dergarten, elementary, secondary, college, postcollege, unions, etc.; it came through and will continue to come through the multinational, continuing, unresricted technology drain of people working together. Institutions, including governments, are going to have to determine what each can do best so that on a worldwide basis quality uplift will be available for all who want it. See *Alumni News*, University of Minnesota, December 1971, page 7.

This genius of the mind will blind mankind most naturally through profit; "Man Helping Man" to be evolutionary at all times, revolutionary on occasions. See *The Rotarian*, January 1972, page 17.

Robert V. Heinze
Consultant, Heat and Fluids Processing, Hammond, Ind.

SIRS: Nathaniel Brenner's editorial takes aim at "fallacious arguments" and parades out a whole new set of replacements. As you prefer brevity, my comments apply only to a few of the more glaring examples.

It is remarkable that someone of Mr. Brenner's management level apparently still believes that America has a corner on scientific technology and that, except for "license agreements," "our" technology would be all locked up behind our borders, safe and sound. Technology is alive and well in many foreign countries, we beg to report. It's frequently comparable in quality and originality to American technology; the proof of this is in the growing *reverse* flow of licensing to America from Europe and Japan. Putting American firms under restriction with respect to licensing abroad would only ensure that the rest of the world would use non-U.S. technology and we would lose *that* export as well.

The blanket statement that licensing gives away American jobs is unsupportable. Many firms, including our own, have found that licensing leads to significantly increased product export sales, over both short- and long-term periods.

Roger F. Jones
V.P.-Corporate Operations, Liquid Nitrogen Processing Corp., Malvern, Pa.

SIRS: As I understand the guest editorial by Nathaniel Brenner, he denies that our present difficulties were caused by union groups who say: "I am going to get mine and to hell with you! If I don't get mine, nobody is going to work. . . ."

I suppose we can set up any number of paradoxical arguments but we also should be able to open our eyes and look around us. I wonder if Mr. Brenner has tried to get any plumbing done lately, or wiring, or painting? It would be interesting to know *which* "multinational corporation" gave away *what* secrets which somehow caused this difficulty.

Baloney, gentlemen! The unions may have deserved our sympathies in 1930 (the date which Mr. Brenner quoted in his argument) but the pendulum has now swung all the way in the opposite direction. In fact, our new masters have turned out to be even worse than the old ones because they seem to me to be less intelligent.

Charles Pentler
Food Research, Orchard-Laboratory, Cupertino, Calif.

P.S. Mr. Brenner had at least one splendid thought, the idea that these union workers need high wages so that they can pay high taxes and support the rest of us after we go broke.

SIRS: I realize that your intent is to create intelligent discussion by your editorial policy, but why invite a writer to write outside his field? The recent guest editorial by Nathaniel Brenner on the economics of the American system should have been written on, perhaps, "Marketing, in addition to sales" or some similar subject that is in his field.

There were such gross errors in economic fact in his editorial that it weakens or destroys the creditability of the entire editorial. It is filled with the unlearned name-calling of the rabble.

In an area more subject to opinion, he ignored a point missed by many; that it is the people who create the technology and use it, rather than the technology itself that is the great resource of America.

Rupert H. Cooke, Jr.
St. Louis, Mo.

The menace of Pb in the air

SIRS: There have been several recent articles regarding the environmental hazard posed by lead. Our laboratory group has worked in this area for a number of years and would like to bring up three points which do not seem adequately discussed.

The first of these points concerns the unit used in reporting lead concentrations. This concentration is usually expressed in $\mu g/m^3$ of air. This unit does not tell the whole story, and fails to express adequately to the general reader the astonishingly large amount of lead present in the atmospheric dirt in our large metropolitan areas. A more appropriate way of expressing the concentration is in terms of per cent lead in the atmospheric fallout, that is, the dirt that actually is breathed or that "salts" your food supply and dirties your curtains and household appliances. In a large metropolitan area, the lead concentrations may be as high as 6 or more $\mu g/m^3$, but the total particulate may be only 200 $\mu g/m^3$. Therefore, the dust which settles out would contain somewhere between 3 and 4% lead by weight. Since toxic materials are usually expressed in p.p.m., this value would be between 30,000 and 40,000 p.p.m. This is far in excess of any known permissible standard for lead. In fact, the Chicago Metropolitan Sanitary District permits only 0.5 p.p.m. to enter its sewage system.

The second of these points concerns the perhaps simplistic hypothesis of lead poisoning being caused in children as a result of eating paint and plaster. This may be one possible source. However, cases of lead poisoning are being reported among children who are unlikely to be exposed to chipped paint and plaster. This suggests that we are overlooking other sources of lead poisoning, for example, the atmospheric lead.

The third of these points concerns the matter of responsibility. The question of lead toxicity is under hot debate. However, the fact remains that we have virtually saturated our large metropolitan areas with lead fallout, principally from automotive exhaust. This fact raises a serious question of scientific responsibility. Every chemist is taught from his earliest courses that lead salts are toxic. Every chemist is aware that tetraethyllead is added to gasoline. Every chemist knows that lead in some form is emitted in automotive exhaust.

Why then have we allowed this situation to develop? Whose moral responsibility was it to make sure that we were not doing irrevocable damage to the environment? This is a question posed to every chemist, not just the petroleum and automotive industries. It may instead turn out that lead is not as dangerous as some fear. If this is the case, we will have been lucky. Wouldn't it have been more pleasant to report that as a profession we had the social responsibility to thoroughly investigate the effects of lead on the quality of our life before we added one or two grams of lead to every gallon of our gasoline?

Graduate Class in Environmental Chemistry
Loyola University of Chicago

Volatile chemicals in refrigerators

SIRS: This letter is a word of caution to all those who store volatile, flammable chemicals in refrigerators. On the night of Sept. 15, 1971, a refrigerator in the school of pharmacy laboratory used to store chemicals exploded. The resulting fire confined to the floor area led to a total damage of approximately $12,000. The cause of the explosion is unknown but we do know that a mixture of ether and ethanol was present in an open beaker.

There are reports each year across the nation that refrigerators in chemistry laboratories have exploded—cause usually unknown. I am suggesting that each reader of this letter consider whether