

## letters

'70's rather than France in the '30's. It seems to me that the main problem that we face today is the domination of the decision-making apparatus in the physics community in the US by a small group of individuals who came into prominence during the Manhattan Project era or slightly after, and are now unwilling to relinquish their power to make way for new blood and new ideas. Jean Perrin where are you now that we really need you?

ROBERT JOEL YAES

Memorial University of Newfoundland  
Newfoundland, Canada

7/3/79

## Bathroom mystery

I was fascinated by the code number on my White Cloud bathroom tissue, 2998MC2, since the first four numbers suggest the speed of light in cm/sec, and the last three symbols suggest  $mc^2$ . I assume that this is not a coincidence. Either this is Proctor & Gamble's way of celebrating Einstein's birthday or it is a coded message by a physicist pleading "Help. I'm trapped in the White Cloud factory!" Who done it?

HOWARD GEORGI

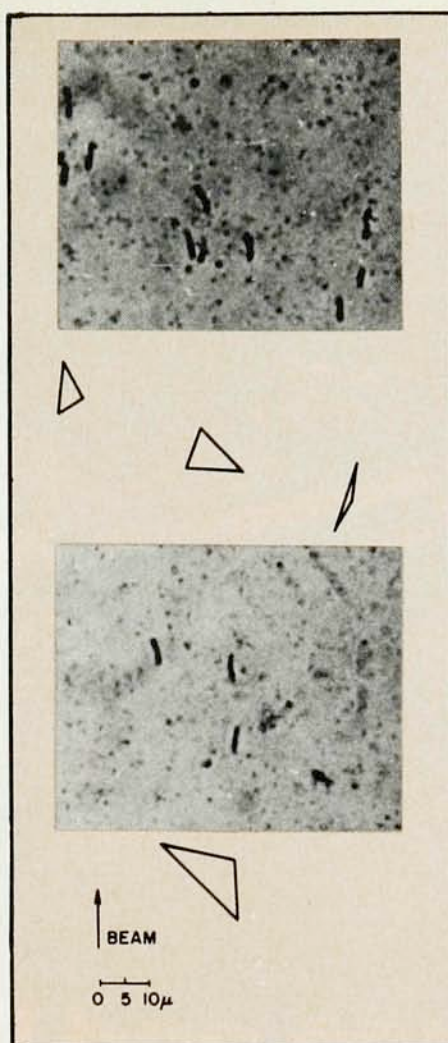
Harvard University  
Cambridge, Massachusetts

3/19/79

## Molecular Ions

We enjoyed reading your well-written news report: "Fast ion beams reveal structures of molecular ions" (May, page 17). In fact, one of us (Z.V.) had the pleasure of collaborating with Don Gemmell in many of the studies described in the article. At the Weizmann Institute we started a research group (after a visit of Don Gemmell in 1975) on similar lines and made some contributions of our own.<sup>1,2</sup>

We believe that the picture of the "state of art" conveyed in your article cannot be complete without mention of the special experimental technique used by us for the structure determination of the  $H_3^+$  molecule (in ref. 4 of your article). Nuclear emulsions were employed to record the fragments of  $H_3^+$  dissociations. The photographs display tracks of 700-keV protons which appear in clusters of three. The three protons result from explosion of a single  $H_3^+$  molecule in a 100-Å-thick carbon foil. The unique feature of the "snapshot" of a molecular explosion is that the three-body correlation is immediately apparent. For example, it is enough to observe one triangular set of proton tracks to conclude that the  $H_3^+$  structure is nonlinear. This is the only experiment in which all three exploded



components were simultaneously recorded. The three-body correlation plays an important role when events like those in the picture are statistically compared with theoretical hypotheses of molecular structure.

An extension of this technique to ions other than protons and to molecules containing more than three atoms has been made possible by our development of a new type of silicon detector for particles, which will soon be used to measure a variety of molecular ions.

## References

1. A. Faibis, G. Goldring, Z. Vager, Phys. Rev. Lett. 39, 695 (1977).
2. A. Breskin, A. Faibis, G. Goldring, M. Hass, R. Kaim, Z. Vager, N. Zwang, Phys. Rev. Lett. 42, 369 (1979).

ZEEV VAGER

GVIROL GOLDRING

The Weizmann Institute of Science  
Rehovot, Israel

5/30/79

I wish to remedy an omission in the news story "Fast ion beams reveal molecular-ion structure." In listing the collaborators involved in our work at Argonne, the name of Zeev Vager (Weizmann Institute, Israel) was unfortunately left out. Vager

continued on page 102

**if**  
**magnetics**  
**is your**  
**field,**  
it will pay  
you to check  
into the  
F. W. Bell  
line of  
Gaussmeters.



28 different meters.  
110 different standard probes.  
We've got a meter and probe  
for practically every magnetic  
measurement need.

## Bell Gaussmeters provide:

- 1 direct measurement of absolute field density.
  - 2 differential measurement of absolute field density.
  - 3 differential measurement of field density difference at two probe locations.
  - 4 incremental field measurements using an expanded scale.
  - 5 summation measurements.
- Accuracies from  $\pm 0.1\%$  FS.  
Dynamic ranges from  
0.1 Gauss FS ( $10^5$  tesla) to  
100,000 Gauss FS (10 tesla).

For full technical information and  
application assistance,  
contact us today.

**Fw** **BELL INC.**  
Subsidiary  
Magnetics & Electronics, Inc.  
6120 Hanging Moss Rd. Orlando, FL 32807  
Phone 305/678-6900 TWX: 810-853-3115

Circle No. 15 on Reader Service Card