ease involving five serum collections derived from more than 250,000 persons. I would not wish the National Institutes of Health or other funding groups to get the idea that such studies can be carried out for $6000.

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Boiling Drinking Water Removes Ethylene Dibromide

The discovery of ethylene dibromide (EDB) in ground waters has alarmed many because of EDB's known toxicity and possible carcinogenicity. Analyses in our laboratories of about 350 well-water samples collected by inspectors from the Connecticut Department of Environmental Protection and Department of Health Services have revealed EDB concentrations of up to 2 parts per billion (ppb). The analyses were performed by gas chromatography with a detection limit of 0.02 ppb, and EDB was confirmed by mass spectroscopy. The Connecticut Department of Health Services has established a tentative standard for drinking water of 0.1 ppb. Thus, water samples have exceeded this limit, and consumers have been advised to obtain bottled water.

In our analyses, we found that EDB was readily lost from water samples exposed to the atmosphere. Heating enhanced the losses: for example, EDB was not detectable in several water samples initially containing 0.1 to 5 ppb after a minute or less of boiling in an open vessel. To confirm that EDB was not degraded during heating, we distilled water samples containing 10 ppb of EDB and recovered all the material in the distillate. In addition, we found that no EDB could be detected in water samples purged with nitrogen gas for 10 minutes.

The anomalously high volatility of EDB is not unique, but has been observed for several other organic compounds (*1*). The volatilization of organic compounds is thought to be an important pathway for their environmental dissipation (*2*) and is a problem that arises during wastewater treatment (*3*) and activated sludge processes (*4*). The removal of chlorinated hydrocarbon solvents from water by boiling, even if the boiling point of the pure compound exceeds that of water, has been attributed to the existence of azeotropic mixtures with boiling points below 100°C (*5*). Our results show that these deviations from Raoult's law become even more pronounced at extreme dilution.

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Administration of the NRC

Alvin M. Weinberg and Irving Spiewak, in their article "Inherently safe reactors and a second nuclear era" (29 June, p. 1398), argue that the economic success of new types of nuclear reactors will depend heavily on changes in regulatory behavior by the Nuclear Regulatory Commission (NRC). One way to improve NRC operations would be to eliminate the commission structure, an idea briefly examined in the post–Three Mile Island reviews. The two major reviews of the March 1979 Three Mile Island accident recommended replacing the five-member NRC with a single administrator (*1*), as did I to the White House and in testimony to Congress (*2*). Unfortunately the Carter Administration chose not to propose the single administrator form, and there was little congressional support for it. A major argument used by opponents was that a strong pro-nuclear President would appoint an administrator who might weaken safety requirements, eliminate intervenor rights, and charge ahead with the dangerous technology of nuclear power.

However, the wholesale changes at the Environmental Protection Agency last year demonstrate what happens when an administrator's acts are strongly opposed by the public and the Congress: the individual (and staff) are replaced and the policies are modified. Perhaps a single administrator for nuclear regulation is an idea whose time has come.

The NRC has about 3000 employees and an annual budget of close to half a billion dollars. The principal NRC activities are inspection, technical review, and research management—activities inappropriate for the commission practice of extended debate, lengthy writing, and slow decisions. Since the NRC has two judicial arms (the Licensing Board and the Appeal Panel), the agency does not need a commission to ensure ample opportunity for airing opposing views within a legal framework.

Not everyone supports commercial nuclear power, but the question now is not whether to begin a program, but rather how to manage more effectively what is now in place and what may be built in the future. The commission structure is a vestige of the Atomic Energy Commission. A single administrator would be a step toward a goal everyone can support, improving nuclear power regulation.

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Ahearne's suggestion of a single administrator of NRC is somewhat peripheral to our main point—that a more forgiving technology ought to lead to more effective and less unwieldy regulation, whether by a commissioner or by a single administrator. We have not studied the pros and cons of the single administrator and have no strong opinions on the matter.

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