

than usual in speaking to any points he deemed faulty in the author's argument.

I do not recall an instance where our reviewers failed to meet the exceptional requirements imposed on them, despite (alas) the insubstantial foundations the authors had almost invariably elected to build on. The reviews were courteous and addressed directly and instructively to the author's primary assertions. While it turned out that our authors overturned no phlogiston theories in that 7-year period, I am reasonably confident that the editors had not missed any opportunities to do so, either.

Since we tried to limit the reviewing burden to about two per year per reviewer, our principal actual traffic with our most select reviewers was associated with the merciful extermination of hopefully conceived but hopelessly misconstrued theories and experiments. I believe they took pride in accepting the rather special moral and intellectual burdens we felt a conscientious profession owed the "crackpot."

I see no reason why a grant administrator should not respond to the unconventional proposal with some comparable shift in evaluation strategy. Indeed, is there any evidence that the good ones don't?

DEWITT O. MYATT
1079 Wisconsin Avenue, NW,
Washington, D.C. 20007

The letter on majority rule by research-grant review committees ("Grants to nonconformers," 24 Jan., p. 309) indicates a lack of understanding of the review processes, at least of those of the Public Health Service. When two or more members of a study section dissent from the majority opinion regarding an application for a grant, a split vote is registered and the opinions of both the majority and the minority are noted. When the application comes before the National Council for its second review, it is presented as a special case. In a number of instances the National Council has reversed the decision of a study section or has returned an application to it for reconsideration on the basis of the minority opinion.

PAUL F. HAHN
HARVEY L. CROMROY
Bureau of State Services, Public
Health Service, Department of
Health, Education, and Welfare,
Washington 25, D.C.

Mohole Fanfare

The account in your issue of 10 January 1964 entitled "Mohole: the project that went awry" reads as though it were written by a press agent for "the oceanographic engineer who, to unanimous acclaim, carried out a preliminary phase that set a record for drilling at sea."

"Unanimous acclaim" is hardly accurate. The preliminary phase of Mohole merely proved that with minor modifications existing equipment could be used to lower drill pipe to bottom and to make a short penetration of the sea floor on a no-reentry basis. None of the major problems was solved by this stunt, which in all probability could have been accomplished by private enterprise in less time, with less expense, and with infinitely less fanfare.

Now that the Mohole planning is up against the hard realities of the project, it is inevitable that signs of strain should appear among the personnel who have so gaily committed themselves to this undertaking. It will take more than press releases and self-serving propaganda to effect the transition between a wine-breakfast inspiration and an extremely difficult if not virtually impossible engineering accomplishment. Surely there are better places in the broad field of scientific research in which this money can be spent. But if we must have a Mohole, we should reexamine the wisdom of choosing an oceanic rather than an on-shore drill site. And, in any case, a more restrained, realistic, and scientific tone to the project publicity would be a welcome improvement.

FRANK B. CONSELMAN
514 Petroleum Building,
Abilene, Texas 79601

Cigarettes: Testing on Mice

At a recent meeting of statisticians the point was repeatedly made that, while the data support the thesis that inhalation of cigarette smoke is positively correlated with pulmonary malignancy, the mechanism of the relationship is by no means established. In particular, it was stated that tars from cigarettes may induce tumors when painted on mouse skin but that no evidence of pulmonary malignancy

has been found from inhalation of cigarette smoke. May I offer some comments on this.

As I understand the literature on carcinogenesis and on induction of mutant cell lines, the probability of inducing a viable, self-sustaining line of carcinogenic cells should be a function of the number of cells in mitosis at any given time, the amount of radiation to which these cells are exposed, the kind of radiation, and the duration of the trial. The number of cells in mitosis will be related to cell type and to the demand for cell reproduction. In the case of any local trauma, of which inhalation of cigarette smoke is an example, cell reproduction rates increase.

It is one thing to give cigarette smoke to a small animal, with small lung volume, in the absence of radiation (indoors, in shielded rooms and cages), for a few weeks or months. It is another thing for a human to inhale deeply, irritating most of the mucosal and epithelial lining of his large lung volume, while exposed to radiation from cosmic rays, potassium decay, and x-rays of various sources over a period of years. Multiply volume by incidence of radiation, by time, and by a probability constant, and one must obtain a population probability.

It is therefore suggested that if the inhalation of smoke by small animals be supplemented by radiation, to compress the time and volume factors, the causal relations between smoking and lung cancer might be clarified.

WILLIAM J. TURNER
231 Oakwood Road,
Huntington, New York

More on the 1953 Fallout in Troy

Ralph Lapp suggested [*Science* 142, 448 (1963)] that I "cite the pertinent statistics" to support my previous statement [*ibid.* 141, 1109 (1963)] that there had been no increase in the incidence of cancer or leukemia over the past 10 years in the children of the Albany-Troy-Schenectady area of New York State. By law and regulation, physicians, hospitals, and pathologists are required to report all cases of cancer to the local health officer, who forwards copies to the New York State Department of Health, except in New York City, which maintains separate