

letters

What is needed for positions 3 and 4 is a physicist who is dedicated to quality teaching rather than to physics research: a master's degree in physics (possibly with some further graduate work) is all that is required for position 3, and a bachelor's degree in physics is all that is required for position 4.

I am writing this letter because it seems to me that many of the descriptions of academic openings call for overqualified candidates which, in the long run, fosters job dissatisfaction. This is especially true of openings for positions 3 and 4; I'm afraid that the imposition of the requirement of a PhD for position 3 or of a MS for position 4 is an artificial grasp for prestige rather than a sincere effort to find the correct candidates for the positions.

BYRON C. HALL JR
Cincinnati, Ohio

11/82

Scientific visit restrictions

I have been working for several years to arrange for a young scientist from Eastern Europe to spend a year or so in my laboratory. Everything was arranged (so I thought) in September 1981 under sponsorship of the International Research Exchange Board (IREX) when the scientist was suddenly withdrawn from nomination, according to IREX. Once again, everything was arranged for October of this year when I received a call from the Department of State for more information on his program before they would issue a visa.

Through a series of conversations with the State Department personnel, I learned that the State Department was the source of the scientist's "withdrawal" in 1981. His visa application was bounced with absolutely no communication with the scientific sponsor, namely me! Second, I was informed that his visa would be granted this time but that his stay in the US should be subject to certain restrictions. I quote edited excerpts from the letter from State:

...I would appreciate it if you would confirm in writing that you would see that the following restrictions are *enforced* during his stay...

1. His research is to be strictly basic and fundamental in nature. He is not to make any visits to industrial facilities, and no visits to the National Bureau of Standards of Boulder, Colorado.
2. His access to unique lab equipment is to be a user only. He is to have no access to design or maintenance information.
3. His access to all information

should be restricted to that which is available in public domain and the results of his research should be available for public dissemination. You are aware, of course, that... should not have access to any unpublished technical data, which might require an export license.

Now, because of my desire to help this scientist to realize this long anticipated visit, I have been reluctantly cooperative with the request from State and have indicated that I will "endeavor" to see that their "guidelines" are followed. At the same time, however, I find these attempted intrusions on the freedom of my visitor rather upsetting. It seems even more incredible that the Department of State would expect me to enforce their request.

It would be useful to know how widespread such requests have become. I would be happy to learn of other experiences by colleagues along these lines.

Fundamental questions also need answers. Are these request legal? Who has enforcement powers? Are host scientists liable to McCarthy-type tactics down the road? What are the limitations on the government's right to interfere with unclassified university research?

CARL E. PATTON
Colorado State University
Fort Collins, Colorado

12/82

Natural-hazard photographs

The National Geophysical Data Center (NGDC) of the US Department of Commerce has collected a file of 2000 natural-hazard photographs, worldwide in scope and covering events that span two centuries. The photographs are accompanied by captions which include the event data; location of earthquake; photograph location, description and source; and quality codes. This file includes approximately 300 volcano photographs, 700 tsunami photographs and 1000 earthquake photographs.

A data-coding system has been used to classify earthquakes and tsunami photographs according to a number of categories, including such things as photo perspective, building damage, structural damage, ground effects and sequential photographs. Damage-specific and event-specific photograph requests can easily be filled.

The photographs are available to the general public for the cost of photo reproduction and processing the orders. Catalogs describing these photographs are available free from NGDC.

Twenty outstanding color slides, available as a subset of the natural-

hazard photograph file, comprise the Earthquake Damage Slide Set. These slides graphically illustrate the geologic effects and damage to man-made structures produced by earthquakes. The slides are 35-mm color transparencies. The complete set depicts the range of geologic effects resulting from major earthquakes and relates the damage to the underlying geologic causes. Since these photographic records show clear-cut evidence of several dynamic geologic processes, the set provides a unique and affordable tool for presentations to technical and non-technical audiences. The slides are accompanied by descriptive captions which include the source of the photograph.

The slides illustrate several kinds of earthquake effects: strike slip and thrust faulting, surface ruptures, landslides, fissuring, slumping and sand boils. Structural damage shown on the slides results from such different effects as seismic vibration, soil liquefaction, slumping and location on a moving fault. Structural damage from adobe construction, masonry infill walls, foundation failure, support-pillar failure, compression and soil composition is illustrated. Transportation systems damaged include railroads and highways. Damaged structures include residences, factories, municipal buildings, apartment houses and schools.

All inquiries should be addressed to the National Geophysical Data Center, NOAA, Code EH11, 325 Broadway, Boulder, CO 80303.

PATRICIA A. LOCKRIDGE
National Geophysical Data Center
Boulder, Colorado

12/82

Breakthrough questioned

I would like to comment on two news stories in November, "New Method for Determining the Phases of Diffracted X-Rays," and the related article on the 1982 Warren award (page 83).

It seems to me that the emphasis given to this topic is completely out of proportion.

The Warren award has been used, in the past, to recognize significant contributions in the field of diffraction physics. Previous Warren awards were given to Bonse and Hart (1970) for their invention of the x-ray interferometer, to Shirane and Axe (1973) for their studies on displacive phase transitions, to Cowley and Iijima for their work in electron microscopy with angstrom resolution, and lately (1979) to Stern, Lytle and Sayers for their contribution to the development of EXAFS (Extended Absorption Fine Structure).

In all of these cases it is easy to

recognize the "quantum jump" brought about by the people who got the award. The last example is a case in point. The fine structure of x-ray absorption edges has been a topic of interest for some forty or fifty years. Yet, there is no question that the new impetus with which EXAFS is now pursued in numerous laboratories around the world is a direct result of Stern, Lytle, and Sayers' contribution.

In the case of the phase problem in crystallography, the idea has been around for a long time (as your article points out), and it is not clear where the "quantum jump" is that the article purports to present to the readers.

The real reason why *n*-beam diffraction has recently received a new impetus for possible applications to the phase problem is that it requires computers, which were not available in the past. In fact, the first contribution in this direction has been my 1974 paper in *Acta Crystallographica*, mentioned in passing in your article, which antedates by three years the first of the articles for which Ben Post received the Warren award.

For the sake of completeness, your article should also have mentioned the important concept of "virtual Bragg scattering," developed by our group at Purdue, and described in our 1981 *Physical Review Letter*, which makes dynamical theory applicable to mosaic crystals.

Your article conveys the false notion that now we have a new method for solving the phase problem in crystallography, which was not available, say, four or five years ago. *This would be true if some new unknown structure had been solved using the n-beam diffraction method.*

It is possible that this will be done in the future, by Ben Post or somebody else in the game, using the methods described in the article.

However, until this is experimentally demonstrated to be feasible, I do not think that we have a breakthrough at hand.

ROBERTO COLELLA
Purdue University

12/82

West Lafayette, Indiana

Physics at chemistry meeting

I'd like to bring attention to a one-and-a-half-day symposium entitled "New Angles in NMR" which will be part of the National American Chemical Society Meeting in Seattle, 24-25 March 1983. The unique feature of the symposium of possible interest to PHYSICS TODAY readers is that it will be substantially physics-oriented, with some internationally renowned physicists and

chemists making presentations. The speakers and titles include:

Myer Bloom, physics, Vancouver

"Nuclear magnetic resonance and lipid protein interactions"

Sunney Chan, chemistry, Pasadena

"Two-dimensional deuterium nmr of bilayer membranes"

William Doane, physics, Kent State Liquid Crystal Institute

"Nuclear magnetic resonance of exotic liquid crystalline phases"

Gary Drobny, chemistry, Seattle

"Multiple quantum nmr study of oriented chains"

Maurice Goldman, C.E.N., Saclay

"Nuclear magnetic ordering"

Robert Griffin, chemistry, M.I.T.

"Two-dimensional nmr in rotating solids"

Erwin Hahn, physics, Berkeley

"The ebb and flow of atomic chaos"

Sven Hartmann, physics, Columbia

"Laser generation of elliptical billiard balls"

Melvin Klein, Lawrence Berkeley Laboratory

"Optically enhanced nuclear cross polarization"

Gary Maciel, chemistry, Colorado State

"The development and application of new high-resolution solid-state nmr experiments"

Roger McFarlane, IBM San Jose

"Optically detected nmr in insulators"

Michael Mehring, physics, Stuttgart

"High-resolution nmr in one-dimensional solids"

Constantino Yannoni, IBM San Jose

"Chemical applications of high-resolution C^{13} nmr in solids at low temperature"

ALEX PINES

University of California
Berkeley, California

12/82

Photo correction

The caption of the photograph reproduced on page 29 in October is in error. The photograph shows the lowering of the first cross lamina of the 184" magnet yoke, not the erection of the building.

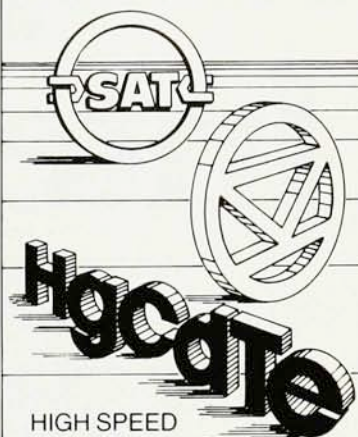
I was pleased not only to read Rob Varney's reminiscences of physics in Berkeley but also to see this photograph in print, because I made it. One day in the spring, shortly after our marriage, my wife (who stands in the foreground; our cocker spaniel has been clipped off) and I walked up the Hill to see what was going on. We arrived just as the lamina was being maneuvered into position.

RONALD GEBALLE

University of Washington
Seattle, Washington □

11/82

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J. T. Fraser is the author of *Of Time, Passion and Knowledge* and *Time as Conflict*. He edited *The Study of Time I-IV* and *The Voices of Time*.

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