LETTERS

NIH Management

Barbara J. Culliton has reported perceptively on some of the problems at the National Institutes of Health (NIH). I believe, however, that the impressions she gained (News and Comment, 10 Jan., p. 47) from the press conference held by the Federation of American Scientists (FAS), which included the director of the FAS and five leading scientists from the NIH, do not represent a majority view of NIH scientists.

I know of no sizable movement for an independent NIH or of strong feelings that NIH scientists should be "left . . . alone to do their thing." The *Washington Post*, in an editorial published on 27 December 1974, correctly concluded (from some of the same scientists that Culliton talked to) that "scientists agree that they cannot live in splendid isolation . . .[b]ut they consider themselves qualified to participate in the decisions about the . . . methods . . . their science ought to pursue in order to obtain the most promising results."

That is the nub of the problem. What scientists inside and outside the NIH object to is "targeted" research selected by managers and legislators who are politically motivated and seek advice from scientific entrepreneurs who have power and are articulate, to the exclusion of advice from working scientists. This is partly the fault of the scientists who, as Culliton says, "have a knack for putting [arguments] in ways that sound self-serving." But it is also the fault of managers, legislators, and some reporters who do not make the effort to separate what some scientists say some of the time from what the majority of scientists mean.

Let's continue to have targeted goals, programs, and managers. But let working scientists into the programming and managing processes at the highest levels, appoint managers that have an understanding of how scientific research works, keep the system flexible enough so that serendipitous discoveries and flashes of genius are not suppressed, and above all do not sacrifice scientific quality for perceived program needs.

Finally, don't make the NIH an independent agency. There may be an argument for a separate Department of Health including the NIH, but biomedical research needs the support of disease-oriented programs. If the raison d'être for biomedical research is only intellectual curiosity, it can expect a level of support equivalent, say, to archeology.

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Vigorous Vitamins

Reports that vitamin A may be endowed with Antitumor activities (Research News, 27 Dec. 1974, p. 1198) follow the announcement that vitamin E promotes Eternal youth (Research News, 20 Dec. 1974, p. 1105) and the already notorious claim that vitamin C prevents Colds. It is to be expected that new activities for some of the other vitamins will be discovered shortly. Thus vitamin B might cure Baldness (or Botulism), vitamin D could work miraculously against Dengue, and vitamin K is very possibly an excellent agent for Kleptomania.

Has anybody got a few milligrams of vitamin S (for Skeptics)?

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Thomas H. Maugh's report on vitamin A and its relation to carcinogens presents several provocative points, the most significant of which is the observation that the primary thrust of cancer therapy has been toward treatment *after* the development of malignancy.

The *Ten-State Nutrition Survey* (*1*) brought to light the marked incidence of vitamin A deficiency in this country. Further, Jennings (*2*) has reviewed at length the interrelation of vitamin A metabolism and various endocrine abnormalities. For instance, it has been noted in humans with diabetes or hypothyroidism that conversion of dietary sources of carotene to vitamin A is almost completely blocked. Diabetes has long been noted as a disease in which neoplasm incidence is excessive. Further, mild depletion of vitamin A has been shown to inhibit synthesis of deoxycorticosterone to corticosterone. Severe depletion of vitamin A has been demonstrated to inhibit glucocorticoid synthesis, which amounts to "chemical

adrenalectomy" (*3*). Defective adrenal cortical hormone synthesis has been demonstrated to have a carcinogenic effect.

Preventive programs might well embrace investigation of the relation between dietary deficiency and endocrine abnormalities of subtle or gross natures. Studies thus far indicate that such an interrelation creates fertile circumstances for the development of neoplasms.

Maugh comments that there is a distressing potential for a faddist approach in this entire matter. This approach could be averted if the usefulness and protectiveness of dietary sources of all nutrients, including sources of vitamin A, were to be outlined in public educational programs. Inappropriate medication with large amounts of vitamin A in capsule form is not suggested. Rather, attention to diet with consideration of existing endocrine defects is the reasonable approach based on the findings thus far.

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Particle Physics Race

Never before have I seen the absurd competition in high energy physics made so clear as in William D. Metz's articles (Research News, 6 Dec. 1974, pp. 909 and 910) about the discovery of the new particles.

Goldhaber retreated to write the paper announcing the Stanford result when there were only three data points. Only in the second draft could parameters of the resonance be included because they were not fully known at the time the first draft was being written.

The almost-hero of this comedy was Ting, who had sufficient judgment and caution to wonder if his data were correct or even spurious. As a result, he and his colleagues working at Brookhaven engaged in several months of reflection and experimental checking. Yet, when the threat of a scoop appeared, he too rushed to publish.

I wonder if these scientists also run to the cashier's window the moment the horses in a race leave the starting gate.

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Organic Cations

The admirable hypothesis of D. McMahon (20 Sept. 1974, p. 1021) that differentiation of embryonic cells is determined by their content of inorganic ions and cyclic nucleotides leads me to consider the possibility that not only are inorganic cations of considerable importance in this connection, but that organic cations, such as putrescine, spermidine, and others, found in all nucleated mammalian cells, could also be of importance. These have been found to substitute and synergistically promote enzymatic activities stimulated by inorganic cations (*1*). Polyamine biosynthesis can also be stimulated by cyclic nucleotides (*2*). Furthermore, in addition to having ionic properties, these diamines, being derivatives of aliphatic hydrocarbons, have the ability of conformational adjustment into specific binding sites of macromolecules such as DNA and RNA (*3*). Because they are subject to enzymatic synthesis and catabolism, their biological activities could also be modulated by endogenic processes causing variation in concentrations of these compounds and resulting in a variety of other metabolites, as for instance conversion of putrescine by diaminooxidase (histaminase) to γ-aminobutyraldehyde and then to Δ^1-pyrroline and polymers.

With all these events occurring in the cell, I could imagine that they contribute to the mechanisms considered by McMahon.

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