

general lack of communication and all too often a lack of organization. Most conservation organizations have no threat which they can use as a control or a temporary deterrent. There is no single government agency in which pros and cons may be weighed and appropriate decisions made. In essence, we usually find the developers pitted against the conservationists, and too frequently of late the developers are appealing to undefined "recreation" to gain support for their causes. All too often their ideas of recreation are little concerned with conservation or necessary control.

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### Channeling of Funds

In his article "Federal money and university research" (21 Jan., p. 285) Don K. Price supports a greater channeling of research funds through universities as opposed to direct grants to investigators. It is true that inadequate central facilities are often a drag on research. However, as a working scientist, allow me to caution against channeling more money than necessary through the universities.

Logic makes clear that it is the scientists—not the universities—who have the greatest drive and incentive to create, and it is the scientists who have the greater knowledge of how to produce. It should therefore be the scientists—not the universities—who use the research funds most effectively. Experience amply confirms this expectation.

When funding must be centralized, every effort should be made to do it through groups of scientists. In cases where that is impractical, the scientists should always have a dominant voice in questions of efficient spending if not always in questions of fair allocation.

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### Sophistication

Sophistication has entered the scientific vocabulary as a "must" word. More and more the "deployers" of sophisticated techniques and sophisticated hardware and software are becoming segregated as a scientific élite. The neo-

phyte, not to mention candidates for scientific obsolescence, needs a guide to quick sophistication.

Reference to dictionaries shows that the authorities are in complete agreement. Sophistication is the employment of sophistry; the process of investing with specious fallacies or of misleading by means of these; falsification; quibbling; disingenuous alteration or perversion of something; cunning; trickery; baseness; artificiality; dishonesty; adulteration with a foreign or inferior substance; the state of being spoiled or corrupted; fraudulent and guileful.

Additional guidelines may be drawn from literature: "But the age of chivalry is gone, that of sophisters, economists and calculators has succeeded" (Burke); "I love not a sophisticated truth, with an allay of lye in't" (Dryden); "He is fluent and sophisticate—a sure token of inferior wisdom"; "I laugh at the lore and the pride of man, at the sophist school and the learned clan" (Emerson); "A sophisticated rhetorician, inebriated with the exuberance of his own verbosity and gifted with an egotistical imagination that can at all times command an interminable and inconsistent series of arguments to malign an opponent and to glorify himself" (Disraeli, on Gladstone).

In moments of despair, if any, the fledgling sophisticate may take heart: "Destroy his fib, or sophistry in vain The creature's at his dirty work again" (Pope).

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### Priority and Recognition

Page's editorial on "priority" (7 Jan., p. 33) . . . brings to mind some odd and interesting inequities in the citing of references, questionable practices in which many of us engage unconsciously and perhaps at times consciously:

1) The limitation of references to writings by investigators associated with the "schools of thought" that appeal to the author and the ignoring of relevant work of equal or greater merit by workers believed to be allied with other "schools of thought."

2) Selective reference to the work of colleagues who are friends of the author to the exclusion of contributions of others although they may be of equal merit.

3) Complete omission of references, probably in an effort to give the impression of considerable originality. This results only in giving an impression of naiveté or egocentricity; curiously, however, some experienced investigators engage in this practice.

4) Citation of references of secondary importance instead of the more basic publications of the investigator who is being recognized, or reference to a minor point in a publication instead of its major theme. Sometimes this is done with the intent to avoid granting priority, or to diminish the importance of a colleague's contribution. It constitutes a grudging recognition or a reluctant fulfilling of a scientific obligation.

5) Omission of references that contradict or fail to support the views of the author although including them would be quite pertinent.

6) Inclusion of references to especially well-known investigators or to friends although these may be irrelevant or only tangentially related to the subject under discussion. An insecure author may use this device for psychological support.

7) Inaccuracies in citation of the views of colleagues as a result of copying the inaccuracies, perhaps knowingly but usually unwittingly, from another publication in which the errors were made. Such errors can be reiterated endlessly as a result.

8) Reference to the views or findings of others without citing the sources in an attempt to imply that the points are being offered for the first time as an outgrowth of the author's experience. When this is done the intent is often deliberate.

These practices require more careful attention by all authors. Our human traits place limits on us, but by striving and goodwill we can elevate further the standards of scientists and scientific writing.

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Pages suggests that the chief reason for disputes about priority of discovery is "uncertainties concerning publication. What constitutes a definitive publication? . . . What constitutes acceptance for publication?"

If "Who thought of it first?" is the question at issue, dates of receipt and acceptance by a journal may have some