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Excessive Emotion about Detergents

Concern about the environment continues to be widespread and is essential if improvements are to occur. However, excessive emotion about one facet of the problem can lead to neglect of others. It also may result in demands for premature action. Such a situation seems to be developing with respect to detergents. In a few months the mass media have succeeded in transforming the image of these products from essential cleaning materials into prime agents in the pollution of the nation's waters. The *New York Times* has editorialized on "Deadly Detergents." In congressional circles there has been talk of a new Manhattan Project devoted to taking phosphates out of detergents. Congressman Reuss (D-Wis.) has introduced legislation requiring the elimination of phosphorus from detergents by 30 June 1971.

Passage of such legislation is not imminent, but the situation could change. As a result, today's detergents that are effective and safe might be replaced by materials that are ineffective or possibly toxic. In most drainage basins of the country no serious problems arise from detergents. Thus the majority of citizens would be inconvenienced or even harmed by measures taken on the chance that a minority living near lakes might benefit.

The attack on phosphates in detergents is based on the plausible but unproved hypothesis that phosphates are the crucial nutrient that determines the magnitude of algal blooms. Opinion on this matter is no longer unanimous. A controversial but thought-provoking article in *Canadian Research & Development** reminds us that experience with land plants is not entirely transferable to the varied circumstances in lakes. Massive algal blooms have occurred in lakes containing very little phosphate. The limiting nutrient often is carbon. Of considerable importance is a symbiotic relationship between blue-green algae and bacteria. This is particularly effective in waters containing organic matter. The bacteria furnish carbon dioxide to the algae, which in turn provide oxygen for the bacteria. Laboratory studies have shown that blue-green algae grow faster in the presence of growing bacteria.

Elimination of phosphates from detergents would not solve the eutrophication problem. There are too many other sources of these chemicals in municipal, industrial, and agricultural wastes. The treatment of municipal wastes is of particular importance in minimizing eutrophication. If these were managed properly, phosphates arising from human wastes and from detergents would be simultaneously eliminated. Effective treatment also would attenuate the flow of organic matter into lakes.

The current drive to remove phosphates from detergents could lead to the replacement of safe chemicals by potentially hazardous ones. At present the leading candidate as a substitute is nitrilo acetate. This is a chemically stable chelating agent which is incompletely destroyed in sewage treatment plants. Preliminary tests on the pure compound seem to assure its safety, but who can guarantee that there will be no unexpected long-term tragic effect when the material is spread about in huge quantities and its effects are combined with those of many other substances?

The detergent industry should be continuously reminded that it must develop products that will not contribute to pollution. However, heedless pressure in this matter could create problems far worse than those it solves.—PHILIP H. ABELSON

* R. F. Legge and D. Dingeldein, "We hung phosphates without a fair trial," *Canadian Research & Development* (March 1970).