

Letters

Earth Resources Satellite:

Before and After

Lukens states in his letter (2 May) that he "disagrees strongly with [my] conclusion that cost effectiveness evaluations are not possible" on an earth resources satellite system.

That is not quite an accurate restatement of my conclusion. The report to which he refers concludes that (1):

Precise determination of cost effectiveness at this early stage in the development of an ERS system is not possible, and any attempt to achieve such precision could be misleading. The magnitude of the economic benefits simply cannot be calculated in the absence of the type of data which the system is designed to produce. (Italics added.)

I believe this to be true.

Beyond that, there may be some value in attempting to assess the economic potential of an earth resources satellite system. Some studies already have been completed, as our report noted. Conclusions regarding costs and benefits have not been uniform; in fact, they have varied rather widely. This constitutes strong evidence that precision is not possible at this early date.

Yet, I am reassured by the fact that all such studies of which I am aware have concluded that the potential economic benefits will exceed the costs of such a system by a substantial margin, and some predict that benefits will someday be measured in billions of dollars annually. It is my personal conviction that an operational ERS system will ultimately prove highly cost-effective. Only time will tell, of course, and I desire nothing more than for NASA to get on with the job of building and testing an experimental system.

My sole objection to cost-effectiveness studies is that I believe they have been used by the Budget Bureau as a device for delaying the research and development work on an experimental ERS system. It is noteworthy that the Bureau of the Budget never demanded a cost-effectiveness study prior to permitting NASA to undertake experimental work in space communications or space meteorology, to cite just two examples. In my view, such a standard should not have been applied to ERS

for the same reason that it has not been applied to other experimental work undertaken by NASA.

This brings us to the question of NASA's basic function. I consider it to be NASA's responsibility to experiment with new space systems that appear to have potential, and to conduct the necessary research and development which will lead to a firm foundation for a subsequent determination as to whether operational systems should be built. In this context, I believe cost effectiveness is not an appropriate standard to apply *in advance* to NASA's experimental work, though it is certainly applicable when the time comes to decide whether to go forward with an operational system.

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Reference

1. *Earth Resources Satellite System*, House Committee on Science and Astronautics (Government Printing Office, Washington, D.C., 1968).

Campus Riots:

Punitive and Proper Laws

As an educator I do not sympathize with the delicate tone of Boffey's comments (11 Apr., p. 161) concerning pending legislation to curb and punish campus rioters. They should be punished, and "punitive" legislation may force administrators and faculty to accept their institutional responsibilities. . . . Here at Lamar Tech a number of Negro students were arrested recently for wrecking the campus bookstore. They are subject to stiff fines and jail sentences. Several have already been suspended from the college. One immediate effect was a replacement of Negro leadership and the presentation of a revised and more rational list of grievances and recommendations.

What worries me most about the prevailing parental and institutional indulgence is the ultimate question: who will hire these white and black, bearded, beaded, and bemused incompetents when they leave college? Re-

visiting Harvard last summer, 26 years after graduating, I was stupified by the sight of a shambling horde of filthy caricatures who have now invaded that once respectable and lovely campus. Personally, I favor the California proposal of fencing off and allowing on campus only faculty and students with identification, except I would enforce a shave, haircut, and louse inspection at the gate.

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In describing the occupation of buildings by black students at Brandeis University (28 Mar., p. 1431), Nelson stated that they left the building in "good order." This statement has also appeared in the press of Boston and New York and appears in no case to have been contradicted. The facts are quite different. A faculty report of the conditions of Ford Hall rooms after the occupation listed items that were missing, including personal property of graduate students. These included a wristwatch, two brief cases (the papers from which had been emptied on the desks), sunglasses, a pipe, selected books, and an electric typewriter. The students whose property was taken generously refrained from reporting the thefts to the local police out of deference to the plight of the university and thereby compromised their claims under whatever insurance they may have had.

Under the heading "General Condition of Rooms," the report continued:

There was minimal damage to the rooms, per se. Feces were found in the corner of one room, and smeared on one chair. Fire was started in a wastebasket, miscellaneous unidentified papers and a reel of magnetic recording tape burned. It will probably take several days or weeks to determine the full extent of the damage (e.g., whether any important tapes have been erased or research materials missing). The total sum involved of personal items is \$206.95.

In a supplementary inventory, the following items were found to be missing: 1 stereo headset, 1 oscilloscope, 1 sound level meter, and 10 1200-ft reels of unused magnetic recording tape. The total value of these was \$476.42. The report continued: "In addition, the following items are present, but no longer functioning, and will need repair: a vacuum tube volt meter, and a modified 35 mm automatic slide projector."

There were also two other major acts of thievery and vandalism. One