Letters

The "Realities" of Bomb Testing

Your editorial [*Science* **134**, 1039 (1961)] demonstrates a delightful application of satire to the so commonly somber fields of science and world affairs. Obviously, you made no attempt to include all points of view in your comments regarding Krishna Menon's views on bomb testing. Admittedly, such an effort to be all-inclusive would have been entirely inappropriate to your communication.

Your treatment of the subject does, however, tend to obscure a very interesting aspect of Krishna Menon's remarks. In your approach to the scientific "realities" you overlooked the very widespread cultural attitude toward "mother earth."

In my contact with students from India I have come to recognize a sharp divergence between their views about earth and my own. One student, observing an American dairy farm, was seemingly horrified to learn that the farm was entirely fertilized with inorganic materials. To her this was an incomprehensible waste of organic marials and a reprehensible contamination of the pure natural earth. Obviously, the reactions of a nation in which each foot of soil is of inestimable value and each human being is highly expendable will be very different from our own.

Thus, although we know from our scientific findings that atmospheric tests are more hazardous than underground tests for man, we must also recognize that our view that underground testing is thus less undesirable stems from a much higher evaluation of people and a lower evaluation of earth than that of some other cultures. Menon's comment clearly represents the reciprocal evaluation. We may succeed in resolving our conflict with the people of India over subterranean testing by educating them to our more scientific point of view, but there may also be ways of resolving it through understanding their devotion to "mother earth."

In closing, let me commend you on your conceptualization of Project Mohole. When your geyser is working well our sensibilities will be protected through disposition of the radioactive particles in outer space, and the Indian sensibilities will be protected through removal of the impurities from "mother earth."

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Facetious remarks have no place on an editorial page whose readers are accustomed to serious statements. Upon reading the analogy drawn between K. Menon's ridiculous remarks about nuclear bomb tests and the explosion of a bomb in the Mohole, most people easily recognized the heavy-handed humor. Others did not, and called this office to ask if there was any element of truth in the idea that bombs would be exploded in holes drilled as part of the Mohole project.

There is not! Our project's aims are entirely peaceful; the intention is only to increase basic knowledge in science and engineering. No part of the project has ever had a security classification. For the record: There is no intention to explode bombs of any kind in or about the Mohole.

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Installment Buying

The editorial supporting Senator Douglas's "Truth in Lending Act" is not fully persuasive [*Science* **134**, 913 (1961)]. In the first place, when it says "most people know that it is a fallacy to compare absolute numbers instead of rates or percentages," it claims too much. A borrower who wants $100 for 6 months and is told by one lender that he must pay back $105, whereas another lender asks for $106, needs no further information in order to decide who offers him the better bargain. Similarly, a dealer who offers a specified model of automobile for $2192 plus the buyer's old car on 24-month terms obviously offers a better bargain than does the dealer who wants $2259 plus the trade-in on 24-month terms. It makes no difference, for purposes of this comparison, how the dollar amount is divided formally between "principal" and "interest." If the government wants to simplify the buyer's or borrower's problem in this regard, it should work out regulations requiring the simplest possible statements in absolute dollar amounts.

More plausible is the proposition that the borrower needs to know what rate of "interest" he is paying if he is to arrive at an informed choice between borrowing to consume immediately and deferring consumption in order to avoid going into debt. When the transaction is a loan of money, computation of a percentage rate is desirable, although there is room for argument as to how much of the charge made by the lender is true interest, which of several available formulas shall be used in computing the rate, and whether the rate shall be stated per annum or per some other unit of time.

When a sale of goods is involved, determination of the principal, the charge for credit, and the repayment period often is extremely difficult. If the buyer is to find out how much he has borrowed and how much the charge is, he must compute the difference between what the merchant will charge him for a cash sale and what he will charge for a credit sale. It will not do to compare the seller's nominal quotations; somehow the buyer must horse-trade him into revealing his true, rock-bottom price in each arrangement. Even this will not be enough. Merchants differ widely in the extent to which they load parts of their credit cost into the cash price, and the buyer may very well find someone who will give him a better cash price than the merchant with whom he is bargaining. When such comparisons are made, the buyer may also find it necessary to allow somehow for differences in the products offered and the accompanying range of services.

The period of the loan also is not self-evident. The buyer may have 18 months to pay but may find that the merchant will make no charge for credit if he pays within 90 days. When does the credit period start? At the other end

of the transaction, the buyer may find that even though his contract specifies payment in 18 months he can skip or delay payments and end up by paying in, say, 24 months without an additional charge. Should he compute his "true interest" on the basis of the contract period, on what he plans to do, on the average performance of his class of buyer, or on the most he can get away with in an extreme case?

Clearly, the fallacy implicit in the Douglas bill is much greater than that of which *Science* has accused installment buyers—comparing absolute numbers instead of rates. The bill seems to assume that simplified formulas borrowed from the austere world of pure arithmetic can be applied literally to the complex and disorderly world of commerce. What the situation calls for is a systematic and statistically valid study, such as no one has yet made, of what really happens, with what consequences, to how many people, in the pricing of installment purchases. Only after such a study has been made will it be appropriate to prescribe remedies, if any are required.

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Shielding

We wish to comment on the paper "Radiation dosimeter utilizing the thermoluminescence of lithium fluoride," by J. R. Cameron *et al.* which appeared in a recent issue of *Science* [**134**, 333 (1961)]. We wish specifically to call attention to the curves which appear in Fig. 1, the figure dealing with silver-activated phosphate glass.

We agree that glass of regular composition is energy-dependent, but low-Z glass is approximately half as energy-dependent; furthermore, proper shielding (we have used gold) of walls of certain thicknesses and of open-portal areas allows use of the low-Z glass in the 200-kv to 1.33-Mv range with discrete isotopes and radium as well as x-rays.

We believe that the authors did not consider this point, or that they have not investigated the use of low-Z glass and shielding materials.

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