

LETTERS

US Terrorist Vulnerability Exposed Years Ago

The Issues and Events piece on the potential revival of the Office of Technology Assessment (PHYSICS TODAY, October 2001, page 24) was excellent, timely, and important. I would particularly like to point out the Web site the writer mentioned: <http://www.wws.princeton.edu/~ota/>, where all of the more than 700 OTA reports may be found. These reports are outstanding syntheses of information on many complex issues. Being science-based and therefore densely factual, they have an enduring quality that is mostly independent of the policy oscillations that characterize our political debate.

In particular, and in light of the recent airborne terrorist attacks, the OTA reports *Technology against Terrorism: Structuring Security* (January 1992) and *Technology Against Terrorism: The Federal Effort* (July 1991) make for chilling reading and a sad sense of déjà vu. The lack of coordination among intelligence agencies; underpaid, bored, poorly trained baggage screeners; passenger profiling and privacy issues; and much more—they're all analyzed in detail, and specific action items are discussed for Congress, the Federal Aviation Administration, and others.

A great many detailed analyses of security lapses and intelligence failures, together with recommended improvements, have been published since the 11 September disasters. Almost all of them could have been lifted in toto from these OTA reports, now nearly 10 years old. To me, that is almost as frightening as the events themselves.

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Defense Work Is Physicists' Tradition

I was struck by the juxtaposition of Robert K. Adair's letter "Defending One's Country Is Moral, Too" (PHYSICS TODAY, September 2001, page 78) just following the obituaries section. All of the distinguished scientists who are memorialized there found "a moral dimension . . . in con-

tributing to the defense of their country."

Ugo Fano's obituary says of him, "World War II intervened, so he began work on ballistics at the US Army's Aberdeen Proving Ground." Of Minoru Oda, it is said that "in 1944, he was recruited to the Japan Naval Research Laboratory's Shimada branch." Harry Brumberger "served in the US Army in the ski troops." And "during World War II, Arnold [Boris Arons] was a group leader in the Underwater Explosion Research Laboratory at the Woods Hole Oceanographic Institution."

A society is at its greatest peril when its members do not feel they have the moral obligation to defend the very society that nurtures them.

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Rarely does a scientist speak out as a citizen with the moral force that animated Robert K. Adair's low-key letter (PHYSICS TODAY, September 2001, page 78) on the subject of his military service in World War II. I wonder how many men who had occupational deferments gave them up as Adair did to volunteer for military service in that war. Surely it was that kind of moral commitment, as much as our armaments, that defeated Adolf Hitler and the threat he represented to all that is best in modern civilization.

Perhaps not all our wars have been waged for ends as incontestably admirable as World War II, but those who take a pacifist stance today should read Adair's letter, review the history of that war, and rethink their position.

It is simply an ugly, continuing fact of life that there are people in the world who do evil, vicious things. There are likely to be times in the lives of all of us when we must be willing to deal with such people with all the force at our command, as citizens in our private lives, and to avoid combat is to surrender to evil.

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[Editor's note: The preceding letter arrived in the offices of PHYSICS TODAY on 10 September 2001.]

Greenhouse Gases Warm Things Up

I have read the short article "Warming Oceans Appear Linked to Increasing Atmospheric Greenhouse Gases" by Barbara Goss Levi (PHYSICS TODAY, June 2001, page 19) and find the logic quite flawed. There is no evidence for rising temperatures in the atmosphere above the boundary layer. How the mean atmospheric temperature can remain essentially constant while warming the oceans is never explained (no phase change is involved). The idea that a rising ocean temperature, if indeed the ocean is warming, must be due to greenhouse gases because the proponents cannot think of anything else is not science. It's pseudoscience!

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Goss-Levi Replies: In asserting that "there is no evidence for rising temperatures in the atmosphere above the boundary layer," Robert Whitten is touching on a discrepancy between different measurements of atmospheric temperature trends: The temperatures above the boundary layer (that is, above roughly 3 km), as recorded by satellites, have not shown the same 0.25-0.4°C temperature rise seen over the past two decades in the low- to mid-troposphere (up to 8 km), as determined from land- and sea-based measurements. However, a National Academy of Sciences panel concluded in 2000 that "the warming trend in global-mean surface temperature observations during the past 20 years is undoubtedly real."¹ The panel also concluded that "the troposphere actually may have warmed much less rapidly than the surface from 1979 into the late 1990s, due both to natural causes [such as volcanic eruptions] and human activities" such as chlorofluorocarbon-induced ozone depletion, which cools the upper troposphere.

Whitten asks how the oceans can warm if the atmosphere does not. Additional greenhouse gases added to Earth's atmosphere absorb infrared radiation emitted by Earth's surface and reradiate part of it to the surface. This radiation can warm the surface directly without warming the atmosphere first.

Whitten's assertion that attributing a rising ocean temperature to green-

house gases is “pseudoscience” seems to be a reaction to remarks by Tim Barnett (Scripps Institution of Oceanography) as reported in my story. Barnett used standard scientific techniques to test competitive explanations for the increased ocean heat content: Solar irradiance and/or geothermal heating could not explain the observed ocean changes, while warming due to greenhouse gases gave almost precisely the observed values. Attributing the warming to greenhouse gases was the logical conclusion.

Reference

1. National Academy of Sciences, “Reconciling Observations of Global Temperature Change,” National Academy Press (Washington, DC, 2000).

BARBARA GOSS LEVI
PHYSICS TODAY

Folding *The Sciences* Was Tough but Correct Decision

The article in the August 2001 issue (PHYSICS TODAY, page 24) on the decision by the New York Academy of Sciences to cease publication of *The Sciences* makes it sound like a cavalier decision in which good business practices and member interests were ignored. In reality, there was no financially viable way of continuing to publish it. The decision came after extensive evaluations of the publication in relation to the academy’s mission for the next decade and beyond.

During the past 20 years, advertising, circulation, management, licensing, and ownership options were explored to improve the magazine’s impact and to decrease its drain on the academy’s budget, but to no avail. The magazine business is increasingly competitive and costly, especially for a nonprofit organization. No one likes to see an excellent publication die, but the academy could no longer justify spending nearly all of its discretionary funds on *The Sciences* while the organization’s primary programs needed resources. While I was president of the American Association for the Advancement of Science, I had

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the sad duty to preside over the termination of *Science* 19XY for the same reasons.

The reallocation of resources will permit greater emphasis on a vigorous renewal of the academy’s principal programs; expansion of communication efforts about the research frontiers represented in the academy’s work; continuing projects on biotechnology, international cooperation in science, economic development, environmental issues, and other topics; and concentration on the academy’s role in interdisciplinary subjects.

These activities are reinvigorating the New York Academy of Sciences as a significant global organization, one I am proud to support as a member of its board. It was no easy decision to stop publishing *The Sciences* but nonetheless the correct one.

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Principia Is Proud of Solar Car Success

I appreciate the attention given to the University of Michigan’s impressive first place finish in the American Solar Challenge 2001 biannual motor race (PHYSICS TODAY, September 2001, page 29). For the record, Principia College also had an outstanding car, “Ra IV,” that took seventh place in the event, ahead of some 20 university teams. The race was a formidable challenge,



RA IV, Principia College’s entry in the American Solar Challenge 2001 biannual motor race.

following old Route 66 from Chicago to California, over 2300 miles. Principia was the only entry from a small liberal arts college with no engineering curriculum. (Ra IV also gave Principia a first place finish among 19 entries in the two-day “Formula

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