Letters

Warmer southern hemisphere

SIR: I would like to comment on the letter of James C. Kirk that appeared in C&EN, Dec. 14, 1981, page 4. Two items were especially bothersome, “The southern hemisphere is right,” and “we are warming up for reasons nobody understands.” and the last sentence, “The reasons for these changes are not at all understood, and there is no evidence that it can be tied to any society’s activities.”

Unfortunately, our atmosphere is complex and the various interactions with solar radiation, the oceans, etc., are anything but simple. It is not possible to positively establish a cause and effect relationship with any single parameter. Nevertheless, a “plausible” explanation is possible.

If everything else remains constant, an increase in carbon dioxide in the atmosphere will cause an increase in atmospheric temperature. The vast majority of mankind is concentrated in the northern hemisphere. In the last 40 years the number of human beings has increased dramatically. As a consequence, the agricultural and industrial activity has also increased. These activities have markedly increased the turbidity of the atmosphere in the northern hemisphere. The atmospheres of the northern and southern hemispheres mix rather slowly, so that turbidity is mostly in the northern hemisphere.

This increased turbidity scatters sunlight and causes a decrease in the temperature of the northern hemisphere. This decrease more than offsets the temperature increase due to carbon dioxide buildup. However, the southern hemisphere, with little human activity, has little increased turbidity. There the scattered solar radiation is more than offset by the warming due to carbon dioxide buildup. While the northern hemisphere has grown colder, the southern has grown warmer, both due to mankind’s actions.

I am aware that a “proof” of this scenario is not possible at this time. But this scenario could be right. Must we wait until the waters of the oceans flood the streets of New York, Miami, and Houston before we can decide if carbon dioxide buildup is a threat?

F. Henry Firsching
Professor, Southern Illinois University, Edwardsville

Biotechnology and academia

SIR: In a somewhat confusing article on the increasingly well-known subject of biotechnology and academia (C&EN, Dec. 12, 1981, page 39), Jeffrey Fox writes as follows: “Many new companies have been formed at universities, such as Stanford, whose administrators were among Bok and Harvard’s most vocal critics.” There are only two main clauses in that sentence, and both of them are wrong. In the first place, no new company has been formed at Stanford. In the second place, to my knowledge no Stanford administrator criticized either Bok, or Harvard. When the original plan for coparticipation in equity between the Harvard management company and a faculty member was revealed in the New York Times, I said that Stanford was not likely to consider a plan of that sort. As it turned out, Harvard didn’t either, and my own comments and those of my colleagues have, as far as I know, had nothing but praise for their process and for its outcome.

Donald Kennedy
President
Stanford University

Dangers of hydrogen sulfide

SIR: It was with amazement that I read of E. M. Fitchett’s experience (Newsscripts, C&EN, Nov. 30, 1981, page 66) in which resuscitation from the effects of breathing hydrogen sulfide was obtained by simply holding ammonium hydroxide near the nose of the victim. Such a method would work if the victim were breathing, but therein lies the difficulty.

Hydrogen sulfide is a far greater poisonous material than most people realize. It has two important detrimental physiological properties:

1. While breathing small concentrations of hydrogen sulfide, one soon is unable to detect the “rotten egg” odor because the olfactory nerves become deadened. If one then thinks the difficulty is over and continues to breathe even these small quantities, there is grave danger of breathing a cumulatively lethal amount.

2. If one breathes a high concentration of hydrogen sulfide, one may lose their ability to breathe at all, and can die in one to two minutes unless breathing is started again.

Zinc and cadmium sulfides, properly sensitized, were common phosphors used in the early days of black and white television. At the Paterson Screen Division of Dupont, Towanda, Pa., we used hydrogen sulfide in their preparation. Because we were aware of the possible difficulties and took proper precautions, we had no serious accidents with hydrogen sulfide. One time, however, one of our operators got a high concentration “snoutful,” couldn’t breathe, and fell to the floor. He was immediately dragged out into fresh air, revived with artificial respiration, and was apparently none the worse for the experience.

Being unable to breathe, however, does not stop one from being able to think. This same operator was taking an instructor’s course in first aid, which my wife also attended, and to which he told of his experience. He said that all he could think of while he was receiving artificial respiration was: “I hope they don’t stop, I hope they don’t stop!”

St. Petersburg, Fla.

John H. Bigelow

Correction

* Jan. 11, page 14: The table headed “Alkylphenol ethoxylate” should read “Alkylphenol.” The price, however, refers to the ethoxylated surfactants.