

CHANGING TIMES: SAKHAROV IN THE US ON HUMAN RIGHTS AND ARMS CONTROL

In this age of images and illusions, Andrei Dimitrievitch Sakharov impresses many people with his ability to lead a life of substance, not symbols. On his first visit to the US last November, sometimes speaking before as many as five groups a day in Washington, New York and Boston, Sakharov made those who heard him more aware of today's scary issues as he urged the release of political prisoners, the abolition of nuclear weapons, the protection of freedoms of speech, press, demonstration and travel for everyone and the reconciliation of "mankind's divisions[that] threaten it with destruction." It is for his tenacious position on the primacy of human values that he won the Nobel Prize in 1975 and the hearts and minds of people throughout the world.

Sakharov is a folk hero for the times. At home, an Armenian poet, Silva Kaputikyan, calls him "the conscience of the Soviet people." *US News and World Report* hailed him as "the most admired man of science since Einstein." In an editorial, *The New York Times* considered it "apt that Sakharov should be a guest in the US during election week" because few Soviet citizens "have argued so fearlessly for greater democracy... and more open society."

An unflinching dissenter

So it was characteristic of this unflinching dissenter that on his departure from Moscow he urged Soviet authorities to defend human rights and to improve conditions for patients in mental hospitals. It was just as natural that on arriving at Boston's Logan Airport on 6 November, he expressed his respect for the US and praise for its capacity of self-criticism as a "rare quality in the world," then launched into an appeal for a Soviet mathematician, Vasis Melanov, who remains in jail for protesting Sakharov's enforced exile in 1980 to the closed city of Gorki.

In the 1970s and 1980s the Kremlin forbade Sakharov to travel abroad because it regarded him as a security risk for his work in developing nuclear weapons during the 1940s and 1950s. Since General Secretary Gorbachev personally released him from exile in December 1986 and encour-



A historic meeting of Edward Teller (left) and Andrei Sakharov. The two men expressed both agreement and discord.

aged him to become reengaged in scientific and patriotic matters, Sakharov's influence on Soviet affairs has been extraordinary. One of Sakharov's first acts on returning to Moscow was to demand a mass amnesty for about 700 Soviet political prisoners. Within days the Kremlin set free some 140 of these. Sakharov believes there are now probably no more than 30 political dissidents in Soviet prisons, yet he has not let up on his demands for their release.

His stature among politicians and physicists in the West gives him great celebrity and credibility at home. Alone among dissidents, Sakharov has gained an audience with Gorbachev and other Soviet leaders. At the superpower summit last May, President Reagan invited Sakharov to a dinner with Gorbachev. Although all his medals, including three for the Order of Lenin, were stripped from him, Sakharov remained a member of the Soviet Academy of Sciences throughout his period of exile. Last October, when he was elected to the presidium of the Soviet academy (*PHYSICS TODAY*, January, page 61), he also became honorary chairman of Memorial, an unofficial anti-Stalinist group. The old guard struck back in

mid-January when the academy rejected the nomination of Sakharov by physicists for one of the organization's own specially reserved seats at the election on 26 March of the new Congress of People's Deputies. Undaunted by the rebuff, physicists from the Lebedev Physical Institute and other places, along with some 750 more citizens, held a hastily called rally a week later to champion his candidacy for an at-large seat representing Moscow.

Sakharov's election manifesto broadly resembles Gorbachev's domestic program. It calls for instituting the rule of law (not of arbitrary decisions by officials), strengthening the faltering economy and cleaning up the environment. During the meeting, Sakharov added some more planks to his platform, such as constructing nuclear power plants underground, curbing the power of the KGB and guaranteeing the freedoms of speech, press, travel and demonstration. His campaign seems to bestride a difficult path, championing the reforms of *perestroika* while at the same time faulting their insufficiency.

His most enthralling talk in the US was his first, delivered on 13 November to an audience of some 150 physi-

SUSAN STEINAMP/US NEWS & WORLD REPORT

cists, journalists, foreign diplomats, members of Congress and foundation leaders in the Great Hall of the National Academy of Sciences. The occasion also provided the first opportunity for Sakharov to sign the academy's members register since his election as a foreign associate in 1973. He was introduced in a moving tribute by Sidney Drell, deputy director of SLAC (see box below). Speaking in Russian, with an accompanying translation in English, Sakharov said he had listened to Drell's remarks "with a great deal of inner turbulence and distur-

bance." In 1983, he recalled, he had sent Drell an open letter, "Threat and Danger of a Thermonuclear War," in which he had expressed "all my anxieties about the present and future." That was the year of "the greatest pressure," he said. It was marked by a "libelous and abusive book, printed in 11 million copies, in which my name and the name of my wife were trampled in the mud. It also was the year in which four members of the Soviet Academy denounced me and my open letter. At the same time, I am moved never to forget the un-

equivocal support of this American academy."

As far back as 1973, Sakharov's leadership in defense of human values resulted in official denunciations and humiliations—though such colleagues as Pyotr Kapitza adamantly refused to sign any statement denouncing Sakharov. In 1980 he was forcibly removed from his modest apartment in Moscow to a guarded house in industrial Gorki for opposing the Soviet invasion of Afghanistan. That year the street in front of the Soviet embassy in Washington was

Celebrating Sakharov

For the 150 guests it was a memorable occasion. They had come to the Great Hall of the National Academy of Sciences on a rainswept Sunday night last 13 November to honor Andrei Sakharov on his first visit to the US. Elected a foreign associate in 1973, Sakharov at long last was able to sign the official registry of membership, which bears the signatures of members going back to 1863, when Congress selected the first 50 scientists. Sakharov received a three-minute standing ovation after he was introduced by Sidney D. Drell, deputy director of SLAC and codirector of Stanford University's Center for International Security and Arms Control. Excerpts of Drell's moving tribute follow:

Andrei, I always dared to hope—as did many of your friends and colleagues around the world—for this moment when you would be free to visit our shores and join us in this great Academy—which, since your election in 1973 as a Foreign Associate, is yours as well as ours. Still, as I look back over the arduous and at times tortuous path you had to travel to get here, this occasion seems to me to be as close to a miracle as I ever expect to witness. The recent changes in your country that have made possible your visit offer the further hope that our two great nations will embrace common principles of human dignity and mutual respect and that they will continue moving away from chilling confrontation toward constructive cooperation, the better to meet the challenges to the survival of humanity.

Twenty years ago Andrei Sakharov published his remarkable essay on "Progress, Coexistence, and Intellectual Freedom." The two basic theses which he developed in this essay are (1) the division of mankind threatens it with destruction and (2) intellectual freedom is essential to human society. His arguments remain as valid and compelling today as they were when they first appeared. This essay publicly marked Sakharov's emergence from the laboratory where he had worked as a scientist. It was soon followed by further writings and speeches of great impact, and Andrei became recognized not only as a scientific leader in search of nature's principles for the properties of matter, but also as a moral leader in search of ethical principles for a humanity striving for peace, for progress, and for basic human dignity.

From 1968 up to the present Andrei has continued to speak out—forcefully, courageously, persistently, and wisely on the main issues of our times. . . . He risked everything and sacrificed much in his support of prisoners of conscience and his opposition to oppression wherever it occurs in the world. In his devotion to truth and human dignity and his defense of the freedom of the human spirit Andrei has become, in the words of his 1975 Nobel Peace Prize citation, "the spokesman for the conscience of mankind."

Human history has been inspired and ennobled by the occasional occurrence of figures of indomitable courage. Each of us has our own personal honor roll of those rare individuals whose lives have become morality plays with the dimensions of an historical epic, the theme of which is the struggle between conscience and principle on the one hand and raw political power on the other. Andrei stands tall in my honor roll of those giants who have been driven to do battle for principle in the manner described so eloquently by the young lawyer, Gavin Stevens, in William Faulkner's *Intruder in the Dust*:

Some things you must always be unable to bear. Some things you must never stop refusing to bear. Injustice and outrage and dishonor and shame. No matter how young you are or how old you have got. Not for kudos and not for cash: your picture in the paper nor money in the bank either. Just refuse to bear them. . . .

Andrei is most widely known for his courageous leadership in the defense of human principles that we hold dear and as the father of the Soviet hydrogen bomb. But you should also know that he is a great scientist whose brilliant career as a theoretical physicist is distinguished by seminal research contributions to fundamental physics, including the behavior of plasmas and the properties of elementary particles.

In 1950 Andrei, together with Academician Igor Tamm, an internationally honored and greatly admired former leader of Soviet physics and Andrei's teacher, wrote the pioneering paper in the controlled fusion effort in the Soviet Union. In this paper they introduced a confinement scheme for a hot plasma that is famous today under the name Tokamak. . . .

Andrei also made a contribution of crucial importance to our quest to understand the evolution of our universe following its physical beginnings in the "big bang" of 18 or so billion years ago. The problem he addressed is this: Physicists know that for each form of matter, there also occurs antimatter—for example, electrons and positrons, protons and antiprotons. Antimatter is a necessary consequence of joining the general principles of atomic theory—that is, the quantum theory—with Einstein's special theory of relativity. But we must wonder then what has happened to all the antimatter. In our universe—or all we can see of it as we peer far out into space to receive signals just arriving from distant events that occurred ten or more billions of years ago—why are the massive systems of stars and galaxies made almost exclusively of matter and not antimatter?

Andrei provided the clue for understanding this in 1968—the same year he published his original essay on "Progress,

renamed Sakharov Place to protest his exile.

It seemed appropriate that Sakharov's talk was delivered under an academy mural depicting Prometheus Bound and bearing a quotation from Aeschylus reading "Harken to the miseries that beset mankind." In his remarks, Sakharov firmly defended *perestroika*, but observed that many people wondered whether it might endanger the West by strengthening Soviet economic and military capabilities. "The threat of *perestroika* to our country and the world,"

he said, "does not lie in its success but in the possibility of its bloody failure. . . . That would be a calamity."

Nevertheless, he cautioned against unquestioning acceptance of every change occurring in the Soviet Union. "Beneath the slogan of 'Don't interfere with Gorbachev' is a passivity . . . a naiveté, an absence of thought. . . . We need to be realistic. I am now speaking in the West and saying that it is essential to assist *perestroika*, but with eyes wide open, with an understanding of the issues, not with naiveté."

Speaking haltingly, as if searching for the right words to express himself, Sakharov claimed that Drell's remarks were "exaggerations to a certain extent of my work in physics. . . . If one has made even a small contribution, it enters the general scholarly community and enables others to seize it and develop it in ways you may not have perceived. This is particularly true of my work in asymmetry . . . something I could not complete at the time I conceived it. But I take enormous satisfaction that it has entered the current of scholarly inves-

Coexistence, and Intellectual Freedom." His was the leap of imagination to see that the absence of antimatter can be explained rather elegantly by joining a recent experimental observation that there is a very tiny difference between the behavior of matter and of antimatter with several general postulates that separately had been made in other contexts. The most intriguing of these postulates is that the proton, the nucleus of the hydrogen atom—long believed to be a stable particle of nature—may in fact decay just like other forms of subnuclear matter, albeit very, very slowly. This bold hypothesis is currently being tested in laboratories around the world. . . .

When the history books of the latter part of the 20th century are written they will tell that this was a time when mankind was first able to begin writing a history of the evolution of the universe following the big bang that is based on solid experimental data and theoretical concepts. And in that chapter of history as in other chapters of our times, Andrei's name will surely appear, this time as Andrei Sakharov, physicist.

Andrei's life in physics is clear evidence of the international character of science. . . . Science knows no boundaries, and efforts to create barriers—whether to keep new ideas within or to prevent new ones from entering from the outside—have universally proved harmful to progress. The great 19th century Russian playwright, Anton Chekhov, said it best, as follows:

There is no national science just as there is no national multiplication table; what is national is no longer science.

It is regrettable when, on occasion, governments need to be reminded of this basic fact. It may not be a law of nature, but it has proved to be a reliable rule of thumb, that national interests and true security are better served by keeping open the channels of communication of scientific achievements than by erecting barriers to stem the transfer of knowledge.

Just as good science knows no geographic or political boundaries, modern-day scientists have increasing difficulty in defining a boundary line between work in the laboratory and a concerned involvement in the practical applications of scientific progress. Sakharov himself is one of the most important examples of this involvement and of the serious difficulties, and on occasion the painful disillusionment, that a scientist or a scholar may encounter when he or she reaches out of the private shell of the laboratory or the study and participates in society.

Sakharov has written in an autobiographical essay published in 1974 that "I had no doubts as to the vital importance of creating a Soviet super-weapon—for our country and for the balance of power throughout the world," but tells of his concern for continuing bomb testing

throughout the following decade and of his involvement in a military-industrial complex "blind to everything except their jobs" and of his coming "to reflect in general terms on the problems of peace and mankind and, in particular, on the problems of a thermonuclear war and its aftermath." The involvement of scientists in war and weapons of death—as in other major issues of importance to the human condition—is in itself nothing new. Its distinguished honor roll of olden days includes such luminaries as Archimedes of Syracuse, Leonardo da Vinci, and Michelangelo. But never before have scientists dealt with weapons of absolute destruction, with weapons whose use could mean the end of civilization as we know it—if not of mankind itself. And never before has the gulf been so great between the scientific arguments—even the very language of science—and the political leaders whose decisions will shape the future.

The new fact that the fruits of our learning threaten the existence of all mankind presents an acutely heightened ethical dilemma to scientists. Our predicament is precarious because we have so little—if any—margin of safety. As much as any scientist I know, Andrei Sakharov has understood the special obligation of the scientific community to alert society to the implications of the products of scientific advances and to assist society in shaping the applications of these advances in beneficial directions.

Scientists who enter the political realm and participate in the public debate on the implications of scientific advances bear a special responsibility to speak accurately and responsibly on the technical challenges to society. Once again, Sakharov is a model for us all. He has spoken out courageously, passionately, and with outrage when appropriate on issues of social injustice and oppression; but, when speaking as a scientist on technical and factual issues, he has maintained the same high standards that we demand in our professional scientific lives. It is our obligation to do likewise. . . .

By his actions, Andrei has been an inspiration to all of us. Constant in purpose, clear in vision, modest, and unflinching in his courage to speak out in circumstances of great personal danger, he has inspired support, admiration, and devotion from people of all stations and nations. . . .

Andrei, I will close by asking all your friends here tonight to join me in a toast expressed in the words of your friend Lev Kopelev, author, compatriot, and known to many of us as the mathematician Rubin who appears in Alexander Solzhenitsyn's great novel, *The First Circle*. Kopelev's beautiful tribute is:

. . . the majesty of his spirit, the power of his intellect and the purity of his soul, his chivalrous courage and selfless kindness feed my faith in the future of Russia and mankind.

tigation and was snatched up by many others. As for demonstrating the instability of the proton, that may be much more difficult to prove than I had originally imagined. Nonetheless, what has come into question is the whole law of conservation of matter." As he went on describing his thoughts on physics and cosmology, his interpreter became confused and distraught. Detecting this, Sakharov admitted: "Now you see I'm a poor popularizer, especially compared with Drell. When he spoke he had your attention, but I am losing yours."

His point in turning to his work, he explained, was "to convey the whole drama of ideas—that once it begins it enters the scholarly exchange from one side of the ocean to the other, always developing a life of its own in the process. It is my hope that the interaction of ideas taking place in the scientific community will occur in all other human communities engaged in all kinds of activities.... The enormous responsibilities borne by the scientific community can be realized only through the most extensive international cooperation."

Examining the 'silent plagues'

Sakharov came to the US at the invitation of a newly formed organization with the portentous title of International Foundation for the Survival and Development of Humanity, of which he is a board member. Sakharov had become interested in the foundation during a conversation in February 1988 with Jerome Wiesner, MIT's president emeritus and President Kennedy's science adviser. On a visit to Sakharov's small flat in Moscow, Wiesner explained the origin and purpose of the proposed foundation—that the idea for it came from Yevgeniy P. Velikhov, a plasma physicist who is a vice president of the Soviet academy, during the International Forum for a Nuclear-Free World conducted in Moscow in February 1987. Discussing what such an organization might do, Velikhov and Wiesner decided it should examine the world's "silent plagues," such as hunger, desertification, global environmental pollution, international security and human rights deprivation.

Wiesner said the foundation had applied for permission to operate in the Soviet Union and a few Soviet academicians had agreed to serve on its board—namely Velikhov and Roald Z. Sagdeev, then director of the Institute of Space Research. Sakharov expressed his eagerness to join the board. Once a member of the foundation, he still faced the problem of getting a travel visa to attend

meetings outside the Soviet Union. That matter was resolved, with the help of Gorbachev, only last 5 October, when all foundation members were granted multiple visas to leave and enter the USSR for a two-year period. The Council of Ministers decree No. 1167 that provides for travel visas also allows the foundation the right to conduct meetings, publish documents and raise tax-free funds—the first time the Kremlin has allowed this to happen.

Foundation leaders believe they will need to raise about \$2 million per year as well as 2 million rubles from voluntary contributions. Private philanthropy is uncommon in the Soviet Union, but the Chernobyl reactor fire stimulated the practice in 1986 when Soviet citizens contributed 500 thousand rubles for young victims. Several US foundations have donated to the international foundation, and Occidental Oil tycoon Armand Hammer has pledged \$1 million.

So, at its organizational meeting, which ran for three days at the US academy last November, Sakharov presided over a human rights panel that included representatives of Helsinki Watch, Amnesty International and the US-Soviet Human Rights Commission. At one point he proposed that the foundation set up a human rights commission to investigate reported abuses and excesses. It turns out that Sakharov spent so much of his time in the US receiving awards, attending receptions and meeting VIPs that he had to ration his moments with foundation members, who include such well-known figures as Wiesner, Hammer, former Defense secretary Robert S. McNamara, former Notre Dame University president Theodore Hesburgh, Apple Computer president John Sculley and Princeton physicist Frank von Hippel. Six members came from the Soviet Union, including Sagdeev, Velikhov and Metropolitan Pitirim of the Russian Orthodox Church.

Entrée to the establishment

During the four days he spent in Washington, Sakharov met with President Reagan at the White House, drank cocktails with establishment figures at the Library of Congress, hobnobbed with an intellectual circle during dinner at the Smithsonian, discussed US politics during an entertaining evening at the home of Senator Edward M. Kennedy and dined among Washington's conservative elite with Ernest W. Lefever, president of a right-wing think tank, the Ethics and Public Policy Center. Although usually queasy about asso-

ciating with Soviets, the center invited Sakharov to speak at a banquet to honor Edward Teller as winner of the 1988 Shelby Cullom Davis Award for "integrity and courage" as "a patriot who has combined profound moral judgment with political wisdom."

After Sakharov agreed to attend Teller's dinner and possibly say a few words, he was urged by some US and Soviet friends to skip the event. But Sakharov insisted on going. Thus did Sakharov and Teller, two physicists whose work did so much to change the world, meet for the first time in the Washington Hilton Hotel on 16 November. Such a meeting would have been unthinkable almost any time since World War II when both men were working on nuclear weapons. It would have been impossible even two years ago while Sakharov was in exile. Indeed, it is difficult to imagine two men more different and yet with so many parallels in their lives.

So, when Sakharov and Teller encountered each other in a hotel suite for about 20 minutes before the dinner, they smiled warmly and shook hands eagerly. Then, dutifully obeying orders from magazine photographers to sit or stand before floodlamps and cameras while their pictures were taken, the two men chatted about personal and political matters—their respective states of health, the Chernobyl disaster and their shared enthusiasm for locating nuclear power reactors underground for added safety, and their vision of arms control for the superpowers.

Sakharov steered the conversation to SDI, stating his belief that deployment of a space-based ballistic missile defense would have the effect of destabilizing the balance of power if it could ever be made to function at all before the US and USSR went broke developing the system. Teller, for his part, emphasized that the technology of defense had not yet been given a sufficient chance to prove its value and that to abandon its promise prematurely would be a "terrible mistake."

After Sakharov was introduced in somewhat flamboyant language by conservative commentator William F. Buckley Jr, he received the most exuberant standing ovation he got at any of his many US appearances. It seemed to take Sakharov by surprise, perhaps because the long applause came from an audience dressed up in black ties and long gowns.

The extemporaneous talks by both Sakharov and Teller were separated by more than an hour because Sakharov had decided to fly to Boston. Each extolled the other as a man of

principles, conviction and ingenuity, and they commented on the parallel course of their physics careers in creating thermonuclear bombs. Both said they and their fellow scientists were convinced that work on the weapons was vital to their country's defense and necessary to maintain world peace—though Sakharov referred to the results as “a great tragedy.” Both also agreed on the importance of maintaining open discussions, as Sakharov put it, “particularly when we disagree. . . . At least we will understand our different points of view and avoid confrontation.” Teller was thankful that *glasnost* enabled Sakharov to see science and society outside the Soviet Union and “create a dialogue—one in which I would certainly like to participate.”

In his talk, Sakharov said he and Teller agreed on some subjects, such as ensuring the safety of nuclear reactors, but he added that there were other topics of disagreement and cited SDI as a “grave error.” He repeated what he has said to Teller in private, declaring that SDI would “destabilize the world situation” and that, “if deployed, even before the system were fully armed, there will be a tempta-

tion to destroy it [and] this in itself could trigger a nuclear war. The problem of SDI stands in the way of achieving a really profound arms control.”

Teller emphasized his agreement with the Soviet physicist “except on one point”—SDI. “We must know what can be known,” Teller asserted. Teller said he continues to work in nuclear energy, lasers and weapons defense, but Sakharov has been out of touch with those matters since his security clearance was revoked by the Kremlin 20 years ago. “He has not had the opportunity to work in the remarkable development of defensive systems in the Soviet Union [that] we have confidence in believing is years ahead of us.”

‘An atmosphere of trust’

Earlier in the week Sakharov had spoken on arms control on two occasions—on 15 November when he received the \$50 000 Albert Einstein Foundation Peace Prize, established in 1979 by members of the Pugwash Conference, and in a question-and-answer session the day before at the Kennan Institute, named for George Kennan who is credited with initiat-

ing the US policy of Soviet containment after World War II. In accepting the Einstein Prize he characterized science as providing “a unified conception of the world at the same time that all of the evolutionary processes develop and are turbulent around us. For a man of science, this sense of unity of the entire world provides the kind of grounding and orientation that religion gives for those who have faith.”

He detected that “an atmosphere of trust has begun to develop” between the US and Soviet Union after what he called “the beastly abuses of the Stalinist period.” Measures are now needed to strengthen that trust, said Sakharov. He suggested that “the best thing for us, the Soviets, to do would be a unilateral reduction of military forces. . . . The reduction of that army would in no way jeopardize the security of the Soviet Union.”

Less than a month later, Gorbachev seemed to adopt Sakharov's recommendation by proposing in a speech before the United Nations on 7 December that the Soviet Union would reduce its armed forces by 500 000 troops.

—IRWIN GOODWIN

DOE PICKS TEXAS FOR ‘GIPPERTRON’ AMID POLITICAL AND MANAGERIAL COLLISIONS

In the final 48 hours of the Reagan Administration the Superconducting Super Collider really accelerated. On the afternoon of 18 January Energy Secretary John Herrington signed the Record of Decision that made the site around Waxahachie, Texas, the official location of the SSC. Only minutes before, DOE had signed a contract with Universities Research Association to manage and operate the SSC for nine years and accepted URA's choice of Roy F. Schwitters, a Harvard physicist, to direct the project. The next morning, Schwitters received a vote of confidence from DOE's High Energy Physics Advisory Panel, meeting in Hilton Head, South Carolina, and the following day he was at work with one of the two URA subcontractors, EG&G.

The pace of events has been picking up since Herrington announced on 10 November that Texas is the “preferred site” of the supercollider. The final Environmental Impact Statement, which is required for such a project under the National Environmental Policy Act, was published in early December. In it, the conditions at all seven sites in the final runoff

are examined and evaluated. By comparison with the others, the Texas location emerges with the fewest problems. The biggest worry is fire ants, a peculiarly venomous species that migrated from Mexico after World War II. Federal and state agricultural agencies have not found any way of controlling the critters, which not only inflict painful bites but also damage buildings, motor vehicles and electrical equipment. The impact statement asserts that armies of ants regularly tunnel to watertable depths and chomp through underground cables along the way. Fire ants seem to be attracted to electrical equipment and cause short circuits by gnawing through insulation. The Energy Department claims the project will require special designs for electrical wiring and components as well as special protection for construction workers and for scientists and technicians.

Even before the threat of fire ants, DOE's selection of the Texas site was under attack. As news reporters awaited Herrington's announcement of the preferred site last November in DOE's auditorium, they were handed

a four-page black-bordered statement by Senator Alan J. Dixon, an Illinois Democrat, protesting that the decision was “based on politics rather than on merit.” It didn't escape the notice of Dixon and members of Congress from the six other states in the final runoff for the SSC that Herrington's decision came two days after the election of George Bush, an adopted Texan, as President. Their anger with the outcome of the selection process, said House minority leader Robert H. Michel of Illinois, “may lead some of us to reconsider our support for the project.”

That support is vital because even the SSC's staunchest advocates admit that the project's most vulnerable point is its enormous cost in a period when Washington is worried about budget deficits and fiscal debits. Although Bush endorsed the giant machine during his campaign, many politicians of both parties are wondering whether the country can really afford to spend at least \$6 billion for it over the next seven years. “How in the world are we going to fit a project like that into a budget with no real growth?” asks Senator J. Bennett