Letters

Cancer Policy Statement

The American Association for Cancer Research unanimously endorsed the following policy statement at its annual meeting on 12 April in Atlantic City, New Jersey.

The policy statement has been sent to President Nixon and to the director of the National Cancer Institute. We believe it is a document of general interest to the scientific community and to the people of the United States.

The American Association for Cancer Research includes in its membership a high proportion of the total research force of the United States that is involved in work leading to the solution of the cancer problem.

The Association gratefully acknowledges the national confidence in cancer research expressed in the Cancer Act of 1971. It accepts the responsibilities implied in this confidence.

The Association wishes to emphasize that problem-oriented research directed against cancer will prosper to the degree that it can draw on the nutrient soil of basic biological research. Research investment in cancer alone, without adequate investment in broad biologic research, will be less productive.

Truly original discoveries in science are often unpredictable and cannot be conveniently programmed. A sound research strategy must carefully balance centrally directed research with studies originating with the individual scientist.

The basis of scientific discovery is the prepared mind confronted by new or unanticipated findings. Such minds are most likely to be found among young scientists. Moreover, significant shortages have been clearly identified in several critical manpower areas. A cancer research program devoid of funds that can be applied to training is unsound, not only for the best development of new talent, but for technical capacities to translate new discoveries into improved care and treatment of the cancer patient.

The American Association for Cancer Research therefore recommends the following steps to the responsible Federal fiscal decision-makers and administrators of the National Cancer Program:

1) Prompt completion of review and prompt implementation of the National Cancer Plan.

2) Prompt release of authorized funds for cancer research for the present and future years.

3) Continued assignment of an adequate portion of the total available funds to training in critical cancer research areas.

4) Utilization of the peer-review system for the allocation of National Cancer Institute funds to assure high quality of both programmed and individual cancer research.

5) Reallocation of available funds to increase significantly the support of individual research projects, including competing initial applications.

6) Augmentation of the number of scientific staff positions at the National Cancer Institute commensurate with its expanded responsibilities.

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Musine Grooming Behavior

I regularly read a number of medical and scientific publications, including *Science*. I am well aware of the usefulness and the necessity of animal research and experimentation. However, after several readings, I cannot discover any justification for the mutilation—however "painless"—described in the report by J. C. Fentress, "Development of grooming in mice with amputated forelimbs" (16 Feb., p. 704).

To this reader, the purpose, content, and procedure of this "experiment" are unworthy of *Science*. I do not look forward to a sequel called "Modified behavior patterns in flies with amputated wings."

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Viator's letter appears to treat the dual issues of rationality and sensitivity in our dealings with nature, and as such is an important emotional expression. However, I am surprised by his unawareness of the importance of an unambiguous determination of the role of intrinsic mechanisms in the ontogeny and control of integrated patterns of behavior in mammals. The studies involving painless peripheral lesions in anesthetized animals provide not only a most direct but also humane approach.

The references I cited in my report indicate that major recent advances in neurobiology and behavior have indeed been made with careful study of the effect of peripheral lesions in invertebrates (including the amputation of wings of insects) and in lower vertebrates. As a result of my study, similar, though perhaps not identical, mechanisms for central programming are now demonstrable for the developmental integration of a precisely documented movement sequence in a mammal. The nature of model systems in science is such that data on mouse grooming may have wider implications (for example, possible intrinsic factors underlying complex mammalian skills, such as language development in man, and the behavioral potentialities of "thalidomide children").

The methods to which Viator refers as "mutilations" were decided upon only after much consultation, at an international level, with responsible and concerned colleagues. Because of my concern for the animals' welfare, I rejected possible alternatives, including technically difficult and potentially devastating central lesions (which would have been hidden and thus might have caused less emotional reaction on the part of observers) in newborn animals and controls involving peripheral lesions in adult animals (which have a preestablished behavioral repertoire). The fact that the animals in this study, by all available criteria, lived a full and apparently well-adjusted life not only adds further evidence to support the existence of certain endogenous behavioral potentialities in higher organisms but also suggests that surface emotional reactions may not be sufficient for either a rational or humane orientation to the world in which we live.

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Atomic Safety Responsibility

An attempt to identify and evaluate the "human costs" of producing and utilizing nuclear fuel to generate electricity is offered by L. A. Sagan (11 Aug. 1972, p. 487). Such human costs must, of necessity, include the consequences of an operational failure or a catastrophic accident at an atomic power plant. However, some revolutionary new problems have arisen concerning both property insurance and third-party liability insurance for these power plants.

The best guidelines for evaluating