## Safety and Another Magazine Mystery for Los Alamos

Some of the comments in the debate over Los Alamos National Laboratory and the perceived safety problems there (PHYSICS TODAY, March 2005, pages 10 and 26) have intrigued me. As the radiation safety officer at a community hospital, I deal daily with regulatory bodies and with the business culture of "continuous improvement." The basic idea of CI is noble and desirable. When there is an incident, even a minor one, only a fool would not want to know why and how it occurred, and whether similar things could be prevented in the future. That is the "improvement" part of the program.

Unfortunately, administrators, regulators, and often staff focus far too much on the "continuous" part, and that leads to interpretations that simply are not consistent with reality. A simple example will suffice. Suppose you have 10 incidents in a year. Through diligence and rethinking policies, the next year there are 8, then 6, and on down. What happens if you are fortunate enough to get to 0? How do you improve from there? When the inevitable next incident occurs, you have now "trended negatively," and someone will want to know why. And what if you never get to 0, or have a series of years with 1 and 0 incidents? In the world of Los Alamos's director G. Peter Nanos, you have stagnated, and that is a problem.

In my experience, many, perhaps most, incidents are not caused by gross negligence, but by simple human error. Having well-considered and realistic policies and procedures is vital, but no set of them will ever eliminate human error. If you are lucky enough to get to 0 incidents, don't expect to stay there.

As for David Herbert's "trap of expertise," in my opinion that is a form of human error. It has always happened and will continue as long as human beings are the subject of discussion.

So, do we just give in to fate? Not exactly. Goals are important, but they must be realistic. I think Brad Lee Holian understands that point. After all, the standard for radiation safety is the ALARA principle—as low as reasonably achievable. Note the fourth word. And then there is education, which in my experience is the one thing that does the most to improve any substandard situation. In my facility, I force any staff members who work in an area where radioactive materials or radiation-producing devices are used to attend an annual education class. In some critical areas, the classes are more frequent than annually. (I admit I often bribe employees with food, but you would be amazed at how free pizza can increase someone's attention span!) At a minimum, we go over the basics of safety and the specifics of their areas. This annual renewal of information is the one thing I have found that can reduce the trap of expertise. But it can never eliminate it.

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### Albert Einstein to Max Born

Translated by Irene Born Newton-John.[1]

*Einstein writes to his old friend a month after Born was suspended from his Göttingen professorship. Adolf Hitler had become Germany's chancellor on 30 January. Einstein had left the country two months before the Nazi accession, presciently telling his wife Elsa that they'd never see their Berlin home again[2] (see Born's comment below). The letter is written from England, where Einstein is giving a series of lectures at a time when the expulsion of Jewish physicists from the German universities and institutes is well under way. Einstein complains of the Rockefeller travel-grant program, which requires that applicants have a home institution to which they can return. For the expelled scientists, of course, that's impossible.*

Oxford, 30 May 1933
Dear Born,

. . . I am glad that [you and James Franck] have resigned your positions. Thank God there is no risk involved for either of you. But my heart aches at the thought of the young ones. . . . I hear that the establishment of a good Institute of Physics in Palestine (Jerusalem) is at present being considered. There has been a nasty mess there up to now, complete charlatanism. But if I get the impression that this business could be taken seriously, I shall write to you at once with further details. For it would be splendid if something good were to be created there. . . .

Two years ago I tried to appeal to Rockefeller's conscience about the absurd method of allocating grants, unfortunately without success. Bohr has now gone to see him in an attempt to persuade him to take some action on behalf of the exiled German scientists. . . . I am firmly convinced that those who have made a name already will be taken care of. But the others, the young ones, will not have the chance to develop.

You know, I think, that I have never had a particularly favorable opinion of the Germans (morally and politically speaking). But I must confess that the degree of their brutality and cowardice came as something of a surprise to me.

I originally intended to create a university for exiles. But it soon became apparent that there are insurmountable obstacles, and that any effort in this direction would impede the exertions of individual countries. . . .

Yours,
Einstein

I have been promoted to an "evil monster" in Germany, and all my money has been taken away from me. I console myself with the thought that the latter would soon be gone anyway.

*Part of Born's 1969 comment[1] on this letter: "Einstein's severe judgment of the Germans would no doubt have been subscribed to by all of us who had been expelled by Hitler, as well as our friends in other countries. But what we expected then was child's play in comparison with what would happen later. And yet I am now living in Germany again. . . . Einstein himself never again set foot on German soil."*

#### References

1. M. Born, *The Born–Einstein Letters 1916–1955: Friendship, Politics and Physics in Uncertain Times*, Macmillan, New York (2005), p. 111. Original letter © The Hebrew University of Jerusalem, Israel.
2. A. Pais, *'Subtle is the Lord. . .': The Science and the Life of Albert Einstein*, Oxford U. Press, New York (1982), p. 318.