

immediately increase production of offensive weapons and decoys to ensure greater penetration of "Star Wars". It is also very likely that the Soviets would begin to build their own defensive system, thus fuelling the military competition further.

In regards to the cost of SDI, the "Star Wars" program is in the research stage. Twenty-six billion has been allocated for research and development for a five-year period. (*Scientific American*, Oct. /84). Right now the technology does not exist to construct such a system. It is estimated that actually building a "Star Wars" defense system would cost in excess of \$1 trillion." (*San Francisco Chronicle*, 8/10/84).

If the Soviets do believe that the system can work, they may be fearful enough to be tempted to unleash a first strike before Star Wars is in place. SDI actually strikes at the heart of mutual deterrence, plugging up the mutual vulnerability both nations now experience (MAD strategy).

What are the alternatives?

In the immediate future, a test ban would make impossible the development of new weapons. In conjunction with a test ban, a gradual reduction of arms would reduce tension and show a spirit of goodwill. The key is the political will of both sides to reach agreement.

"We now have a unique chance to halt the occurrence of what has looked like an inevitable collision (between the U.S. and U.S.S.R.). What has to be done now is to attempt to operate on a higher plane of thought, one in which the lure of cooperation is stronger than that of confrontation." (Marshall Goldman, Associate Dir. of RRC, Harvard University)

"We must prevent nuclear war; for it is no exaggeration to say that the future of civilization is at stake. A genuine move by the superpowers towards understanding and trust is our only hope for survival.

Joel Bronstein  
Sue Earle

## Glazov misled on missiles

To the editor,

I would like to reply to Mr. Glazov's commentary of 23rd January on the subject of Strategic Defence Initiative (SDI). It would appear that Mr. Glazov has been seriously misled in several instances.

The SDI proposal is not "non-nuclear". The most promising Anti-Ballistic Missile (ABM) weapon, the X-Ray Laser, is "pumped" by a thermonuclear explosion. The X-Ray beam is emitted before the laser is obliterated in the shock-wave (*Science*, 230, 646, 1985). As for harmful radiation, it has been suggested (*Nature*, 317, 470, 1985) that boost-phase destruction of even a small fraction of Soviet warheads could lead to catastrophic fall-out in the Northern Hemisphere.

While some ABM weapons have been successfully tested there remains the difficulty of computer control. The SDI Organization has hopes of producing approximately 10 million lines of computer instructions completely free of errors. The

possibility of this is seriously questioned. Upon resigning his seat on the SDI 'Panel on Computing in Support of Battle Management', Professor D.L. Parnas stated in *The American Scientist* (vol. 73, p. 475, 1985) that,

Because of the extreme demands on the system and our inability to test it, we will never be able to believe, with any confidence, that we have succeeded. Nuclear weapons will remain a potent threat.

In addition, Mr. Glazov's expectations of the time and cost to build the SDI system are grossly inaccurate. The decision of whether or not to build the SDI system will be made in the early 1990's. As for the cost, a recent estimate is in the range of two trillion dollars — twice the entire U.S. federal budget (*Physics Today*, 38, 55-56, 1985).

Finally, the 95% confidence in the effectiveness of the SDI program does not impress me. "Mathematics" tells me that reducing the number of successful Soviet warheads by a factor of 20 (5%) only serves to encourage them to build 20 times as many warheads.

I would like to close by saying

see the bottom line in all of this. The bottom line as I see it is that the arms race in general is a multi-trillion dollar exercise in going absolutely nowhere. If Star Wars were deployed today then only 5 per cent of the Soviet arsenal would find their targets in an all-out attack. According to my calculations, 5 per cent of the Soviet's total 10,000 warheads equals 500 warheads, which would make the total firepower expended in World War II seem like a firecracker and would turn North America into a rural area overnight. Without a doubt by the time Star Wars is deployed the Soviets will have an arsenal which has been improved to foil the system and they will no doubt have continued on their development of killer satellites.

One major question which should be considered is whether deployment of these Star Wars devices is possible at all; that is whether the Soviets will allow it or whether they will have developed systems to shoot the satellites out of the sky as fast as the Americans can deploy them. I think that the delays and problems faced by the last shuttle mission demonstrate that deployment of the two dozen or so

## Scientific jurisdiction

To the editor:

We are writing in response to the commentary which appeared in the January 23 issue of the *Gazette* with regard to the Strategic Defence Initiative.

Mr. Glazov offers his support for S.D.I. on two grounds which may be referred to as the political and scientific arguments. While we disagree with him on both counts we will restrict our comments to the so-called "scientific jurisdiction."

Mr. Glazov suggests "Star Wars" is a perfectly workable system" ignoring the fact that it will have no effect on conventional strategic bombers, cruise missiles, or in-atmosphere nuclear weapons. He also points to what he terms a "spectacularly successful test in the South Pacific". A single limited test under ideal conditions of a very small part of the S.D.I. package does not prove its viability. The systems proposed are extraordinarily complex, and highly vulnerable at the best of times and rely on technologies

mainly among politicians who in general have little understanding of the technology."

Given the practical difficulties of S.D.I. arguments over the political implications seem a little foolish. In all arguments about weapons control the response from governments and military has always been, "if we just spend a little more money for this new system then our problems will be solved." It's time we stopped believing this and took the basic step of thinking for ourselves. The expenditure of 30-50 billion being only five per cent of the U.S. military budget just points out how ridiculously large that budget is.

Sincerely

Thom Mason

Ann Walsh

Craig Hamm

Derek W. Lawther

Dalhousie Physics Society

## Glazov removed from reality

To the editor,

I have a number of points of criticism to direct at Jamie Glazov's January 23rd Commentary: SDI. Firstly, Mr. Glazov deals with Star Wars on the same level as do military strategists. That is to say, without regard for the reality of nuclear war. The advent of nuclear weaponry has made obsolete the entire notion of "winning" a world war. Present nuclear arsenals are adequate to destroy all life on this planet many times over, and the sheer numbers in which nuclear weapons are made and stockpiled are such that they render SDI utterly academic.

It is common knowledge to the governments of both superpowers that a nuclear war could never be fought and won, and so, there is no reason for either side to even consider attempting a first strike. The only situations in which a first strike might come about are: 1) an environment of extreme international tension; 2) an accident.

Reagan's SDI policy is obviously contributing to world tensions, because Eastern Bloc leaders are upset about it. Therefore, SDI is destabilizing. To consider the effectiveness of a weapon only in terms of what it is designed to destroy ("weapons, not people", as Mr. Glazov says) is simplistic and naive. Its effectiveness is also determined by how its perceived enemies react to it. Surprisingly enough, weapons are political.

Furthermore, even if SDI could operate at 95% efficiency, as is suggested, 5% of a nuclear strike force is more than enough to debilitate Western powers, and probably enough to subject the northern hemisphere to a period of intense cooling, spelling agricultural and economic disaster for those people not already dead from the direct effects of nuclear explosions.

Not only is Mr. Glazov's argument purely academic and removed from reality; it does not even hold up under the simplistic conditions so dear to the hearts of military strategists.

Your sincerely,  
Michael Hymers  
Dal Physics '85



that I have no wish to embroil myself in the political controversy that surrounds this issue. My remarks are intended solely to restore a balance to this complex discussion.

Respectfully,  
Daniel Maclean  
Graduate Student,  
Dept. of Physics

## Arguments don't hold up

To the editor,

I would like to make some comment on Jamie Glazov's commentary on the merits of the proposed 'Strategic Defence Initiative'. Unfortunately Mr. Glazov's piece was in essence a character assassination of his idealization of a typical, uninformed peacenik.

It seems to me that we have been so bombarded by the combined lobby efforts of the Republicans, the Pentagon and of industries hungry for defence contracts, that we have failed to

satellites required to make the Star Wars system effective could not be accomplished overnight. Whereas the superpowers are not about to attack military targets on each other's territory, attacking such installations in space would present no such territorial problems and would not endanger any lives, thus if I were in the Soviet Military this might be the most appropriate response to America's attempted deployment of their Star Wars system.

I hope that Mr. Glazov is not such a cynic that he does not see any hope for East-West rapprochement and nuclear disarmament. If we do not move soon to get rid of the nuclear threat, then sooner or later some small-time despot and/or terrorist will gain access to the weapons or technology and God help us then. Persisting in a 'Holier than thou' approach to the Communist world is simplistic and dangerous, not to mention counterproductive. I do hope that the day will come when our governments recognize that the arms race is a dead end street and find more useful outlets for all those dollars.

Philip Black

not yet past the development stage, an obstacle which may prove insurmountable.

Even given the successful implementation of S.D.I., we are left in a position in which only 95 per cent of incoming missiles are stopped, a situation which leads Mr. Glazov to joyfully exclaim that we have "driven the possibility of a delivered nuclear war back to or close to zero." The remaining five per cent of the missiles still constitute sufficient fire power to wipe out every major city in the northern hemisphere. This does not even include the above mentioned systems which would not be affected by S.D.I. If that's Mr. Glazov's idea of security then I seriously question his idea of the value of human life. Anyone who has any delusions about the effectiveness of S.D.I. should refer to an article by D.L. Parnas in the Oct. 1985 issue of *American Scientist* for a few relevant facts.

Roland Petty, the editor of *Jane's Weapons Systems* has stated that in the view of most weapon experts S.D.I. is not feasible. He goes on to say that "the arguments over Star Wars are