Letters

Luna IX Pictures: A Question of Ethics

The soft landing of Russia's Luna IX on the moon's surface and its transmittal of photographs of that surface represent scientific instrumentation and discovery at their best. The men who performed this excellent research deserve the first opportunity to analyze and publish the data. The rush of Jodrell Bank Observatory to distribute Luna IX pictures and of scientists both in the U.S. and Britain to comment publicly on the pictures can only be considered a breach of scientific ethics. A proper interval should have been allowed for the Russian scientists to review and reveal their own work.

The Russians probably expected us to receive the radio signals, to process them, and to distribute a few prints secretly to highly placed scientists, thus fulfilling urgent technical needs while preserving scientific propriety. Science has been one of the few meeting grounds of Russia and the West where trust and communication are possible; goals and methods have been similar, and science has done much to further the resolution of our conflicts. This cultural bridge has now been badly damaged. We cannot allow such a breach to occur again out of a misconceived patriotic zeal. The stakes are far too high.

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We did not "rush" to distribute the Luna IX pictures in advance of the Russians. Our pictures came off the facsimile machine several hours after the Russians had convened a large press conference in Moscow to show the pictures which Luna IX had transmitted the previous night. Why they did not do so, or publish them in *Isvestia* the following morning, remains a mystery. As for commenting on the pictures before the Russians, my only remarks were that the lunik seemed to be resting on a hard surface with little evidence of dust, and these comments had previously been made by scientists in Moscow. Any suggestion that we published a scientific analysis of the results before the Russians is absurd.

If our success in recording the landing phase of the lunik or in producing the pictures had owed anything to information supplied to us by the Russians, then the situation would have been entirely different. It did not; and I fail to see why our use of these results, obtained by the free use of the instruments at our disposal, constitutes a breach of scientific ethics, when it is perfectly in order for any observer to make use of the signals from Russian and American satellites to derive and publish information about, for example, the atmosphere, the ionosphere, or the orbital parameters of the vehicle.

Jodrell Bank is an open university establishment, and we have no means of prohibiting the entry of the press even if we wished to do so. On this occasion the hall and corridors of the control building were thronged, and it is clear that whatever action I had taken on that afternoon of 4 February would have been publicized and criticized. Krause's suggestion that I might have distributed secretly a few prints seems to me to represent the nadir of all possible actions.

If Krause were familiar with the extent of our cooperative astronomical programs and exchange arrangements with the Russians, achieved by hard work over many years, he would perhaps be more guarded in the accusations made at the end of his letter.

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Recreation: A Conservation Problem

Abelson developed a strong argument in support of conservation in his editorial "Conservation and natural beauty" (17 Dec., p. 1539), but he neglected to emphasize a distinction between conservation and recreation.

Dwellers in most urban areas have easy access to city-, county-, and state-supported parks, many of which are or could be beautiful and could offer recreational opportunities for much of the population. Too often, however, these areas are ineffectually controlled. The harried urbanite who leaves the turmoil of the city to get some fresh air, peace, and quiet too often finds himself in a physical environment dominated by social "outdoorsmen" who equate recreation with an unlimited supply of beer and a portable radio turned to maximum volume. Or he may find himself thrown in with the weekend mechanic whose recreation centers on a noisy and often air-poluting adventure with the engine of the family car. These persons, though possibly few in number, destroy by their selfishness the general enjoyment of the recreational areas provided for the public.

Just as surely, the campgrounds are being dominated by the American need of 100-percent comfort. Many people who profess a respect for the out-of-doors cannot, in the final analysis, give up any of the city conveniences, and too often natural attractions lose out in the competition with these demands for total convenience and comfort. Recreation has become a big business and is emerging unwittingly as an opponent of true conservation.

Conservation implies preservation. Much of the effort currently directed toward recreation destroys rather than preserves. Open natural areas are being crosscut by networks of roads to provide easy access for all. Each road —and especially the new fenced superhighway—cuts off the natural free communication of wildlife with areas of browse and habitation. We must have roads, but roads should be planned not just by engineers, but by persons or agencies interested and participating in wildlife conservation. Furthermore, we build new roads but too infrequently eliminate the old ones.

Conservation activities are often ineffective because the dangers are realized too late by too few. There is a

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 neophyte, 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