Letters

Circular A-21 Reporting Systems

J. D. Tebbenhoff (Letters, 21 Aug., p. 819) discusses the Office of Management and Budget (OMB) Circular A-21, with extensive quotations from that circular and with praise for the "monitored work-load system" there proposed in preference to the alternative system "personnel activity reports" (PAR). He says, "The 'reason' given for the selection of that alternative [PAR] is that there is an apparent prohibition (although nobody has explained why) of the use of the monitored work-load alternative for nonprofessional and nonprofessorial employees. . . ." The circular itself states the prohibition under item J.6(b): "The latter system [PAR] will be used for nonprofessional employees whose costs are charged. . . ." Incidentally, this restriction was not included in the original proposal by university officials of the monitored work-load system.

Tebbenhoff observes that "individual faculty members need not be involved . . . because department heads or deans who should have firsthand knowledge . . . are authorized to sign certifications." This would mean that a department head would sign, for each faculty member, a form giving that member percentages of activity with a half dozen different kinds of activity. In many cases, *nobody* knows these percentages, firsthand or otherwise, because the different activities (teaching, research) are inseparable. It is a sham for the department head to pretend to have firsthand knowledge and even more of a sham if he should leave the actual determination of those percentages to an administrative assistant. Government requirements of sham certification fill up paper, promote cynicism, and invite future conflict.

Tebbenhoff says, "There are few, if any, apparent faculty objections or opposition to the monitored work load." On the contrary, manifold objections have been clearly expressed to the monitored work-load, PAR, or *any other* system requiring faculty reporting on 100 percent of their activity. Any such reports encourage government control of those university activities which are *not* funded by the government. For example, the Department of Health, Education, and Welfare "Interpretations" of Circular A-21 require checks on course load and level. Also, in the fall of 1980, the Department of Health and Human Services required that all PAR forms giving a percentage of activity on "departmental administrative" must include a checklist of ten or so types of such activity for *each* such faculty member. This is another example of invasive government action requiring added, meaningless pieces of paper about business of concern to the university, not to the government.

Neither PAR nor the monitored work load, in their present form, are appropriate.

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Shipwreck Archeology

The status of shipwrecks in the waters of the United States is currently fraught with legal uncertainty. As two articles by Nicholas Wade (News and Comment, 8 Nov. 1974, p. 509; 26 June 1981, p. 1486) describe the situation, both federal and state governments are engaged in a legal struggle to maintain protection of these extremely significant archeological sites. As a result of Florida's proximity to established sea routes from the Far East (via the Manila Galleons), Middle and South America, as well as the Caribbean, the major conflicts between treasure hunters and preservationists began, and continue to occur, in Florida. The legal complexities are great (*1*) and are not fully discussed in Wade's articles. . . . Wade did not visit our $14-million research facility or communicate with our professional staff.

Despite widespread media glorification of treasure hunting, and equally widespread depictions of public preservation officials as possessive bureaucrats attempting to halt free enterprise, the fact remains that shipwrecks are scientifically significant records of past human behavior which are being destroyed for profit. The recovered materials (from publicly owned seabeds, in most cases) ultimately reside in private collections, to be viewed by the public of this and future generations only if they are properly preserved and the current owners so choose.

Our major concern is that the American public and the scientific community be correctly apprised of the moral and ethical issues. Archeologists (and governments) may not adequately protect archeological sites, regardless of the laws calling for their preservation, in the face of a hostile public. We want to ensure that the sites are preserved for all citizens.

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. . . Underwater archeologists have struggled long and hard to educate nonspecialists and the general public about the differences between treasure salvage and scientific archeology. It has been a difficult and frustrating exercise because treasure hunting expeditions and the lure of gold are intrinsically exciting. Each time treasure hunting is glorified the rapidly diminishing resource of shipwrecks is further threatened.

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Tufts Nutrition Center

The article "Nutrition research: End of an empire" (News and Comment, 31 July, p. 518) may mislead the reader about the status of the Human Nutrition Research Center supported by the Department of Agriculture at Tufts University. The Center is being completed and will have a staff of approximately 300. The $21 million initially appropriated have been received. A supplemental $5.8 million appropriation necessary to complete the building in light of the unprecedented inflation of the last 2 years has been approved. It is expected that the operating budget, which the article states "would have eventually" been "nearly $10 million a year," will be of that order in fiscal year 1983 and that it may rise in the future. In every way, the Center is

proceeding on schedule with the assistance and approval of the Department of Agriculture.

In a more general vein, nutrition research has indeed been moved as part of the overall reorganization of the Department of Agriculture. It will now be more closely integrated with agricultural research, thus assuring nutrition a central place in the Department's programs.

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Malathion Safety Record

Jean L. Marx's article "Malathion threat debunked" (Research News, 31 July, p. 526) does not mention the massive and successful aerial spraying of south Florida in 1956 to eradicate the Mediterranean fruit fly—a highly sophisticated operation with protective measures for beehives, fish farms, auto painters, and so forth that should be a model for the California program.

There has been no indication of any health hazard whatsoever as a result of this heavy application of malathion, the spraying in 1962–1963 over three counties, and the continued use of malathion for mosquito control. Because of this safety record, Florida experts advised aerial spraying in California 8 or 9 months ago. If heeded, there would be no crisis nor health-hazard furor today.

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Saccharin and Bladder Tumors

Several reports (*1*) suggest an increased incidence of bladder tumors in male rats fed high doses of saccharin for prolonged time intervals. These reports review the information on saccharin which indicates that very little, if any, is metabolically altered and that the compound is essentially completely eliminated in the urine. The compound does not appear to react with DNA, and its mutagenicity is debatable. The mechanism by which an otherwise innocuous compound can induce bladder tumors appears to be an enigma. We should like to suggest a factor which appears to have been overlooked.

The bladder tumors are seen only with maximum tolerated doses of sodium saccharin which are in the range of 4 grams per kilogram per day. Since all of this would appear in the urine, which may be estimated at a volume of 200 milliliters per kilogram per day, the concentration of saccharin in the urine of these rats would be approximately 0.1 molar. Saccharin, however, is an acid with a pK_a of about 1.4 (*2*) and therefore should be distributed across cellular membranes according to the *p*H gradients across those membranes. The *p*H of the rats' urine was about 6.0; indeed, in the studies cited ammonium chloride (NH_4Cl) was administered to some of the rats to maintain the urine at an acid *p*H value. Although the intracellular *p*H of rat bladder epithelium is not known, most mammalian cells have an intracellular *p*H of about 7.0 (*3*), and it is reasonable to assume that bladder epithelial intracellular *p*H should be near this value. Furthermore, NH_4Cl treatment can raise intracellular *p*H due to the transmembrane diffusion of nonionized NH_3. Therefore, at a urine *p*H of 6 and an intracellular *p*H of at least 7, the intracellular concentration of saccharin in the bladder epithelium should be greater than 1 molar. This concentration approaches the solubility limit for some salts of saccharin. Even if intracellular precipitation of saccharin salts does not occur, the effect of such a massive solute concentration on cellular functions must be profound. The chronic physical presence of these high concentrations of saccharin ions precipitates, or both, might induce tumors through an indirect effect on the cells' internal environment. Therefore, the tumors may be an artifact of the combination of massive doses, renal elimination, and cellular transmembrane *p*H gradients in the bladder.

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2. C. Long, Ed., *Biochemists' Handbook* (Van Nostrand, Princeton, N.J., 1961), p. 51.
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Erratum: In the report "Staining of blue-sensitive cones of the macaque retina by a fluorescent dye" by F. M. de Monasterio *et al.* (11 Sept., p. 1279), the calibration bar, referred to in the legend of Fig. 2, was omitted; the bar corresponds to 5 mm of the printed page. In the same report, the labeling of Fig. 3C (bottom right panel of Fig. 3, p. 1280) is missing. Its ordinate axis should read "Percentage," and the ordinate axis marks should read (from top to bottom) "13, 11, 9, 7, 5."

Erratum: The mezzotint of Isaac Newton on page 1341 of the issue of 18 September should have been credited to the Prints Collection, New York Public Library, by permission of New Republic Books.