tier Pipeline across the western United States (News and Comment, 18 Aug., p. 594) was interesting. I wish to endorse the concept of a Northern Tier Pipeline and feel that it should be designed to transport coal as well as the Alaskan oil.

The oil must eventually be brought to the Midwest, where it is needed. The most efficient method of long-distance, overland transport of petroleum is by pipeline, so the Northern Tier Pipeline could be routed through, or close to, the main western coalfields of Wyoming, Montana, and the Dakotas. The coal could be crushed and injected into the pipeline at various points along its route. Such a process would not require that water be sent out of the western states, which appears to be the main objection to a coal slurry pipeline.

There is an added benefit for shipping the coal with the oil: the oil will serve as a solvent and extract a number of valuable industrial chemicals from the coal. These are the aromatic hydrocarbons, such as benzene and naphthalene; alkylated aromatics, such as toluene, xylene, and methyl naphthalene; and hydroxylated aromatics, such as cresols, xylenols, phenols, and alcohols. Some of the shorter chain aliphatic hydrocarbons will also be extracted.

Under the usual conditions of shipping the coal by rail to an electrical generating plant, these chemicals would be lost when the coal was burned. Many of them are obtained from the destructive distillation of coal. However, the petrochemical industry is now producing large quantities of aromatic compounds from petroleum. This coal transport process would be more than a simple moving of coal from the mine to the power plant. It would also be a relatively inexpensive method for obtaining valuable industrial chemicals from a previously untapped source—boiler fuel coal.

The aromatics and short-chain aliphatics could be recovered when the oil is refined into its various components, and the coal would lose little of its heating value by removal of the aromatic hydrocarbons.

Sooner or later, decisions must be made about the course of an oil pipeline across the western United States. Here I present another reason for the northern route.

ROGER F. BONEHAM
Department of Geology,
Indiana University, Kokomo 46901

Human Rights: Good News and an Apology

Because of the considerable interest that has been elicited by my article (11 Aug, p. 502) on the work of the National Academy of Sciences Committee on Human Rights, I would like to share with readers some good news as well as an apology.

The good news is that four more of the 17 scientists in whose behalf the committee has taken action have been released. Elena Sevilla, an Argentine physics student, has arrived safely in the