

Star Wars and the debate among physicists

Hugging a teddy bear, a young boy in pajamas gazes at the night sky through his bedroom window and croons, "Twinkle, twinkle, little star. . . ." Suddenly, a thunderous explosion is heard and light diffuses the entire screen. A stentorian voice announces: "The heavens are for wonder, not for war."

This is the way a 30-second spot began on ABC-TV and CNN for several nights at the end of May and in the first few days of June in the Washington area. The television commercial was part of a small-scale \$90 000 campaign by the Union of Concerned Scientists to enlist support against the proposed five-year, \$26-billion R&D program officially designated as the Strategic Defense Initiative, but more commonly called "Star Wars." The organization already has signed up about 1000 scientists in opposition to SDI. Among them are 700 members of the National Academy of Sciences and 54 Nobel laureates, listed alphabetically from Philip W. Anderson of Princeton University to Robert W. Wilson of Bell Laboratories.

To emphasize its stand, UCS took a full-page advertisement in *The New York Times* on 30 May. "When President Reagan first proposed his Star Wars scheme in 1983, some of us in the scientific community thought it was just another political gimmick or some romantic vision by advisers who knew nothing of scientific or military reality and cared nothing about economic reality," the ad begins. "But now we know that the President and the Pentagon are serious about Star Wars. Deadly serious."

The UCS ad gives four reasons for opposing the SDI program:

► **"Star Wars is technologically naive.** There is not a shred of scientific evidence that it will work. Only the wildest coincidence of miracles would permit all of the Buck Rogers components of Star Wars—particle beams, geosynchronous relay space mirrors, laser battle stations, kinetic energy weapons, etc.—to work together to provide an impenetrable shield against a multiple warhead attack."

► **"Star Wars is militarily foolhardy.** The very existence of a Star Wars plan automatically escalates the arms race and brings us closer to nuclear war. . . ."

► **"Star Wars is economically ruinous."**

► **"Star Wars is morally repugnant.** Star Wars is a clear notice of intent to violate existing international treaties, signed by this country, that prohibit weapons in space. . . . It is a program that will pollute the heavens with weapons that can plunge us into war."

At a news conference in Washington's National Press Club the day the ad and commercial first ran, UCS President Henry W. Kendall of MIT and Richard Garwin of IBM tried to convey the concerns of many scientists, but were bombarded by quarrelsome questions and partisan polemics from three people who later admitted they were not members of the press. Examples: "Did you ever serve in the military, Dr.

Garwin?" Garwin replied that he had not, but that he had been a member of the Pentagon's Defense Science Board and contributed to making the H-bomb. The questioner sniggered: "You never served in the military, yet you consider yourself a defense expert." Another questioner shouted reporters to scold Garwin for saying (though he did not) that the US should sit idly by while the USSR builds a defense system against nuclear missiles. "Shouldn't we match the Soviet Union?" There is no space defense R&D gap, said Garwin. What's more, we need not match the USSR on all fronts, he said. "The Soviet Union has 30% of its people in agriculture; we have 3%. We are not going to match them there," observed Garwin. "Nor are we going to match the gulag gap."

To SDI's chief scientist, Gerold Yonas, who himself has been heckled in attempts to explain the program, "the debate is turning nasty and divisive. Just when the public needs clear-headed and well-founded understanding," says Yonas, "it is getting neither."

Yonas's view has the support of Arno Penzias at Bell Labs. Penzias shared a Nobel Prize with Robert Wilson in 1978 but refused to sign the UCS position paper on SDI, though Wilson did. Penzias argues that the UCS statement is "more polemic than science." As Penzias puts it: "The only defensible position for a scientist is to await the data. It would be dishonest to use my credentials as a scientist to take a position on a research program I haven't studied. Scientists shouldn't choose sides until they have seen and understood the evidence. To take a stand before that occurs would be a premature rush to judgment."

This judgment is in agreement with the declaration of Secretary of State George P. Shultz, who recently censured scientists "with well-deserved reputations for creative achievement and intellectual brilliance for speaking out on behalf of political ideas that unfortunately are neither responsible nor particularly brilliant" (PHYSICS TODAY, May, page 53).

An important variant on Shultz's decree appeared on 14 June when *Wall Street Journal* writer Gregory A. Fossedal asked rhetorically on the editorial page: "Should the debate [on Star Wars] be handed over to politicians, journalists and generals, to the exclusion of physicists? Hardly. If anything, scientists have played too little a role—because they have squandered their efforts on issues where they truly have no knowledge. While issuing dictums on the ABM Treaty, Soviet foreign policy and so on, scientists have left specific scientific points unanswered."

Not quite. The American Physical Society's study of directed-energy weapons is well underway. The study, under the co-chairmanship of Nicolaas Bloembergen of Harvard and C. Kumar N. Patel of Bell Labs, is expected to be completed next spring.

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ferred to Ionson's claims, made at the March meeting of university researchers, that academic participation in SDI would add "prestige and credibility" and "influence the Congress to be more generous in funding the program." Said Gray: "The impact of this manipulative effort to garner implicit institutional endorsement for SDI comes with special force because of the controversial nature and unresolved public policy aspects of SDI. . . . What I find particularly troublesome about the SDI funding is the effort to short-circuit [public] debate and use MIT and other universities as political instruments in an attempt to obtain implicit institutional endorsement. This university will not be so used. Any participation at MIT in SDI-funded research should in no way be understood or used as an institutional endorsement of the SDI program."

Even before Gray's outburst, the MIT campus was restive about the shift away from government support of civilian research to military work in the last few years. Last February, Vera Kistiakowsky wrote to faculty colleagues about her perception "that there have been successive changes here in the academic atmosphere and the educational environment that might be a consequence of the national trend." With some 40 faculty members, including Bernard Feld, Philip Morrison and Joseph Weizenbaum, she called on the chairman of MIT's faculty, Arthur C. Smith, to appoint a committee to examine the situation. In due course, a committee was formed, with Kistiakowsky and Herman Feshbach among its nine members. Then, on 14 May, MIT's student newspaper, *The Tech*, published a letter noting that about 25% of the research at Lincoln Lab is now supported by SDI and that the Star Wars program was headed for the campus. "DOD knows that the influence of thousands of missile and aircraft employees has swayed many weapons procurement votes in Congress. . . . It is clear that DOD intends that the researchers and administrators at MIT and other universities serve as a similar constituency for SDI. The use of academic institutions to pervert the democratic process is unacceptable and MIT should take no part in it. . . . What has MIT's response to this dilemma been thus far? . . . Professors have told us that Institute officials have said that MIT has no plans to take a stand on this issue and have, in fact, tried to prohibit faculty from publicly voicing objections to the program if they mention their institutional affiliation."

Not so, replied MIT Provost Francis E. Low in *The Tech* on 29 May. "Our position is the following: The same tradition of academic freedom that