employment is high, and prospects for return of prosperity are bleak. One plant in the district, producing metallurgical coke in a modified beehive furnace, practices such thorough postcombustion of volatile matter that the plant's neighbors cannot believe it is operating because its stack is so clean. A furnace of this type could produce a smokeless fuel containing roughly three-quarters of the coal's original volatile matter at a rate roughly double the furnace's output of coke. The fuel would ignite more readily than anthracite, and new furnaces of this type could be built and placed in operation within a year. Furnaces of other types could come into production quickly in the subbituminous coal district of Wyoming and Montana.

Our nation's programs of foreign aid have assisted wheat farmers by distributing their product to the world's hungry. Isn't it time for foreign aid to assist our impoverished miners while also helping to preserve the world's forests?

ARTHUR M. SQUIRES
Department of Chemical Engineering, College of Engineering, Virginia Polytechnic Institute and State University, Blacksburg 24061

Evolution: An Expanded View

J. G. Kaplan (Letters, 19 Oct., p. 240) writes that recent evidence concerning the inheritance of environmentally induced traits in plants (Research News, 29 June, p. 1415) does "not constitute evidence for, or even bear on, 'the Lamarckian concept of evolution' " because the traits involved were not obviously adaptive. I think such a dismissal is a bit hasty.

1) Lamarck referred to the use or disuse of parts over long periods under a particular environmental circumstance and recognized imperfect intermediates. Further, he was not at all precise about how he intended his scheme to apply to plants, although he clearly did intend so. But even today we do not suppose that an evolutionary mechanism must produce an adaptive character as an immediate consequence; drift and meiotic drive come to mind.

2) If indeed nature produces heritable acquired traits that are adaptive, we are not likely to know it until we establish whether acquired traits can be inherited at all. The apparent affirmative evidence from plant breeders, along with a plausible mechanism (genomic rearrangement), seems to me to be as exciting a discovery as that of particulate inheritance. To suggest that it does not bear on Lamarckian evolution because it is not prima facie proof misses the point.

3) There is no question here of Lamarck versus Darwin. The current ferment in evolutionary theory appears to be heading toward an expanded view of evolution in which many processes and individual circumstances play a part. Finding a legitimate case of adaptive Lamarckian inheritance would not likely sweep the last century of Darwinism aside. Rather (I suspect) such a finding would take its place as yet more evidence for the influence of developmental processes on evolutionary modification. At any rate, one should not impugn the evidence at hand as heresy, nor use Lamarck as bogeyman or straw man.

MARTIN BURD
Department of Botany, University of Wisconsin, Madison 53706

The Garrison Project and Drainage Divides

The article, "Day of reckoning for the Garrison Project" by Constance Holden (News and Comment, 31 Aug., p. 904) perpetuates a misconception. In North Dakota, the Missouri River drainage basin is not separated from the Hudson Bay drainage basin by a narrow drainage divide, as shown in the map accompanying the article. Rather, the two are separated by a belt of interior drainage in which surface drainage flows neither to the Hudson Bay nor to the Gulf of Mexico (*1*, p. B107). This belt is only about 30 kilometers wide in the northwest, but widens to about 80 kilometers in the southeast.

It also has a northeastern extension that is even wider, about 150 kilometers. Thus, much of the precipitation falling on the state that runs off the surface remains in the state until it is evaporated, transpired, or otherwise disposed of.

I. G. GROSSMAN
U.S. Geological Survey, 418 Federal Building, 402 East State Street, Trenton, New Jersey 08608

References

1. I. G. Grossman, *U.S. Geol. Survey Prof. Paper 600-B* (1968), p. B104.

Erratum: In the article "Nuclear magnetic resonance technology for medical studies" by Thomas F. Budinger and Paul C. Lauterbur (19 Oct., p. 288), equation 2 on page 290 was printed incorrectly. It should have read:

$$\mathbf{S}(t) = \eta \int d\mathbf{r}\rho(\mathbf{r}) e^{-t/T_2} e^{-2\pi i \mathbf{r}\gamma \int^{t'} \mathbf{G}(t')dt'}$$