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which tourists can do, the introduction of pigs and goats by man has caused tremendous destruction. For example, in 1959 it took a full day to walk from the shore to the top of the cone on Abingdon Island. That year a fisherman introduced three goats on the island; today the goat population is estimated at 5000 and it is a brisk 2-hour walk to the top of the cone. Dr. DeVries, director of the Darwin Station, now has an annual operating budget of \$20,000 which covers fuel for the generators, food, supplies, and salaries for the local help. He estimates that a budget of \$75,000 would enable him to place a ranger on each island and thus (i) protect wildlife from the tourists, and (ii) enable the rangers to hunt out the wild pigs and goats.

As illustrated so well by the Sierra Club and National Geographic publications, the flora and fauna on these islands are unique in the world. Unfortunately, Ecuador is not determined to preserve them as I learned from a United Nations official who had just attempted to persuade the government to apply for U.N. funds for conservation projects. He was told that the Galápagos were well provided for. Ecuador is understandably interested in its mainland problems.

Someone must try to preserve the Galápagos. Shouldn't the people who are alarmed about a desecrated U.S. environment do something to preserve one that is not yet destroyed before it is too late?

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When Information Becomes Knowledge

The letter from Jean Sicé (30 Oct.) uses an article of mine to support a statement with which I do not agree. The statement was: "Most examinations, however, test only straight recall." What I wrote in the cited article on that point was this: "... most achievement tests ... consist primarily of items testing specific elements of knowledge; facts, ideas, explanations, meanings, processes, procedures, relations, consequences, and so on" (1). While recall is surely involved in responding to such items, as it is in any other use of knowledge, straight recall would seldom provide a sufficient basis for response.

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Perhaps our misunderstanding on this point arises from different meanings we associate with the term knowledge. If knowledge is understood to be no more than information, then it is reasonable to believe that a test of knowledge would be no more than a test of recall of information. But what was meant by knowledge in the cited paper goes beyond information-to-be-recalled. The items I used to illustrate how one can test for command of knowledge were designed to test understanding as well as recall.

The distinction to be made between information and knowledge is the one Scheffler has made: "... it does not follow that the student will know these new facts simply because he has been informed ... knowing requires that the student earn the right to his assurance of the truth of the information in question. New *information*, in short, can be intelligibly conveyed by statements, new *knowledge* cannot" (2).

Boulding supports the distinction in these words: "The growth of knowledge even in the individual is not a simple cumulative process by which information is pumped into the head and remains in a reservoir. Knowledge is a structure and its present form always limits its possibilities of growth" (3).

To test a student's knowledge in this sense of the term one must cause him to think as well as to remember. If we borrow phrases Sicé uses to describe the requirements for success in clinical medicine, our items ought to require him "to retrieve, to select, to organize, and to apply" his knowledge.

This is what most professors of my acquaintance try to do in writing objective test questions. Judging from copies of their tests I have seen, this is what most of them succeed at least passably in doing. Their tests may have serious faults, but excessive use of questions testing straight recall is seldom one of them, in my experience.

Hence the opinion attributed to me that most achievement examinations test only straight recall is not mine at all. In my opinion it is not true in general. Surely it need not be true. To the extent that it is, the item writer, not the item form, should be blamed.

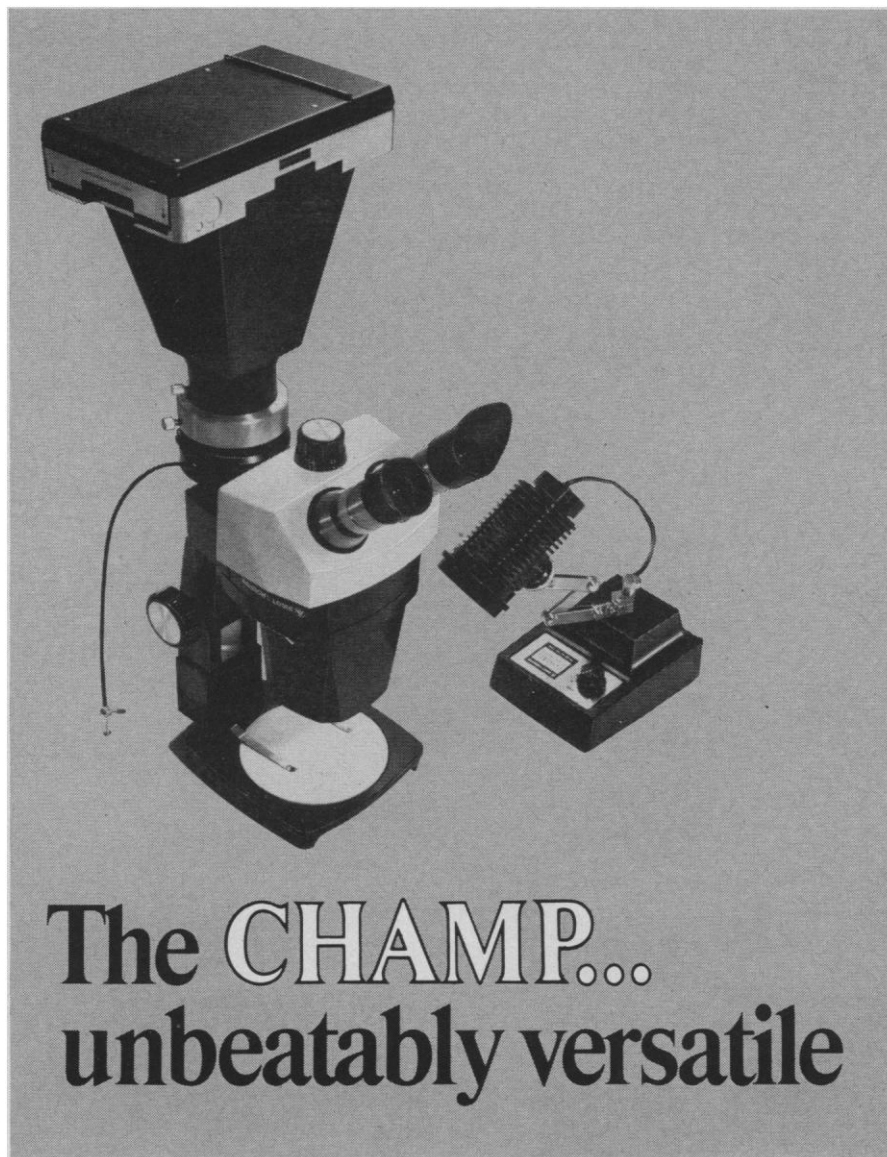
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References

1. R. L. Ebel, *National Board Examiner* 16, No. 8 (1969).
2. I. Scheffler, *Harvard Educ. Rev.* 35, 131 (1965).
3. K. E. Boulding, *Educ. Dig.* 33, 7 (1967).

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