

letters

the public view the way science is done in this state. However, much good physics has been accomplished and much will be accomplished by Texas physicists who have reality in plain view. Promoting a "dream machine" like the superconducting super collider means big Federal dollars, which is the primary factor that excites state officials. However, the poor conception and weak justification behind such a project invites crass opportunism. Physicists should not and do not need to promote science this way. We only wonder what this attitude conveys to other scientists and, more important, what it teaches our students.

The high-energy community, both in the US and worldwide, must gain control of its wish list of goodies and make some solid, level-headed judgments as to what this branch of science is turning into. The subject is at a critical stage, similar to what has happened to many long-forgotten subjects that departed from the mainstream of science into eccentric avenues of Mankind's knowledge. High-energy physicists need to develop an earthy realization that their brand of physics is neither more important nor more unique than other areas of physics. They must refrain from dashing about the world making haughty pronouncements that their subject is the Holy Grail of Physics (some would even say of Science). To allow physics to be consumed by such single-minded thinking can only be suicidal for its future. None of us was inspired by nor learned physics from such a narrow worldview.

WILEY P. KIRK

Texas A&M University
College Station, Texas

1/84

Onward to the Dessertron by Gary Taubes had too much artificial flavor and too little Good Humor.

GEORGE SNOW

University of Maryland
College Park, Maryland

12/83

I find what is to me a subtle humor in your magazine now and then, but in the December issue Gary Taubes came right out with it in what was a most enjoyable dessert.

If Taubes is not a physicist, I suggest he be given the honorary title.

EDWARD M. TUFTEE
Issaquah, Washington

1/84

Spelling crime

I really must protest. To the crime of using the word "quartz," a crystalline

material, to designate a type of glass, you have now confused a halide with that major constituent of bread, flour. I note in November the news story on coherent sources of extreme uv (page 19) three references to that famous baking chemical, lithium flouride, and only one to the halide, lithium fluoride. Tsk, tsk. You can do better than that, even in a physics journal.

WILLIAM R. COOK JR
Cleveland Heights, Ohio

11/83

Treating cancer with neutrons

It is surprising that D. Allan Bromley's review of neutrons in science and technology (December, page 30) makes no mention at all of an application of fast neutrons to medicine which is at the same time one of the oldest of these applications and is of great human interest—namely, the treatment of cancer.

Apparently very few physicists know that in the same year, 1939, in which the neutron made its debut as a tool of nuclear engineering with the discovery of neutron-induced fission of uranium, the neutron also made its debut as a medical tool for the treatment of cancer. It was in that year that investigations were undertaken at Berkeley with the 60-inch cyclotron by Ernest Lawrence's physician-brother John to explore the feasibility of treating cancerous tumors with neutrons created by deuteron bombardment of beryllium. To direct neutrons to the tumor while shielding the rest of the body of the patient, a collimator-shield was placed between the patient and the cyclotron target, the opening in the shield being just enough to expose the full area of the tumor to the neutron beam.

The same basic plan of attack has been under intermittent investigation ever since, with a new wave of interest that currently has about twenty facilities, world-wide, engaged in clinical investigations.

The subject of neutron therapy has strong interest for physicists from several points of view. As I pointed out in a recent letter (March, page 136), the application of fast neutrons to the treatment of cancer poses important problems of neutron dose measurement, including measurements of neutron spectra. There are also outstanding problems of designing and building a cost-effective neutron generator for use in a hospital. Present machines almost invariably require a special building to house a cyclotron. Only at the University Hospital in Hamburg-Eppendorf, West Germany, is there a high-intensity D-T neutron generator in use for therapy that is sufficiently

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