

LETTERS

Materials Research Center

The announcement of the proposed "National Center for Advanced Materials" to be established at the Lawrence Berkeley Laboratory (Research News, 18 Feb., p. 827) demands that those of us who care about precise use of words as well as numbers protest with the utmost vigor. If industry is subject to a "truth in labeling" act, should not scientists, science administrators, and policy-makers be subject to the same?

Whether or not the nation needs a \$140-million Advanced Light Source (ALS) synchrotron may be debated, but whether the nation needs an "Advanced Materials Center" is a different question. As one scientist who thinks he and the laboratory he directs has contributed in collaboration with industry to making advanced materials a reality in this country, I have recently surveyed 20 outstanding colleagues in other universities who have likewise contributed in "advanced materials." Not one would dream of (i) connecting the ALS to "advanced materials" and (ii) spending \$140 million on a fifth (or is it sixth?) facility in preference to purposive, joint, university-industry research along the Department of Defense (as opposed to the Department of Energy) model. For that price we could put U.S. industry on top in two or three major advanced materials technologies.

I believe that, unless the materials community—both in industry and in academia—thinks clearly but radically about what science is good for the nation and only derivatively about what is good for science, we will not have a chance to reverse the thoughtless, debateless drift in R & D policy. There may be excellent reasons for believing that the ALS should have a high priority, but Congress should know where it falls in a list of materials research priorities.

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Arthur L. Robinson writes that the first public discussion of the National Center for Advanced Materials (NCAM) proposal occurred when it was submitted to a subcommittee of the National Academy of Sciences (NAS) (Solid State Sciences Committee). This is not correct. I was chairman of that subcommittee. We met for the first time in July, at which time there were rumors of a proposal to

be submitted to the Department of Energy by Lawrence Berkeley Laboratory (LBL) involving a synchrotron radiation source, the subject of our subcommittee's study. I called David Shirley, the director of LBL, to find out the facts. He described the proposal's content and rationale over the telephone and agreed to have a description of the storage ring sent. This description arrived in time for our next meeting in September. We did not have the complete proposal, nor had I requested it. We had only a description of the storage ring itself, representing roughly half the construction costs of NCAM. We discussed the storage ring briefly, for it was not our charge from the NAS to "referee" proposals. This was hardly a public discussion of the NCAM proposal. The first public airing of the proposal appears to have been a meeting of the NAS Solid State Sciences Panel in Washington on 8 February, at which Shirley gave an audience of 100 to 150 people a fuller description of NCAM than our subcommittee had in September.

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Detection of Nuclear Tests

R. Jeffrey Smith, in his article "Reagan plans test ban revisions" (News and Comment, 18 Feb., p. 819), quotes me as stating in the early 1970's that "Soviet cheating within this range had no 'military significance vis-à-vis our own position.'" At the time I had assumed that we and the Soviets would design our tests to give a yield of 150 kilotons, if successful. We hoped that, on the average, we would be within 10 or 15 percent, plus or minus, of the design goal. If the Soviets were to design for, say, 175 kilotons, I did not believe it would have any significant impact. At that time I did not anticipate that the Western bureaucrats in charge of our testing would dictate that our design yield be biased below the 150-kiloton limit in order to guarantee we would never exceed 150 kilotons. As a result, our upper optimistic design yield was dictated independent of the agreement with the Soviet Union to be appreciably less than 150 kilotons. At the same time, contrary to my expectation, the Soviets were not content to center their testing around 150 kilotons. In the 1970's, we noticed that a Soviet test was

appreciably above 150 kilotons by our existing criteria. Over the years, subsequent tests appeared to us to range as high as 400 kilotons, based on detection criteria that were in effect at the time of the initial agreement.

Since the signing of the original agreement, we have renormalized our criteria for detection in order to reconcile the seismic signals received to keep the Soviet tests within the 150-kiloton testing limit. I personally question the validity of the renormalization.

As quoted, I was willing to live with a bias of perhaps as large as 50 percent in favor of the Soviet Union, but I certainly had not anticipated the factor's approaching 300 percent, which in my opinion we have experienced. If we are going to continue to respect the 150-kiloton limit, I believe we should insist on on-site instrumentation in the Soviet Union and the United States with representatives from both countries present.

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Fluorides and Dental Caries

Dennis H. Leverett has written a timely article (2 July 1982, p. 26) about fluorides and the changing prevalence of dental caries, but we do not fully agree with several of his points. We were disappointed that he suggests "the definition of the optimum concentration of fluoride in community water supplies needs to be reassessed" because of alleged increase in the prevalence of dental fluorosis in fluoridated communities from increased use of fluorides in other forms. In our opinion, such a suggestion is not in the best interest of the general public. Rather than tinkering with currently recommended optimum concentrations of fluoride in water, we should work to control the availability and use of other sources of fluoride in a community.

Community water fluoridation is the least expensive, most effective, and safest way to provide entire communities with protection against dental caries. No other public health measure has had more critical analysis than water fluoridation. Everyone in a fluoridated community benefits, regardless of age, income, educational level, individual motivation, or the availability of dental care. In contrast, products containing fluoride, such as dietary fluoride supplements and dentifrices, are not so equita-