

# Letters

## Reprints: Return Envelopes

I suggest two refinements on the reprint-request format suggested by A. A. Hirata (Letters, 1 Oct., p. 8): First, instead of using a postcard, reproduce the form on a full-size sheet and enclose it in an envelope large enough to hold the reprint. Second, type the return address on a standard gummed sticker and fasten this sticker to the form by moistening one corner. Also attach in the same way a four-cent stamp, and invite the return of the reprint in the envelope in which the request is being sent. With these improvements, the cost of sending the reprint is reduced by the cost of envelope, addressing, and postage.

KENNETH O. MAY

*Department of Mathematics,  
University of California, Berkeley*

... In our laboratories we use a large (8½-by-11-inch) envelope, which we mail out empty with the flap tucked in. Printed on the front is the line "Please Pull Out Flap—Message Inside." The flap is large (8½ by 4 inches) and rectangular. Its inner side bears the request, as follows:

"We would greatly appreciate receiving a reprint, if available, of your paper ——— which appeared in ———. If no reprints are available, please check here — and return this envelope. Thank you for your courtesy." Spaces for date and signature are also included.

On the outside of the flap, which when sealed will conceal the address to which the request has been sent, is our return address (and the government frank).

I got the idea for this from the National Bureau of Standards, which, I understand, got it somewhere else.

DAVID C. HODGE

*U.S. Army Human Engineering  
Laboratories, Aberdeen Proving  
Ground, Maryland 21005*

## Utah Schools

In "The financial status of National Merit Finalists" (3 Sept., p. 1071), Robert C. Nichols notes that there is a correlation between state expenditures for schools and the representation of poor families among the finalists of the state. Among the states where this correspondence does *not* hold he names Utah.

Utah's expenditure for public schools in \$407 per child; this is below the national average. Yet one-fourth of the National Merit Finalists in Utah in 1965 came from poor families. I should like to speculate on why, despite relatively low public school expenditure per child, Utah schools are providing poor children with fairly adequate education.

Utah has a state uniform school fund based on a variety of taxes and an equalization policy whereby school districts with low assessed evaluation are given substantial state help. Consequently the quality of schools is more even in Utah than in most states, although we still have some inequities.

The Utah population is predominantly middle class, with few minority groups. Most of its low-income families tend to have middle-class attitudes toward education. Utah people consider education important; they are professionally ambitious. A study of *American Men of Science* shows that since 1938 Utah has been producing more scientists per million population than any other state.

Why, then, if Utahans value education, is the expenditure for public schools per child below the national average? There are two main reasons. First, we have a very large proportion of our population in the public schools; Utah families are among the largest in the nation, and there are very few private schools. Secondly, Utah has difficulty finding enough resources to support her schools. Only 5 percent of Utah land is arable, in-

dustrialization is not great, and 68 percent of the state is federally owned. Resources must also cover a large state-supported enrollment in colleges and universities.

Direct expenditure of state and local governments for all education amounts to 8.5 percent of total personal income. In this respect only New Mexico exceeds Utah.

Our Utah schools could be improved. We need money to lighten class loads, increase the number of counselors and other specialists, and improve curriculum and libraries. Ironically, Title I of the federal Elementary and Secondary School Act provides money according to a formula that involves average state expenditure for education. Utah does not fare well in this regard.

Incidentally, Logan High School, enrollment 817, has been giving National Merit Tests to all students in order to make sure each youngster has opportunity and to find out how we rank in relation to the rest of the country. The class average has always been above the 50th percentile. And financially speaking, Logan is one of the poorest of the 40 school districts in the state!

ALISON THORNE

*Board of Education,  
101 West Center, Logan, Utah*

## Cybernetics: The Word

The late Norbert Wiener, founder of modern cybernetics, was a son of a Harvard professor of Slavic languages and was himself a linguist as well as a mathematician. In his *Encyclopedia Americana* article "Cybernetics" (vol. 8, p. 351, 1964), Wiener stated that "cybernetics [is] a word coined by Norbert Wiener." In the *Encyclopaedia Britannica*, Claude E. Shannon has written that "the word was introduced . . . by the mathematician Norbert Wiener" (vol. 6, p. 937, 1965). *Time* has referred to "cybernetics, which Wiener coined" (27 Mar. 1964, p. 53).

"To coin" means "to originate or invent, as a word or phrase." And Wiener did not originate or invent the word. It was Plato who first employed the word "cybernetics," meaning "the steersman's art." In fact, the Athenian philosopher used the word quite frequently. In his *Gorgias* (511c-d), for instance, Socrates says to Callicles, "I