

# to the editor

## Sandwich superconductivity

The lively article "Superconductivity in two dimensions" (SN: 6/20, p. 602) by Dietrick E. Thomsen brings together some interesting viewpoints, but also unfortunately implies some relationships that have not been established, and therefore either do not exist, or remain for the future to confirm. There is no experimental evidence relating the superconductivity in the layered organometallic compounds whose discovery F. J. Gamble, F. DiSalvo, R. A. Klemm and myself reported recently and the hypothetical superconducting models proposed by Prof. W. A. Little of Stanford and V. L. Ginsburg of the Lebedev Institute, Moscow, which you have described. As correctly stated, our new compounds are either three-dimensional superconductors which contain organic molecules, or else weakly linked two-dimensional superconductors in which metallic molecular planes are separated by organic molecules. Our results so far lean toward the latter, primarily because the transitions are surprisingly independent of the particular organic molecule which is intercalated between the metallic layers. In either case there does exist an opportunity to look for mechanisms of the Little or Ginsburg type.

We had the same attitude when we first observed the superconductivity in the intercalated organic compounds that you now report Dr. Matthias to have. But after we went through an intercalation cycle chemically and found when removing the organic molecules (by heating) that the original compound as determined by X-ray diffraction weight and the superconducting transition had returned, we became convinced that we were not seeing an impurity effect. Subsequent heat capacity measurements on powdered intercalated material by J. P. Maita of the Bell Laboratories as well as on a single-

crystal intercalated flake here by R. L. Greene show that we are not dealing with an impurity effect. The lack of the Meissner effect—defined as the expulsion of flux which occurs when a superconductor is cooled through its transition in a magnetic field—is easily explained by either defects in the structure, or perhaps by a special property of a weakly coupled two-dimensional system. When the magnetic flux lines are pinned (a necessary condition for good superconducting magnetic material) no Meissner effect will be observed, no matter how small or large the external field, because if the flux lines cannot move, they cannot be expelled. Very little is known as yet about the microscopic details of flux pinning.

Dr. T. H. Geballe  
W. W. Hansen Laboratories  
of Physics  
Stanford University,  
Stanford, Calif.

**Under the title**, "Superconductivity in two dimensions," (SN: 6/20, p. 602) which I think is appropriate, you have a subtitle: "Scientists think superconductivity can be induced at higher temperatures in sandwiches of organic compounds and metals." Now while there are some scientists who think this, your article implies we do. In fact I am sure we have never said this and I regret that you have attributed these beliefs to us, because I feel that we have reported some very interesting phenomena that don't need jazzing up, to borrow from the Matthias vernacular.

It is true that these materials offer us the opportunity to examine the speculations of Ginzberg and those of Little and although we shall do so we have never said that we are confident that high temperature superconductivity will result.

Aside from this and the irrelevant insertion of Bernd Matthias into the article I thought it was rather good.

Dr. Fred Gamble  
Senior Chemical Physicist  
Palo Alto, Calif.

(We did not mean to imply, nor did the story say, that Drs. Gamble and Geballe were members of the high-temperature-superconductivity school. This work, as Dr. Geballe suggests in his letter, is being used by its proponents. Ed.)

## An unhealthy tale

Your article, "The Changing of the Guard," (SN: 6/13, p. 572) deals with a problem about which I have necessarily developed strong feelings. My own experience and that of others, several of whom were mentioned in your story, tell an unhealthy tale about some of the practices developing within the Government.

These are troubled times for the country, and many people who have been inclined to ignore public affairs in the past now feel impelled to at least limited involvement in social matters of all kinds. I believe that, if that interest is sustained, the long-range effects in the nation will be good. Concern, not just for the scientific community, but for the country, was a strong factor in my willingness to go to Washington to work with the National Science Foundation. The same instincts lead me and others to great concern about the nation's travail in all areas including problems of the environment, the economy, and our prolonged military involvement in Southeast Asia.

As a general policy, I am rather conservative about public expression of my views concerning the war and partisan politics. There is no doubt that a scientist who continuously utters pronouncements on every subject will come to be ignored on every matter, including those where his expertise can make him especially helpful. However, a person who is forever silent may never have any effect at all. When I was asked by the California Institute of Technology students to contribute comments at the rally on May 1, I felt that I could not in good conscience refuse. This was not intended to flout the members of the Administration who were considering my appointment and I will admit to some temptation to soft pedal my feelings because I realized that a job I really wanted to try would be jeopardized.

My critics have focused on two points: First, my comments placed the advocates of my appointment in an

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## . . . letters

awkward position. Second, some of my phraseology, such as "blow the election" has been interpreted as an intolerable political hostility to the President. I cannot deny the awkwardness created by my talk, but we are all dealing with problems that are awkward, or worse, and must bear the discomfort. If there was real confidence that I could be effective at NSF, I believe that a determined effort should have been made to work things out. Some people in Washington were eager to do so, but not all. For my own part, I would have been willing to work especially hard to fulfill the duties of the NSF post, even in the face of political disagreement, because I believe in principle that this must be done.

If my words were intemperate, I bear the responsibility. However, nothing I said can possibly rate as more than minor league in comparison to the provocative language of some members of the present Administration. It is amusing to note that my talk was regarded by some people in our campus community as disgustingly bland.

We are in serious jeopardy if the nation's leaders can not work constructively with people who disagree with a particular judgment and oppose them politically. This does not mean that a person should have a license for unrestrained political activity while he holds a Government appointment. This could obviously render him entirely ineffective in his appointed post. In my own case, I did not hold an appointment on May 1, and do not consider that my remarks were unrestrained. In the cases of the men involved in the shuffle in Health, Education and Welfare, it appears that the victims have made a tremendous effort to both show restraint and work effectively with the system. If those efforts have been unsuccessful, I conclude that there is something desperately wrong with the system.

*George S. Hammond, Ph.D.  
California Institute of Technology  
Pasadena, Calif.*

### No exaggeration

The June 6 issue of SCIENCE NEWS contained a short article on page 554 relating to some of the information I had presented at the Toronto meetings of the American Chemical Society and Canadian Institute of Chemists. I would like to indicate that it is essentially correct in all respects. I appreciate the accuracy of such reporting which is in contrast to the wide dissemination of press comment exaggerating (and probably misleading the readership) a single aspect of the entire paper on anti-androgens and male pattern baldness.

This exaggeration of inferences made regarding a minor part of my presentation was enough to elicit a huge mail response from persons looking for a miracle hair grower which does not exist.

Again thank you and your reporting staff for accurately reporting some of the comments made in Toronto.

*Leonard J. Lerner, Ph.D.  
Senior Research Fellow  
Squibb Institute for Medical Research  
New Brunswick, N.J.*

### Blood donors

Re: your brief report "Volunteer blood donors present risk" (SN: 7/4, p. 14) of the paper I presented at the recent meeting of the American Medical Association in Chicago.

I was pleased that you saw fit to pick up and further publicize this important information. Your summary, in my opinion, is adequate and accurate.

*Dr. John B. Alsever  
Vice President for  
Medical Affairs  
Blood Services  
Scottsdale, Ariz.*

### Essential membranes

Miss Culliton wrote a very superior article on our work "Moving molecules across membranes" (SN: 7/11, p. 42) and I must congratulate her for extracting the essence of our investigations. The electron micrograph on the cover was reproduced superbly.

*Dr. David E. Green  
Institute for Enzyme Research  
University of Wisconsin  
Madison, Wis.*

### Vesta report

I wish to compliment you on the short article "Pigeonite in Vesta" (SN: 6/27, p. 617). The summary of our study of the asteroid Vesta was concise, accurate and informative. I wish other media would take the care to read our articles that your staff must have taken.

*Dr. Thomas B. McCord  
Massachusetts Institute  
of Technology  
Cambridge, Mass.*

### Tests for devices

I have read with considerable interest the article on Regulating Medical Devices (SN: 5/23, p. 500).

The article is factual and indicates

an excellent grasp of the problem by the writer. Personally, I would heartily subscribe to the research testing concepts as discussed by Drs. Hastings and Ream of NIH. There is a very definite need for such test facilities in this as well as in many other device-product areas. In my opinion, this will open up entirely new fields for research on various types of medical devices, both therapeutic and diagnostic.

While the necessary legislation for adequate review of medical devices by FDA may be slow in enactment, hopefully we can encourage scientists to accomplish the much-needed research on such products.

*Joseph B. Davis, M.D., Director  
Clinical and Medical Devices  
Food and Drug Administration  
Rockville, Md.*

### Results, intent and aim

I read the articles (SN: 7/11, p. 37) describing certain papers presented at the New York Academy of Sciences conference on Drug Metabolism in Man. The articles are very well written and are entirely accurate. It is remarkable how well the author has captured the results that the various investigators presented at the conference. Not only are the findings accurately and fully described, but even the intent and aim of each scientist are well conveyed. It is exceedingly rare to find a reporter covering a science meeting in this extraordinarily competent manner. I wish that more examples of such accuracy in science reporting were evident in our daily newspapers.

*Elliot S. Vesell, M.D.  
Pennsylvania State Univ.  
Hershey, Pa.*

### No prototypes?

It is doubtful that "stiffening opposition from environmentalists" is a reason why utilities will fall short of their goals (SN: 6/6, p. 550). The principal factor in the present power shortage is the failure of nuclear plants to be ready when scheduled, and the slippage is likely to grow because no prototypes for the big reactors coming along were built. The dangers to the public and enormous costs of this forced-draft nuclear development should persuade us to have a sober second look at the peaceful atom.

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