

LETTERS

On-line computing

In his article (*Physics Today*, April 1965, p. 19), Dr. Lindenbaum says that the development of on-line computer-counter techniques in high-energy physics was responsible for similar applications in other fields, in particular in low-energy nuclear physics. This idea was referred to again in the next issue of *Physics Today* (May 1965, p. 100). The facts, however, are that the low-energy applications were earlier. The proceedings of the Grossinger Conference¹ show that in the fall of 1962 when the first high-energy system was becoming operational at Brookhaven, the University of Iowa had been using on-line computer-counter techniques for over a year and several other low-energy nuclear physics laboratories were very close to having their on-line computer systems operational.

The high-energy physicists did not invent the computer or even the on-line application of it. They simply made use of the available technology like everyone else. It is not in the best interests of high-energy physics for its proponents to make claims which the facts will not support.

Edwin Norbeck
University of Iowa

In reply to Norbeck's letter, I am sending you the following comments:

In regard to dates, please note that the Grossinger Conference (a then newly called and rather informal conference) in November 1962, at which he presented his system for the first time, took place four months after the International Conference for Instrumentation for High Energy Physics (July 16-18, CERN, Geneva), at which our paper was first presented and then published in the proceedings and in *Nuclear Instruments and Methods* (Vol. 20, p. 297-1963) to which it was submitted simultaneously.

¹Proceedings of the Conference on Utilization of Multiparameter Analyzers in Nuclear Physics, Nov. 1962, CU (PNPL) - 227.

His paper describes a two-parameter analyzer which is built around a CDC-160A computer. As I correctly stated in the second from the last paragraph of my *Physics Today* article, "The low-energy physicists had at that time been using pulse height and other very simple multi-parameter analyzers". These units were generally equivalent to simple special-purpose wired program computers which, for example, would handle recording and displaying (in co-relation, as desired) the pulse-heights from two pulse-height analyzers. These units generally had toggle switches which allowed some limited changes in handling of the data.

Norbeck made what I consider an almost trivial use of a CDC-160A computer in such a two-parameter analysis system; although an improvement, it was not very much different from the wired program multiparameter analyzers that preceded it, even though the computer was used to a limited extent to manipulate, reduce, and display the data. In that regard, I agree that he simply made use of the available technology. No research breakthrough in his experiments occurred as a result of this minor variation in the apparatus.

On the other hand, the on-line computer-counter hodoscope technique which we employed, harnessed the full power of a general purpose computer and a system of detectors involving over a million counter combinations, processed the highly complex high-energy scattering events (elastic and in-elastic) in real time and answered a myriad of ultimate theoretical questions directly in the desired form as the experiment proceeded! Real-time data displays of the results of complicated analysis were also available continuously and the feed back of this information was an important aspect in the performance of the experiment.

It was this powerful approach and the method of how to do these new types of experiments which repre-

sented a new technique which in its first days of operation provided several important research breakthroughs.

Although our group did not attend the Grossinger conference, Irwin Pless presented a summary of our work in his review paper and therefore Norbeck should have been aware of it. I am surprised to find that almost three years later he has still missed the point.

S. J. Lindenbaum
Brookhaven National Laboratory

The language barrier

In the article by R. T. Beyer, entitled Hurdling the Language Barrier (*Physics Today*, January 1965, p. 46), reference is made to "... the *Journal de Mécanique* which appears to be entirely in English."

For your readers' information, I should like to point out that the first three volumes of the *Journal de Mécanique* (1962, 1963, 1964) contain 102 articles, among which are 69 articles in French, 31 in English, and 2 in German. Of course the proportion of articles written in French to those in English varies from number to number, but I remain, nevertheless, surprised by the affirmation of my colleague Professor Beyer. I must also point out that, contrary to what the article implies, all of the French authors who have published their work in the *Journal de Mécanique* have done so in French; the articles in English have come from foreigners, mainly Englishmen or Americans.

I regret to see this manner of interpretation put on our decision to make the *Journal de Mécanique* a true international review, respecting the legitimate cultural traditions of everyone, and calling on the scientists of all countries to publish their work in one of the languages which are most widely known among Western readers.

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