soil, poisoning rivers and lakes, and exhausting fossil water reserves. As the cost of energy soars, so will the cost of food exports. The unprecedented growth of population in the less developed countries is thus causing an acute energy crisis not only at home but in the world as a whole. Conservation in the industrial states, badly as it is needed and certainly as it is soon to come, cannot compensate for this relentlessly mounting pressure on diminishing resources.

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Innovation in Science Teaching

Was Frederick Mosteller aware that his important presidential address, "Innovation and evaluation" (27 Feb., p. 881), concluded with the beautiful but tragic example of his point? He suggested that the AAAS sponsor initiatives in science and engineering education. Perhaps he was thinking of a recent 211-page book (*1*) reporting the results of nine studies under contract to the National Science Foundation. Neither Mosteller nor the authors of that book mentioned teaching methods which have long since proved their value (*2*).

In 1960 in Roanoke, Virginia, an 8th grade class, using simple teaching machines and a previously untested program, covered all of 9th grade algebra *in one term*. Their grades met 9th grade norms, and measures of retention a year later were considerably better than normal. The educational establishment should have been delighted. Here was the way to teach algebra! But, 20 years later, the study is forgotten. Forgotten also are scores of equally dramatic experiments. Surely this is an example of a lag in the use of innovations to be added to those so delightfully described by Mosteller.

What is needed in education is not innovation but a change in the establishment that will permit efficient teaching methods to be used.

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References

1. *What are the Needs in Science, Mathematics, and Social Science Education? Views from the Field* (SE809, National Science Foundation, Washington, D.C., 1980).
2. E. W. Rushton, *The Roanoke Experiment* (Encyclopedia Britannica Press, Chicago, Ill., 1965).