

letters

lead to a reduced budget for NSF. Should this happen, then a number of the creative and socially aware scientists who feel that the only—albeit little—effect they have in their professional lives to counteract the continuing self-destructive, militaristic trend in the world by not working on any project administered by a military agency will be squeezed out of areas of basic science to its detriment.

I therefore recommend that more vigorous and stronger basic-science programs be adopted and administered by NSF, NIH, NASA and similar civilian agencies.

HENDRIK J. GERRITSEN
Brown University

10/30/78

Providence, Rhode Island

Pauli remembered

Laurie Brown's article "The Idea of the Neutrino" in September (page 23), I found both informative and delightful.

It was my privilege to have been a postdoctoral student of Wolfgang Pauli in Zurich during the years 1953–55. There I learned at first hand the truth of a remark R. A. Millikan made in a course he gave at Caltech on the history of physics: "Physicists are more interesting than Physics."

In the fall of 1953, just before the Christmas recess, word came through that Fred Reines and Clyde Cowan (Phys. Rev. 92, 830, 1953) had successfully detected the free neutrino in experiments at Los Alamos. This provided conclusive proof of Pauli's idea of the neutrino—an idea that underwent significant evolutionary developments (as discussed by Brown) from the time of Pauli's original suggestion in December 1930 to the parity non-conservation experiments in 1957.

To celebrate, a number of us from ETH and the University of Zurich climbed the Utilberg near Zurich, where we had dinner. On the way down, Bleuler and I noticed that Pauli was a little wobbly from the red wine we had at dinner. (He had graciously responded to many individual toasts.) Bleuler said to me: "Take his left arm—I'll take his right arm, we can't afford to lose him now." Later when we were about midway, Pauli turned to me with a comment I shall always treasure, "Remember, Barker," he said, "all good things come to the man who is patient."

WILLIAM A. BARKER
University of Santa Clara

11/17/78

Santa Clara, California

Non-university research

The report of the NSF Subcommittee on Job-Related Issues, described in August (page 69) raises issues that deserve wider discussion.

The Subcommittee concluded the US should create at least 400–500 jobs in physics, and it recommended the creation of two categories of temporary jobs within university physics departments. It is obvious that the large departments would benefit greatly, but it is not so obvious that the recipients of the proposed jobs would benefit in equal measure. Many might prefer real jobs to 5–10 years of a not-quite-faculty limbo; if they are the outstanding people the Subcommittee would have them be, perhaps they deserve better.

If the Subcommittee's objective was revivification of basic research, why did it not give more attention to industry, the civil service and the national laboratories? The Subcommittee, in concluding that firm data are lacking to substantiate the claim that the employment situation in national laboratories is as bad as in the universities, behaved as if existing data *disprove* the claim. Moreover, the PHYSICS TODAY report does not indicate that the Subcommittee interested itself in the available documentation concerning the erosion of basic research in industry and the civil service.

Recently a number of articles have appeared claiming to voice concern about the state of basic research in the US (examples are cited at the end of this letter¹). In fact the articles were concerned primarily about basic research in the universities, and in some cases they virtually made one-to-one identification between the two. One might have wondered whether basic research was being used merely as a vehicle for special pleading on behalf of academic science. The NSF Subcommittee's seeming indifference to the welfare of basic research outside the academy is another example of this selective concern.

Though most US basic research is performed in universities (plus national laboratories), even a glance at the list of Nobel Prize winners shows that very important basic research also has been performed in both the civil service and industry. It is a perversion of history to talk of "traditional opportunities" in basic science, as the Subcommittee does, and refer only to universities and national laboratories. Since repeated assertion of a proposition often convinces people of its truth, might such talk contribute to *alteration* of traditional patterns in basic research?

Even in the consideration of such a narrow issue as replacing the large number of faculty who will retire in 10–15 years, a broader view of research might have aided the Subcommittee. Many current faculty members first worked in industry, the civil service, or the national laboratories—and in jobs that, unlike the ones proposed by the Subcommittee, were "permanent." Future faculty could be drawn from such nonacademic institutions—and in great quantity if such or-



SPEED DEMON!

BNC'S NEW TAIL PULSER

Imagine variable rise and fall times, 5 ns FWHM, 50 MHz rep rates, 3 ns minimum rise time, linear amplitude control, and double pulses. BNC is justifiably proud of its new BL-2 pulse generator. For immediate details, call John Yee at (415) 527-1121, or contact:

BERKELEY NUCLEONICS CORPORATION

1198 Tenth Street • Berkeley, CA 94710

