tive institutions can develop effective programs for students in the lower ability ranges, not that such programs will alleviate "the problems of education for the disadvantaged student."

Walter makes a serious mistake if he assumes that open admissions and "special" admissions programs for "disadvantaged" students are one and the same thing. Indeed, these special programs have often created problems precisely because they are superimposed on an otherwise selective admission policy; a dichotomy is thus created in which most of the best-prepared students are white and practically all of the most poorly prepared students are black. Much of the explosive potential in this type of situation could be eliminated by the adoption of an open admissions policy, in which all students are admitted on the same basis, regardless of racial or other considerations.

ALEXANDER W. ASTIN
American Council on Education, One Dupont Circle, Washington, D.C. 20036

Controlling the Earth's Temperatures

The dialogue between Rasool and Schneider and Charlson *et al.* (7 Jan., p. 95) on the question of whether an increasing aerosol content of the atmosphere, caused by man's activities, may produce a long-term increase or decrease in global temperature, has illuminated a theoretical solution to this conjectural problem. If the sign of the temperature change depends rather sensitively on the particle size, its complex index of refraction, and the altitude distribution, then one can imagine that the atmosphere could be seeded with aerosols of appropriate size and composition to offset any temperature changes resulting from man's impact (including release of aerosols and carbon dioxide or any other activity that affects the albedo). Before any attempt to tune the atmosphere could be made, of course, detailed calculations and pilot experiments would have to be performed, so that we understood the side effects and could completely control the result. There also are questions of how much material would be needed and what mechanism of distribution could be employed. One or both could be impractical; however, if man's activities can inadvertently deposit aerosols that have measurable effects, then presumably any intentional seeding could be much more efficient and

therefore in the realm of practicality.

The idea of polluting our atmosphere on purpose may seem horrifying, and one obvious price would be a 5 percent decrease in the brightness of a cloudless day. This might be acceptable, though, if we were faced with evolving climatic changes that threatened to bring on an ice age or inundation through the melting of the polar ice caps. Hopefully we will learn how to lessen man's impact on the environment so that threats of this kind will never materialize, but inasmuch as there have been natural ice ages, it might be useful to understand whether we are capable of artifically controlling the climate in this manner.

DAVID D. ELLIOTT
7029 Barkwater Court,
Bethesda, Maryland 20034

Herzberg in Canada

Although I endorse with enthusiasm A. E. Douglas's account of the spectroscopic achievements of Nobel prize-winner Gerhard Herzberg (Research Topics, 12 Nov. 1971, p. 672), I take issue with him about Herzberg's activities during World War II. It is exceptional when a specialist of Herzberg's caliber can show the versatility that he did during the period from 1941 to 1945.

Herzberg was not treated scientifically as an alien in Canada, and he responded at once to Canadian requests for a study of detonation phenomena. When he soon ascertained that such a study could not be made spectroscopically, he turned to high-speed photography and then demonstrated and measured the hitherto unknown threshold rate of acceleration to maximum rate of detonation in high explosives. As a native-born German, he was not permitted to enter the United States, but his reports were of sufficient interest to U.S. experts that they met with Herzberg in my laboratories in Toronto.

A charming sidelight on Herzberg's character is exemplified by the laboratory that he built in Saskatoon for his detonation studies. While others were planning fancy facilities, Herzberg's helpers built a sod-hut similar to those used as homes by the early settlers of Saskatchewan. He finished the study while others were still deliberating about it.

GEORGE F. WRIGHT
Department of Chemistry, University of Toronto, Toronto 5, Canada