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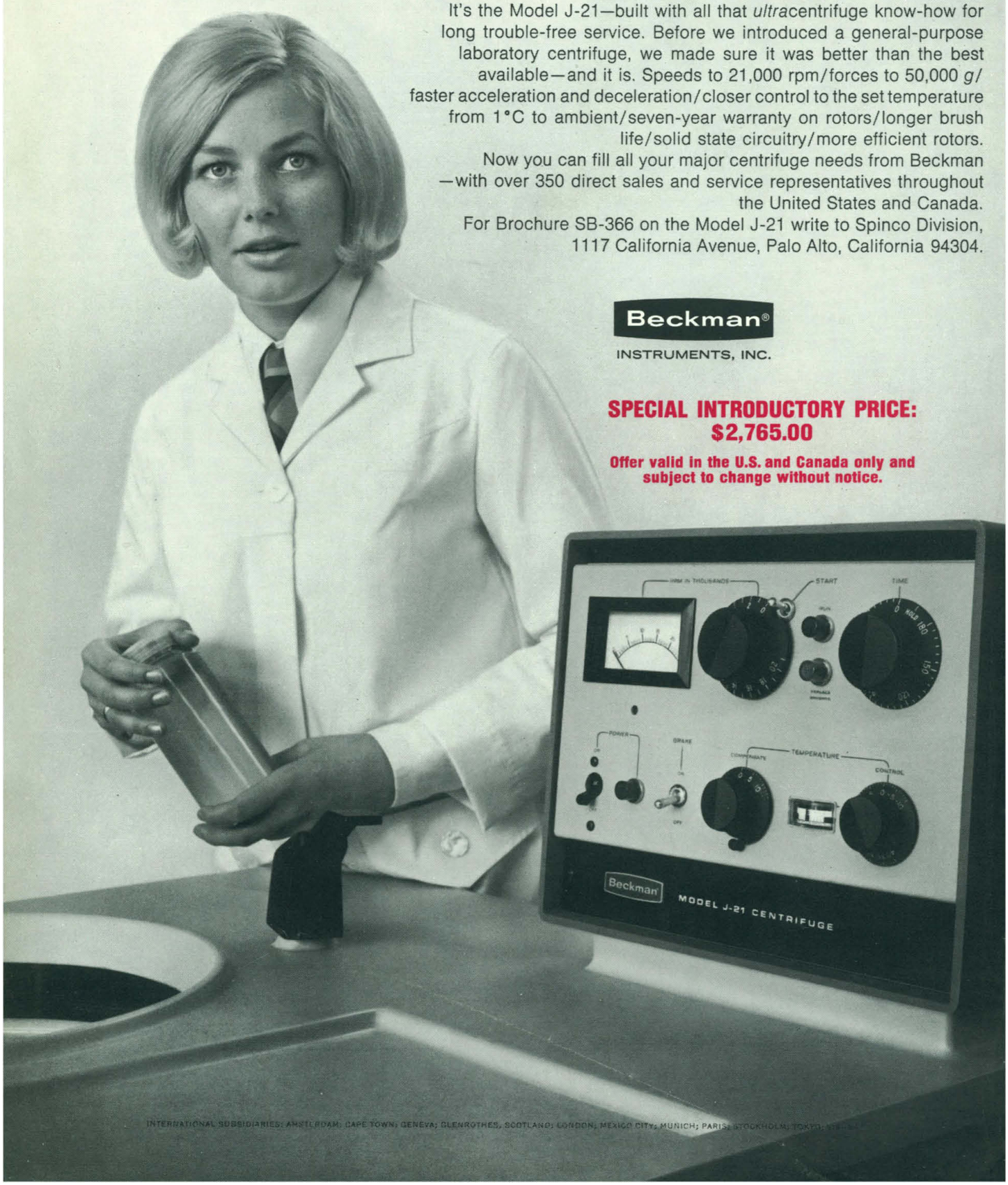

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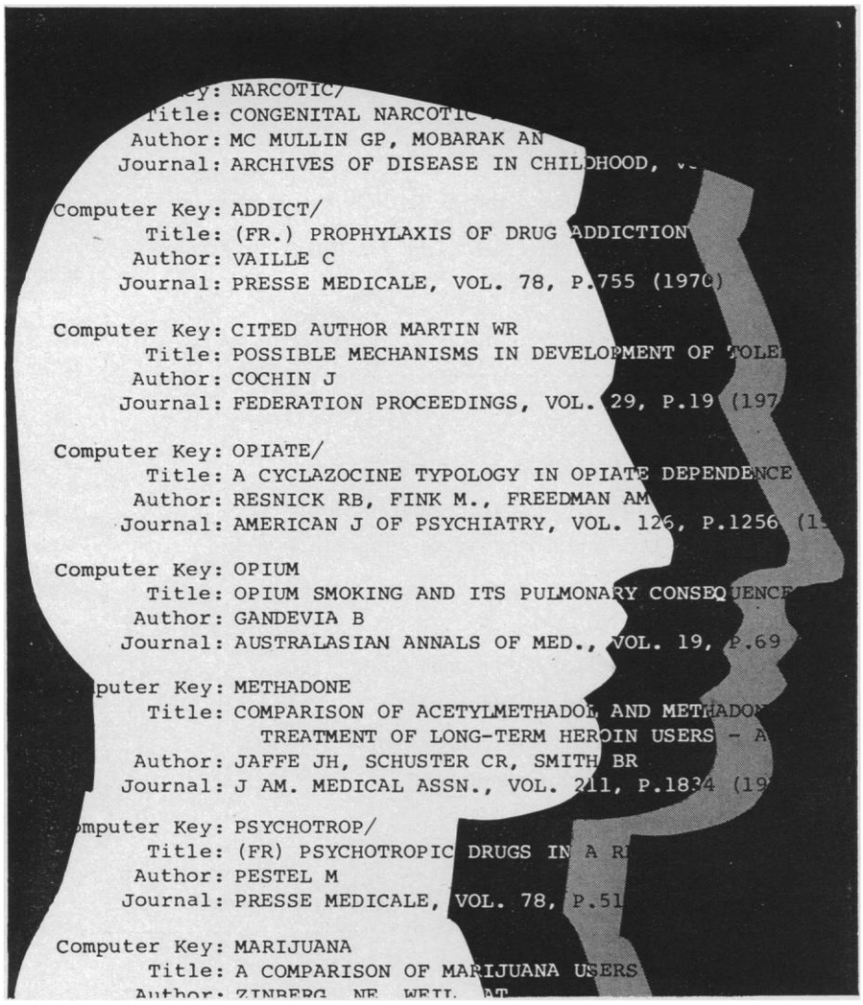

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SCIENCE

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COVER

Storm waves break with great force upon a sea wall along the coast of Great Britain. [Environmental Science Services Administration; from *Exploring the Ocean World*, Thomas Y. Crowell Co., New York City, 1969]

LETTERS

United States Goals in Vietnam

In our article "Ecological effects of the war in Vietnam" (1 May, p. 544), we did not think it was appropriate for us to engage in a discussion of the major sociological effects of the defoliation program because we went to Vietnam to examine the ecological effects of that program. Nevertheless, we agree with Haseltine, Carter, and Long (Letters, 3 July) that our report is incomplete and does not deal adequately with the health hazards to exposed people, the impact on their lives, and the long-range effects on Vietnamese society. We dealt lightly with possible health hazards because we did not learn anything new during our visit there that was not already known to the scientific community. Moreover, at that time the results of studies demonstrating the powerful teratogenic effects of 2,4,5,-T and its normal contaminants were not available to us. Our data on concentrations of defoliants used and, in particular, the frequency with which extremely high concentrations are released, do emphasize the great potential for major hazards.

We agree fully that the rapid urbanization, both voluntary and forced, of Vietnam is of profound significance. The social scars of this disruption will doubtless long outlive the effects on the ecology of the country. The immediate human suffering is also unbelievable. We recognize that this is part of a deliberate policy of the U.S. government to win the war by moving people from the countryside, which we cannot control, to the cities, which we can control. It was openly acknowledged by the military authorities at the time of our visit that the goal of the pacification program in 1969 was to get 90 percent of the population under American control. Several tactics were being used to accomplish this and though defoliation may be one of them we found no indisputable evidence that this was the case. We concur with Haseltine *et al.* that such a role for the crop destruction program, especially when there is evidence that rice shortages are not a problem for the Viet Cong, would be entirely consistent with the general policies of the United States in Vietnam. . . .

We are painfully aware of the limits of science as applied to social problems and hope that our article will not be read as a complete account of the ecological and social effects of the war. Only social scientists can present an analysis of the destruction of the Vietnamese society which the United States is deliberately accomplishing.

GORDON H. ORIANS
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Martyr or Liability?

I am afraid the National Bureau of Standards Boulder (Colorado) Laboratories badly misjudged the case of Warren Bingham ("Dissent and reaction: Vigilante activity at NBS . . . ," 10 July, p. 163). Talented individuals like Bingham obviously would benefit by additional training in suitable environments. NBS would have done a lot of good had they suggested and supported a fellowship for Bingham in a laboratory or a university in Moscow or Kiev, U.S.S.R., or maybe in Prague, Czechoslovakia, for a year, at the prevailing wage rates there. Thus, Bingham could acquire factual knowledge and information in technology and also help mold his perspective, outlook, and philosophy. I am sure he would return to NBS as a better qualified individual all around.

J. HENRY WILCOX
5309 McKinley Street, Bethesda, Maryland 20014

It is outrageous that *Science*, a scientific journal, deals on two pages with a worker of inferior abilities, because he happens to be a war protester. The author of the article is sympathetic to the plights of a supposedly harassed hippie-type of peace activist, but fails to sympathize with the high school, public utility, court house, draft board office, church, and the Rocky Flats plutonium plant that were harassed by Bingham. It is time for the press to publicize less the aggressive "prophets" who mistakenly believe in their right to harass people. Especially, since "poor harassed" Bingham was for "anarchistic socialism," thus against all law and order. It is inconsistent with his beliefs to work at a government institution. He received the very treatment promoted and practiced by himself.

JULIUS ALKER
Department of Geography and Geology, University of North Carolina, Charlotte 28213

. . . The real error is not in the mistreatment of Bingham, but in hiring him in the first place. Perhaps Congress should look into Civil Service practices which permit that sort of character to get into government work. Certainly that "Bingham is a Quaker, a pacifist, a conscientious objector, and a believer in what he calls 'anarchistic socialism' " was known to the personnel people before he was hired, or should have been. . . . The information that he had "held a variety of jobs" should have indicated also that there was considerable question about his potential to perform well. . . .

DAVID F. BENT
Newcomb, Maryland 21653

I read with distress Philip Boffey's description of the vigilante and other activity directed against Warren Bingham.

. . . Violent or coercive reactions to different ideologies should be totally inconsistent with the ideals of the scientific community. Apparently they are not. We claim that our shield against ignorance is reason and the willingness to discuss ideas. Unyielding prejudice must not be our Achilles' heel. This country appears to be fast approaching the time when it will be dangerous both to think independently and be vocal about it.

MICHAEL WILLIAM LEFOR
Systematics and Environmental Biology, U-43, University of Connecticut, Storrs 06268

Radio Astronomers! United They Stand . . .

Alan Moffet and his colleagues have properly voiced concern over the sad state of affairs with regard to future radio astronomy instrumentation in this country (Letters, 19 June). However, events of the past 10 or 15 years might shed some light on why there are no plans for major instruments in this country.

Since the inception of the National Radio Astronomy Observatory in the mid-1950's, it has been virtually impossible to get any two radio astronomers to agree on anything regarding facilities unless they were both from the same institution and even then there was often disagreement. Had it not been for Lloyd Berkner's organizational and promotional genius, which was of an order of magnitude greater than others on the scene at the time, NRAO probably would not exist today. There will be some who would state today that we would be better off without NRAO.

The reports of advisory committees from the National Academy of Sciences, the National Science Foundation, and, most recently, the National Aeronautics and Space Administration have nearly always listed 10 to 15 major instruments, all either praised or damned with faint praise. Many individuals went home and submitted proposals to the funding agencies based on their own contributions to the committee report. The Owens Valley 130-foot radio telescope is the only proposal of which I am aware that has been funded via this route, but, in addition, plans were well laid by capable people independently of any committee. Perhaps the most ironic example is the case where scientists who failed to lend adequate support to the Navy's 600-foot Sugar Grove radio telescope on scientific grounds submitted their own proposal for an equally complex instrument, only to have it die in the Bureau of the Budget.

The moral should be clear. So long as radio astronomers remain divided and permit institutional ties to overshadow science, and I will take my share of the blame, they will not obtain major funding. If they could unreservedly present a united front, funding could probably be obtained for one or two major national facilities. . . .

EDWARD F. MCCLAIN, JR.
225 Maple Road, Morningside, Maryland 20023

Rubric in Arabic

Being a dropout from an Arabic language course and a casualty of Arabic lettering, it was with renewed hopes that I read Ruth L. Barr's report on an easy new method of "Embossing Arabic letters and numbers on new raised-line polyethylene paper: An aid for the blind" (3 July, p. 94). I was just about to purchase a supply of No. 300 polyethylene paper when I sadly realized that while the numerals that the new technique refers to may be Arabic, indeed, the letters are hopelessly Latin.

E. IMRE FRIEDMANN
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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).

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