

recover purified gel zones

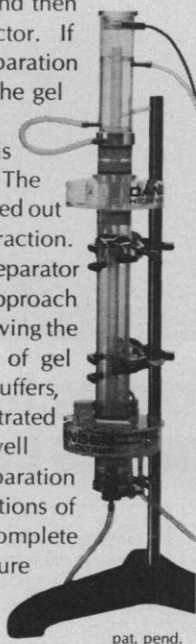
With conventional gel electrophoresis apparatus, recovery of undiluted sample components or quantitation of them without denaturation is difficult or impossible. By combining the separating power of sieving gels with the zone storage and retrieval convenience of density gradients, the ISCO ELECTROSTACTM separator greatly improves zone recovery.

TYPICAL SCAN OF GEL ZONES COLLECTED IN DENSITY GRADIENT

sample: 7.5 micrograms
Yeast-RNA

5s fraction
4s fraction

The ELECTROSTAC separator positions a polyacrylamide gel above a sucrose density gradient column. Separated zones migrate from the lower surface of the gel downward into the density gradient, maintaining their isolation and relative positions. The zone is then recovered by removing the ELECTROSTAC separator and pumping the gradient upward through a UV absorbance monitor, and then to a fraction collector. If scanning shows separation to be incomplete, the gel can be replaced for further electrophoresis before fractionation. The sucrose can be dialyzed out to leave a purified fraction. The ELECTROSTAC separator permits a multiple approach to separation by allowing the use of wide ranges of gel characteristics and buffers, and has been demonstrated to be particularly well adapted to the preparation of gel-separable fractions of nucleic acids. For complete details send for literature and our current catalog.



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LETTERS

Preserving Scientific Manpower

A letter from H. M. Agnew (22 Sept., p. 1057) of the Los Alamos Scientific Laboratory lauds the President's Intern Program designed to put unemployed scientists and engineers to work. This is indeed an admirable program and should be supported much more strongly than it is. On the other hand, it applies only to recent graduates and ignores the thousands of unemployed scientists and engineers who are rapidly losing their skills as they must turn to nontechnical jobs (if they can get them) to survive.

Scientists and engineers and their professional organizations have been singly inert about pressing for government measures that would alleviate the unemployment prevalent among their highly trained members. In spite of the general agreement that such people constitute a valuable national resource, there has been very little support for a number of bills in Congress designed to preserve these people as skilled individuals. I specifically refer to bills (S.3697 and H.R.14298) by Senator Edward W. Brooke (R-Mass.) and by Representative Ronald V. Dellums (D-Calif.), which together constitute the Scientific Manpower Act of 1972, and a bill (H.R.16605) by Representative Ella T. Grasso (D-Conn.) designed to promote the employment of scientists and engineers by states, counties, and municipalities.

This indifference and inertia reminds me of Santayana's "Those who cannot remember the past are condemned to repeat it." Why can't we use our vaunted intelligence to devise a better system to avoid the human misery engendered in layoffs and to preserve scientific and engineering manpower for the good of the nation.

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Linus Pauling and Vitamin C

The report by Barbara Culliton (News and Comment, 4 Aug., p. 409) and the letter from Linus Pauling (29 Sept., p. 1152) clearly call for comment by me, as I was chairman of the editorial board of the *Proceedings of the National Academy of Sciences* when Pauling's two articles (1) on ascorbic

acid appeared. The first, on ascorbic acid in evolution, came to the editorial office in September 1970, when I was on leave of absence in Australia. F. Peter Woodford, who was then managing editor, handled the article promptly, and it appeared in the December issue. In his annual report to the editorial board in April 1971, Woodford mentioned that some people, whom he did not identify, had told him that they considered the article unsuitable for the *Proceedings* and believed that it should not have been published there. I do not know their reason. Woodford concluded, on the contrary, that the article was quite suitable for publication, and so did I. Indeed I read it with interest and enjoyment. Pauling's second paper, concerning statistical evidence for the value of ascorbic acid in preventing colds, also was published promptly.

I certainly could never have been justified in saying that most members of the National Academy of Sciences (NAS) disagree with Pauling's views on ascorbic acid. I have no possible way of knowing this; indeed I suspect that many academy members would disclaim any competence to pass judgment on the matter at all.

On very few occasions we published articles in the *Proceedings* in spite of "extreme mental reservations." In such cases we always communicated those reservations to the author and asked him to consider withdrawing the paper or revising it. Pauling's two ascorbic acid papers, on the contrary, were published promptly, and we raised no question with the author regarding their suitability.

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References

1. L. Pauling, *Proc. Nat. Acad. Sci. U.S.A.* **67**, 1643 (1970); *ibid.* **68**, 2678 (1971).

There is no question that Linus Pauling has a right to many "feelings," including his classification of actions by *Science* as derogatory.

On the other hand it is difficult to see how he could assert "I doubt that *Science* questioned most of the 900 NAS members. I am sure that the statement that most NAS members took issue with the scientific validity of these papers is false." It would appear that both statements assert something about some fact, and that this "something" is amenable to empirical verification.

Pauling should have verified the facts before making either assertion.

I, for one, question Pauling's second-mentioned paper (1), and not because of improper statistical treatment of data. Rather, the issue is the question of "Who has, and when does one have, a common cold?" As a practicing anesthesiologist I must often decide such an issue, in view of the presumed increased hazards of administering general anesthesia to a patient with a preexisting respiratory infection. In a substantial number of instances, such a decision cannot be made, by myself or by many other physicians. It is then difficult for me to see how this uncertainty can become a certainty once it has been processed statistically.

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Reference

1. L. Pauling, *Proc. Nat. Acad. Sci. U.S.A.* 68, 2678 (1971).

Cancer Prevention

Nicholas Wade (News and Comment, 30 June, p. 1402) refers to the Conquest of Cancer Program as the "cure cancer crusade" or "the fight to cure cancer." We certainly want to cure cancer. A cured case is visible evidence of the efficacy of our research. But probably more important than curing the disease is preventing it, even though a prevented case is rarely visible. It is doubly upsetting to see references to all our work as "cure cancer" activities in the same piece in which Wade writes about a new research center (Fort Detrick) that will be devoted mostly to problems of viruses and chemicals that "cause cancer."

Substantial progress has been made in preventing cancer. The antismoking campaigns have been much more effective than many people seem to be aware of. So much so that if there is anything to the smoking-cancer link, we should soon see declines in lung cancer mortality in white males. From 1965 to 1970, 42 percent more men and 37 percent more women became "former smokers." (A 1970 survey showed that 37 percent of all male smokers had quit; the corresponding figure for women was 27 percent.) Cigarettes now contain much less tar and nicotine than they did 10 years ago.

However, the incidence of lung can-

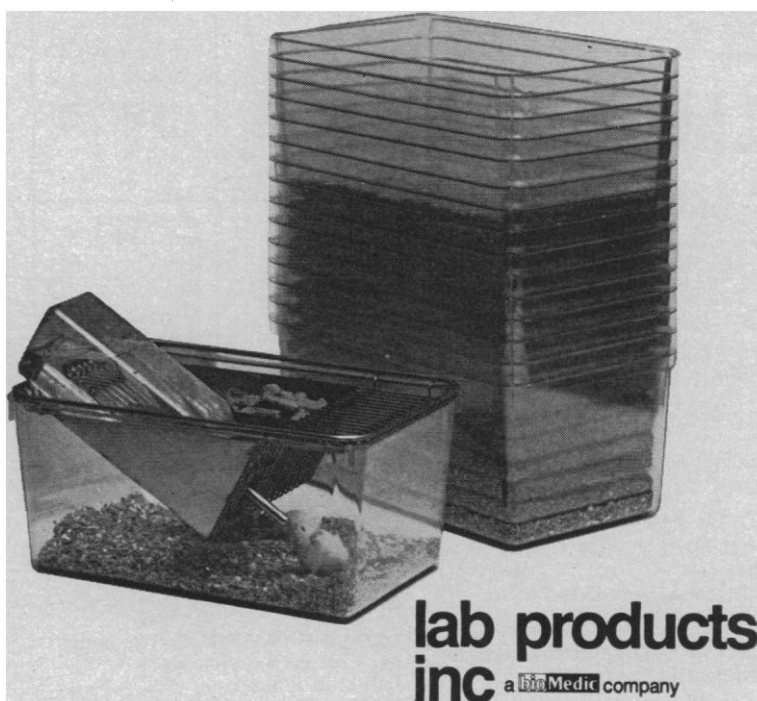
end costly high-rise housing

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