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ISRAEL AND SDI

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This paper looks into the many issues raised by the Israeli participation in the United State's Strategic Defense Initiative. I have investigated the SDI program in general, Secretary Weinberger's invitation to the U.S.'s allies to participate in the SDI program, the possible contributions the Israelis can make to the program as well as the benefits to Israel from their participation in the research effort, and the problems related to Israeli participation in the SDI research effort.

I hope that this paper shall be used as a reference in the future as developments in the Israeli cooperation on SDI begin to unfold. As the U.S. and Israel become more closely involved in the combined scientific efforts for the SDI program, I hope that people can refer to this document and acquire a clear conception of how the process began and how it developed and that the information contained in this paper will facilitate future dealings concerning Israel's participation in SDI.

I wish to thank Steve Rosen for helping me overcome many barriers in producing this paper and for his constant support for this project. I would especially like to thank Seth Carus for his many editorial suggestions and helping me establish a format for this paper. I also wish to acknowledge his help in writing the section on Israeli military industry and allowing me to use the information in his monograph U.S. Procurement of Israeli Defense Goods and Services.

Jeffrey Marc Parness
August 1985

INVITATION AND RESPONSE

On March 23, 1983, President Reagan challenged the scientific community of the U.S. to investigate whether new technologies could provide the means for defending against (the threat of) a nuclear attack. Since that initial statement, introducing the Strategic Defense Initiative (SDI), also referred to as "Star Wars," the invitation to participate in the research for these systems has been extended to our NATO allies, Japan, Australia and Israel (see letter from Secretary of Defense Weinberger, dated March 26, 1985). It is the participation of Israel in the SDI program and all the related issues that shall be the focus of this paper.

Simply stated, the SDI program is designed to develop the technologies necessary to defend our forces and population from a nuclear missile attack. In order to destroy incoming warheads, the U.S. is seeking new technologies to detect the missile launches, identify and track the missiles and their warheads in flight ,destroy the missiles in space by non-nuclear means and evaluate the engagement. With these new technologies, President Reagan has stated the desire of rendering the use of nuclear weapons "impotent and obsolete."

THE INVITATION

On March 26, 1985 Secretary of Defense Caspar Weinberger invited our Nato allies along with Australia, Japan and Israel to participate in the research program for SDI. The invitation sought to elicit a response from countries whose industrial and scientific bases had the potential of contributing to the research effort in virtually any technical field. While there are those who will argue that this invitation was merely cosmetic in the sense that it sought to gain international political support for a program whose domestic political support was waning and to somehow quell European fears that SDI would decouple the defense of Western Europe from that of America, the Department of Defense claims otherwise. According to Dave Martin, the reasons for the invitation were two-fold:

1) The general recognition of the technical expertise in the countries invited and their potential contribution to the research effort.

2) To provide our Allies with a sense of confidence in their involvement and to assure them that they would be alongside the U.S. in our combined technological breakthroughs.

(It is interesting to note that according to an article entitled "What Will Eureka Discover?" on page 443 of the June 6, 1985 edition of NATURE:

"The idea of foreign collaboration in the SDI research programme seems to have cropped up first during the British prime minister's visit to Washington last December, and to have been a British suggestion whose implications were not fully appreciated at the time.")

THE ISRAELI RESPONSE

"Perhaps toward 1992, which will mark 500 years since the discovery of America, we will discover a new America and a new world, different from the ones we have known."

Shimon Peres, 4/17/85

Just days after the invitation was issued, leaders in Jerusalem were already talking of the SDI research effort in a positive light. The invitation being extended to Israel, was received as a compliment to the government which was being considered an ally of the U.S. and as a recognition of the significant technological capabilities of the country's science based industries. The prospect of boosting R & D in the country and participating in this prestigious program with the possibility of acquiring some significant spin-off battlefield applications, caused a great deal of excitement in Israeli scientific and government circles. Their enthusiastic response was in great contrast to the negative and ambivalent responses of the U.S.'s Western European allies. Prime Minister Peres in accepting the invitation in principle likened the invitation to Columbus asking an Israeli to join his expedition in search of a new world. Prime Minister Peres, one of Israel's strongest advocates of high-tech for Israel's future, claimed that he would have accepted Columbus' invitation regardless of what he was going to discover.

To date, the Israelis have yet to give a formal acceptance but as Nachman Shay responded - it's just a matter of time. Shay, the spokesman for

the Ministry of Defense, suggested that the official policy making circles have been occupied with the current economic emergency and domestic problems and have not had the opportunity to draft a formal reply. He pointed to the fact, however, that there was an on-going dialogue between the Israelis and DOD on Israeli participation in the SDI program.

This dialogue, according to Frank Gaffney and Bill Heiser of Department of Defense and Dave Martin of SDIO is quite mature and extremely positive. A team of Israeli experts, headed by Dr. Ben Zion Naveh, came to Washington earlier this year and sat with U.S. officials for over 3 hours briefing the Americans on the Israeli capabilities and interests in the SDI project.

The briefings were very professional and extremely comprehensive. "They covered everything from 'soup to nuts,' from work at the university level to major defense activities." It should be noted that the Israelis briefed the Americans - something those at the Pentagon were not prepared for, - in other words, the Israelis were "ahead of the game" or as Dave Martin stated: "The Israelis had done a fair amount of homework."

From that meeting, 6 to 7 technical areas were decided upon to be possible areas of Israeli participation. The next steps are deciding on the specific projects that the Israelis will be working on, agreeing on the contract arrangemnts that will determine the types of Israeli cooperation, funding the efforts with existing monies and then as Dave Martin stated, "basically matching up US and Israeli scientists and putting them to work."

SELECTED STATEMENTS ON ISRAELI REACTION TO THE INVITATION

Prime Minister Peres interviewed in Bamahane 4/17/85

"We have received an invitation the exact nature of which we have not determined. The invitation was extended to us in principle, and we accepted it in principle...It is like joining a new era. Imagine if Columbus had invited an Israeli to join his ship. I, for one, would have accepted this invitation, no matter what he was going to discover."

Defense Minister Rabin Ma'ariv 7 April 1985 p.11

[Report by Yosef Walter]
[Excerpts] Defense Minister Yitzhaq Rabin is recommending that the U.S. invitation to take part in initial talks in preparation for the implementation of the "star wars" project be accepted.

Science Minister Gideon Pat Jerusalem Domestic Service in English 0400 GMT 11 June 1985

[Text] Science and Technology Minister Gid'on Pat has proposed that Israel's research institutes enter the primary stages of research in the U.S. space defense program. This is in order to take advantage of the budgets that will be distributed as early as next year.

SEE APPENDIX FOR COMPLETE STATEMENTS

POSSIBLE ISRAELI MILITARY CONTRIBUTIONS TO SDI

If there is one area of hi-tech in which Israel excels, it is the R & D effort for military applications. Israeli armament and electronic companies have become world leaders in the development and production of sophisticated battlefield systems, constantly being improved based on combat experience. Another unique quality that exists in the Israeli military industry and that explains for its excellence is the fact that those very same people who produce these systems, from the assembly-line worker to the chairman of the company, rely on their own systems for survival when they are called up from reserves to defend their country.

Some of the leading Israeli defense firms which are daily capturing a greater share of the world market are: IAI, Tadiran, IMI, Rafael, El-Op, Elta, Elrisa and others.

Considering the significant potential contributions the Israelis can make to the SDI effort, the reasons for the success of the Israeli military industry should be more closely examined:

1) Innovative and Rapid Weapons Development

Israel is reported to be one of the few "innovative economies" in the world. Israel's high tech industries devote high proportions of their overall expenditures towards R & D and turn out products and services in

which " science accounts for much or most of the total value added." (Israel Economist 1/83 p.10)

Israeli defense companies tend to place great emphasis on research and development. For example, Israel Aircraft Industries reportedly devoted 18% of its budget to research and development projects in a recent year, about 40% financed internally. Other Israeli firms also devote substantial efforts to research and development. This is reflected in the recent trend emphasizing production of items designed and developed in Israel, rather than items built under license.

Israel has the ability to quickly develop new systems required by changing circumstances. Because of the ability of adversary countries to procure sophisticated weapons from around the world, Israel must be able to counter advanced new weapons on short notice. For this reason, Israel maintains a rapid response research and development capability.

Israel's ability to develop new types of equipment is in part due to the small size and informality that characterize its defense industrial complex. This makes it easier to achieve highly responsive results based on personal, informal contacts, something not always possible in the larger and more bureaucratic industries of Western countries.

2) Quality and Cost-consciousness

Israel's defense industry must be able to compete with even highly productive manufacturers in the United States by offering lower prices, higher quality, or unique products. Because of the threat under which it

lives, Israel cannot afford to rely on substandard weapons. And, while the domestic arms industries of many countries are insulated from foreign competition by protectionist rules that restrict arms imports, this is not true for Israel.

Dependence on American military aid has forced Israeli defense industries to act as if they were in competition with the entire American defense market. Since the Israeli Ministry of Defense must spend virtually all American aid money in the United States, Israeli companies can sell products to their own Ministry of Defense only if their equipment is less costly, more capable, or in some other way competitive with the best that can be acquired in the United States. As one Israeli industrialist noted,

> " When our Ministry of Defense needs something, it wants it yesterday. Unless we can contribute something new, the Ministry of Defense will buy somebody else's equipment. Unlike the U.S., we have no Buy America law on our books."

In many cases, the equipment that results form these demanding criteria might be of interest to the U.S. armed forces as well.

Israeli defense companies can compete in price and quality with the larger firms of Western Europe and the U.S. largely because of the relatively high productivity of their workers. While accurate figures are not available, it is believed that employees in Israel's defense industries are only slightly less productive than their American counterparts, although their wages are considerably lower than the U.S. average. As a result, Israeli firms are often in a position to produce goods at competitive prices even when production runs are not as large. It also costs less to develop

new products in Israel than in the U.S. This is an important factor, since expenditures on research and development now can constitute a large share of the overall price of new weapons. Israel's relative poverty requires that weapons be developed as economically as possible. While part of the low cost of development programs results from lower Israeli pay scales, equally important is low employee turnover ensuring that people tend to remain with a project from start to finish.

Especially significant to the expected US/Israeli cooperation on SDI are:

3) Existing American-Israeli Ties in Defense Related Industries.

Even with its many unique characteristics, Israel's defense industry has an American flavor. To some extent this reflects the vital role played by Americans in the creation and operation of many of Israel's defense companies. While the character of the participation changes over time, U.S. corporations either own or have substantial investments, either directly or through holding companies or subsidiaries, in Tadiran, Elbit Electronics, Motorola Israel, Elrisa, El-Op, and numerous smaller firms. This includes virtually all Israeli corporations involved in electronic warfare development.

In addition, Israeli companies have a long record of building American-designed items under license. Despite the growing sophistication of Israel's defense industry, it is likely that license-production of American designed equipment will continue through the end of the century.

Reliance on U.S.-supplied weapons also has forced Israel to learn about American ways of doing business. Unlike other countries that are content to purchase equipment exactly as used by the U.S. military, Israel often requests that systems be modified to meet its specific requirements. This penchant has led Israeli engineers and procurement officials to become familiar with American design and business practices.

Additionally, many Israeli engineers received their training in the United States or have worked here, and have been influenced by American practices. As a result of the exposure to American methods, Israeli engineers often employ U.S. Department of Defense military specifications (MILSPECS) when designing new equipment. Israeli companies also tend to buy components from U.S. manufacturers, rather than European firms who usually adhere to different standards.

This familiarity makes it easier for Israelis to work with their American counterparts. While in some instances different practices can make defense industrial cooperation between countries difficult if not impossible, such obstacles are generally absent in the U.S.-Israeli case.

SDI Participation

It is not possible to precisely identify the technical areas in which the Israelis will participate since the 6 to 7 areas of cooperation determined in the meetings at the Pentagon are classified. However some people have claimed that the Israelis will probably participate in R & D on high-speed computers, lasers, communications, fiber optics, jamming and

miniaturization. Others have also suggested that the Israeli participation will not be limited to the sensor technologies but that they would like to involve themselves in the directed-energy and kinetic-energy weapon programs (see Appendix) in order to develop tactical systems to defend themselves against short range ground-to-ground missiles.

The Israelis have also recently taken the initiative to involve themselves in space-related research (aside from years of cooperation between Israeli institutions and companies and NASA and the USAF). In 1983, Israel's Minister of Science and Development established the Israel Space Agency and the Technion and Tel Aviv University are in the process of establishing a joint Center for Space Studies. The Israelis have also begun a program with NASA to build a laser tracking station in the hills north of Jerusalem to detect the movement of continents. It has been suggested that this might also serve as a significant Israeli contribution to the American SDI program.

POSSIBLE BENEFITS TO ISRAEL FROM PARTICIPATION IN SDI

The possible benefits of Israeli participation in the SDI program fall into two categories: 1) military applications of new technologies and 2) economic benefit to Israel.

1) Military Benefits

Everyone interviewed for this paper suggested that the Israelis were very interested in the battlefield applications of the technologies to be discovered in the SDI project and particularly in the technologies necessary to develop a tactical missile defense.

Possibly the most dangerous threat to Israel's security at the present and in the coming years is the threat posed by new ground-to-ground missile systems being introduced to the nations still at war with Israel. The SS-21 missiles delivered by the Soviet Union to the Syrians and newer short range ballistic missiles to be developed in the future, significantly threaten the security of Israel's air bases and population centers. The only defense against these missiles at present are pre-emptive surgical air strikes against the missile sites which prove to be politically costly as well as militarily dangerous considering the acquisition of advanced SAM systems by the Syrians and the possible delivery of mobile I-Hawks to the Jordanian armed forces. In the event of an all out war with the confrontation states, the Israelis would not be able to devote a large number of aircraft to destroy these grond-to-ground missile systems as they'd be needed to defend

against the new and sophisticated aircraft that exist now (and possibly will in the future) in the Syrian, Iraqi, Jordanian and Saudi air forces. Additionally, realizing that these systems would pose a serious threat to the security of Israel, her forces would be put on a "hair-trigger" notice further destabilizing the overall security of the region. It is for these reasons that the Israelis are desperately seeking to develop a short range-missile defense that will protect her forces and cities in time of confrontation.

In order to develop a feasible missile defense, the Israelis are most likely interested in some of the sensor/tracking technologies to be developed in the SATKA* program in addition to the directed and kinetic energy weapon programs to develop kill systems to be used against these missiles as well as against enemy tanks and heavy artillery batteries. (* see Appendix) [Note: According to Dave Martin, Dr. George Keyworth's staff at SDIO is currently working on a study to investigate the conventional military spin-offs from SDI R & D]

The other military benefit of missile defense that should be recognized is its value as an "innovative deterrent." In the face of draconian financial cuts and severe manpower limitations, the Israelis can ill afford to start a new arms race to match their enemies ground-to-ground missile capabilities. A tactical missile defense, even less than 100% effective, will surely confuse Arab offensive strategy as nations such as Syria cannot be sure that their SS-21s will penetrate Israeli defenses and cause signifi-

cant damage to render the use of these systems advantageous in the face of possible retaliation.

[After this section of the report had been completed, details of a meeting with Ehud Aviran, R & D attache, and Uri Simhoni, Defense Attache at the Israeli Embassy were brought to my attention. This information is quite significant when determining the other possible military benefits to Israel from participation in the SDI program: Aviran expressed that some of the specific spin-offs from the SDI research that the Israelis were very interested in obtaining are as follows:

1) Lasers to be used on the battlefield to "blind" the electro-optical systems of enemy tanks,
2) Lasers to be used as communication devices on the battlefield,
3) Lasers used as tactical weapons against aircraft,
4) Improved command and control systems.

Aviran suggested with great enthusiasm that with these new technologies, the Israelis would be able to transform the battlefield into an arena of high tech systems, used to their advantage.]

2) Economic Benefits to Israel

It has been argued that high tech is Israel's "messianic hope" in light of its current economic problems. Yosef Rom, claims that a "high rate of economic growth can be achieved only by development of high and medium technology industries."

Considering the new technologies likely to be developed in the research effort for SDI, it is important to note Rom's second point: " A large growth rate can be induced and sustained by periodic breakthroughs into new technologies which develop new products and new markets utilizing the same natural resources but the human genius."

The SDI program is significant to Israel's economic future because it would pump needed dollars into the hi-tech R & D community which is currently suffering from the government's budget cutting efforts. Israeli hi-tech industry would benefit directly from U.S. orders during the research phase "and later if the project proves to be feasible." (CII 4/15/85 No. 12)

Another point that should be made is the feeling among many in the Israeli hi-tech community that the research funds to be made available to Israel for SDI will hopefully create new possibilities for young Israeli scientists who are leaving the country for opportunities in places like Silicon Valley. The Washington Jewish Week, 10/25/84 p. 30, reports:

> "Like Prime Minister Shimon Peres who was a pioneer in building up the defense industry infrastructure under David Ben--Gurion, (Israeli industrialist Stefan) Wertheimer sees Israel entering 'the third stage of Zionism': The settlement of the land and its defense have been achieved ; now Israel must create an economy centered around high tech."

"The BIG MONEY is in the production later on of the spin-offs - exploiting technology." - Dave Martin

When determining the benefits of Israeli involvement in SDI research we must seriously consider the commercial spin-offs that will inevitably occur

with the development of new technologies and manufacturing processes. As Prime Minister Peres stated:

> "It is not a matter of buying a ticket in order to fly from earth to space. This ticket is far more revolutionary in all possible areas: new metals, new communications, new movement, new computers, everything will be new, and in 10 years everything will be judged according to this new yardstick."

The Israelis have a record of success when it comes to the commercial exploitation of space-related technologies. The Israel Economist (June 22, 1984 p.22) reports: "Scitex Corporation has adapted space-age technology (originally used to track orbiting objects by NASA) to color graphics." Additionally, as Hirsch Googman noted, the glasses that automatically change tint depending on the amount of sunlight, now being sold commercially, were developed by the Weizman Institute for the astronauts in the NASA space program.

When considering that the R&D effort that Israel will most likely be involved in includes sensor and laser technologies, it is expected that these technologies will help boost Israel's laser and electronics industries, thereby giving a much needed spark to Israel's high tech industry, the hope for the country's economic future.

POTENTIAL PROBLEMS OF ISRAELI PARTICIPATION IN SDI

Potential Problems - U.S.

" Right now we are feeling our way in the process."

These were the comments of Frank Gaffney and Bill Heiser during our July 12th meeting at the Pentagon. This comment is significant because it is my belief that the process has reached a point at which developments will take a much longer time in coming. In regards to Israel, DOD would most probably like to see the Europeans "catch up" to the Israelis in the process and it might even be possible that DOD requested Israel not to be the first nation to officially accept the invitation as it would be politically more advantageous if the first positive response were to come from our Western European allies. Bureucratically speaking, Gaffney and Heiser, the policy people, would also like to catch up on the intergovernmental level to the program people like Martin, who've made considerable advances in pinpointing areas of Allied participation.

Additionally, according to Dave Martin, there exist some "Buy America" type clauses that serve as obstacles to foreign participation in R & D efforts. The funding that goes through the Department of Energy can generally be distributed without obstacles, however, monies originating in DOD face obstacles when being distributed abroad.

Potential Problems - Israel

In Israel too, the process has most likely been slowed somewhat. Considering the economy, "developments" in the peace process and recent anti-Arab rioting (and anything else that is likely to occur in the future), participation in SDI will probably (and unfortunately) not appear on the immediate agenda of the Cabinet and ruling circles. There has also been a call from the Israeli "left" for public debate on the issue so as not to "make any hasty decisions." If involvement in SDI does become an issue of public debate, there will be alot of screaming from the "left", wary about further aggravating the Russians, and considering the recent moves at re-establishing ties with the Soviet Union, there might be some substance behind those screams.

Shlomo Avineri also questions the motives of Caspar Weinberger, not known for his desires for the United States to be more involved with Israel as well as the "less than ally" treatment the Israelis got in regards to the U.S.'s handling of the recent TWA hijacking incident. Nevertheless, Avineri, in his July 27th article in the Jerusalem Post begins by saying:

> " It now appears that Israel is about to decide in favour of participating in research with the U.S. aimed at what is popularly known as President Reagan's 'Star Wars' strategy."

CONCLUSION

It has become apparent in the time that I have prepared this paper that events concerning the Israeli participation in SDI have occured more quickly than expexted. It is clear now that the Israelis have virtually committed themselves to the research effort regardless of the fact that there has been no formal acceptance given by Jerusalem. However, public debate in Israel on the extent of their participation could possibly arise in the very near future as certain Knesset members and others like Shlomo Avineri are made aware of the on-going coordination that has existed between the U.S. and Israel on the SDI program over the past few months.

During a phone converstaion with Bill Heiser this morning, I sensed a certain feeling of excitement on his part as he revealed to me that DOD and the Israelis have already discussed specific projects for participation on SDI (also alluded to in the second meeting with Aviran), and that an American delegation was being sent to Israel in the next few weeks regarding the SDI program.. He suggested that in a "week or two" we might find ourselves a "few notches ahead" in the process.

It goes without saying that there lies a great importance in the Israeli involvement in SDI as it is a project very "close to the President's heart" and significant to those in the bureacracy at the Pentagon. If there is one point that should be stressed, it is the fact that the United States was counting on her allies for political and technological support when Sec-

retary Weinberger extended the invitation for participation in the program, and so far, it seems that the one nation that has been the most forthcoming in her support for the program, especially as regards to their own preparations on the technical level, has been Israel. Regardless of whether or not SDI is ever developed or deployed, it will be on record that Israel was ahead of all the U.S's other allies when it came to participating in the one program that sought to secure the future of the U.S. and the West as a whole as we entered the 21st century.

As this process of allied participation continues, there are two points that we should remember regarding the Israeli involvement. The first is the recognition that the SDI program has established an enormous bureacracy, one that encompasses both policy makers and tecnical personnel at the Department of Defense and at the Strategic Defense Initiative Organization (SDIO). It would facilitate the process if the Israeli involvement was seen in the same light at both the policy and program ends in Washington so as to safeguard the Israeli participation from intergovernmental rivalries and bureacratic sabotage. Furthermore, it should be remembered that both the Israeli and American sides are being very cautious in dealing with one another. Considering the underlying anticipation of a positive European response to join the U.S. initiative, quiet diplomacy seems to be the wiser choice in involving ourselves in this process as opposed to a full fledged ad campaign about the joint U.S.-Israeli efforts.

AIPAC should be in close contact with Frank Gaffney, Bill Heiser, Dave Martin and Ehud Aviran as they seem to be the people on the inside respon-

sible for much of the activity that is taking place. We should also acquire the results of Dr. Keyworth's study on the expected conventional applications of the technologies to be discovered in the SDI program. From the bureacratic and legislative standpoints, AIPAC should fully investigate any legal or procedural obstacles that would impede the mechanics of cooperation as they apply to the Israeli involvement in the SDI effort. Lastly, we should (if at all possible and to whatever extent we feel necessary), relate the importance of the Israeli participation for their high-tech industry and in general for their economy, to members of Congress who on the one hand feel strongly about the economic and military viability of the State of Israel, but on the other hand are averse to allocating monies for R & D on the Strategic Defense Initiative.

Jeffrey Marc Parness

APPENDICES

THE SECRETARY OF DEFENSE

WASHINGTON, THE DISTRICT OF COLUMBIA

March 26, 1985

Dear Colleague:

In the period since President Reagan introduced his vision for the Strategic Defense Initiative (SDI), many of our Allies have informally expressed an interest in participating in this research program. At the same time, some of our friends have sought clarification of our policy and attitude toward such cooperation. I am writing to you today both to make clear my Government's views on this important subject and to begin a direct dialogue with you thereon.

As you know, the purpose of the SDI is to determine whether there are cost effective defensive technologies that could enhance deterrence and increase stability. Because our security is inextricably linked to that of our friends and Allies, we will work closely over the next several years with our Allies to ensure that, in the event of any future decision to deploy defensive systems (a decision in which consultation with our Allies would play an important part), Allied, as well as United States, security against aggression would be enhanced. Moreover, the SDI program will not confine itself solely to an exploitation of technologies with potential against ICBMs and SLBMs, but will also carefully examine technologies with potential against shorter-range ballistic missiles.

The United States will, consistent with our existing international obligations including the ABM Treaty, proceed with cooperative research with the Allies in areas of technology that could contribute to the SDI research program. Pursuant to this policy, the United States is permitted -- and is prepared -- to undertake such cooperative programs on data and technology short of ABM component level as may be mutually agreed with Allied countries.

If your nation is interested in exploring possible cooperative efforts or contributions, I would ask, as a first step, that you send me, within 60 days, an indication of your interest in participating in the SDI research program and of the areas of your country's research excellence that you deem most promising for this program. In order to provide a more comprehensive basis for your assessment of pertinent capabilities and to help expedite the process, the United States is prepared to arrange meetings in Washington so that your government's scientific/technical representatives may receive detailed briefings on the SDI program during this period.

We would expect to give your response prompt consideration with a view to initiating as appropriate bilateral discussions on specific areas and arrangements for cooperation.

Sincerely,

(signed)

CASPAR W. WEINBERGER

Duplicate copies furnished all NATO Ministers of Defense

ISRAEL'S POSITION ON S.D.I.

(Strategic Defense Initiative)

PRIME MINISTER SHIMON PERES

FBIS V. 19Apr 1985 I1
Tel Aviv BAMAHANE in Hebrew
17 Apr 85 pp. 10,11,55

[Excerpt] Question: Why do you support Israel's participation in the U.S. "star wars" plan?

Answer: We have received an invitation the exact nature of which we have not determined. The invitation was extended in principle, and we accepted it in principle. I still do not know what the United States is offering us. In principle, however, star wars is not just another U.S. strategic move. It is a new dimension in the technological, scientific, and strategic spheres.

Perhaps toward 1992, which will mark 500 years since the discovery of America, we will discover a new America and a new world, different from the ones we have known.

It is not a matter of buying a ticket in order to fly from earth to space. This ticket is far more revolutionary in all possible areas: new metals, new communications, new movement, new computers, everything will be new, and in 10 years everything will be judged according to this new yardstick.

Question: Is this why Israel should join the project?

Answer: Yes. It is like joining a new era. Imagine if Columbus had invited an Israeli to join his ship. I, for one, would have supported this invitation, no matter what he was going to discover.

DEFENSE MINISTER RABIN
FBIS V. 8 Apr 85 I2
Tel Aviv MA'ARIV in Hebrew
7 Apr 85 pp. 1,11

[Report by Yosef Walter]

[Excerpts] Defense Minister Yitzhaq Rabin is recommending that the U.S. invitation to take part in initial talks in preparation for the implementation of the "star wars" project be accepted.

A senior defense establishment source told *MA'ARIV*: "In principle, Rabin will accept the invitation, but Israel's participation in the project depends on approval by its inner Cabinet. The defense minister will bring the issue up for discussion by the Cabinet at one of its upcoming sessions."

FBIS V. 1 May 85 I1

Rabin Comments on U.S. Space Defense Project
TA301653 Jerusalem Domestic Service in Hebrew
1605 GMT 30 Apr 85

[Text] The defense minister has addressed the U.S. invitation to Israel to join the star wars project, and said that at this stage no date has been set for Israel to give its response. Personally his approach is positive, but right now two Israeli scientists are being sent to examine the U.S. initiative. At any rate, the defense minister would recommend joining only those areas whose implementation would also be worthwhile for Israel.

SCIENCE MINISTER GIDEON PAT

FBIS V. 12 June 85 I2
Jerusalem Domestic Service in English
0400 GMT 11 June 85

[Text] Science and Technology Minister Gid'on Pat has proposed that Israel's research institutes enter the primary stages of research in the U.S. space defense program. This is in order to take advantage of budgets that will be distributed as early as next year. Last night, the director general of the ministry convened a meeting with deputy presidents of research and senior researchers of institutes of higher learning at the Israeli Academy of Sciences

[Jerusalem Domestic Service in Hebrew at 0500 GMT on 11 June carries a report in reaction to this disclosure, saying that "Science and Technology Minister Gid'on Pat has said that a governmental forum will soon meet to discuss Israel's joining the U.S. defense program, known as the star wars program. The prime minister, defense minister, Minister Pat himself, and possibly some other ministers will take part in the discussion."]

M.K. EZER WEIZMAN
Jerusalem Post 8 Apr 85 p.1

Speaking at Haifa's Reali High School yesterday, Minister without Portfolio 'Ezer Weizman said that the "Star Wars" invitation should be given careful consideration. Weizman, a former defence minister and a former OC [Commanding Officer] Air Force, said the proposal should neither be "rejected out of hand," as some have urged, nor immediately accepted.

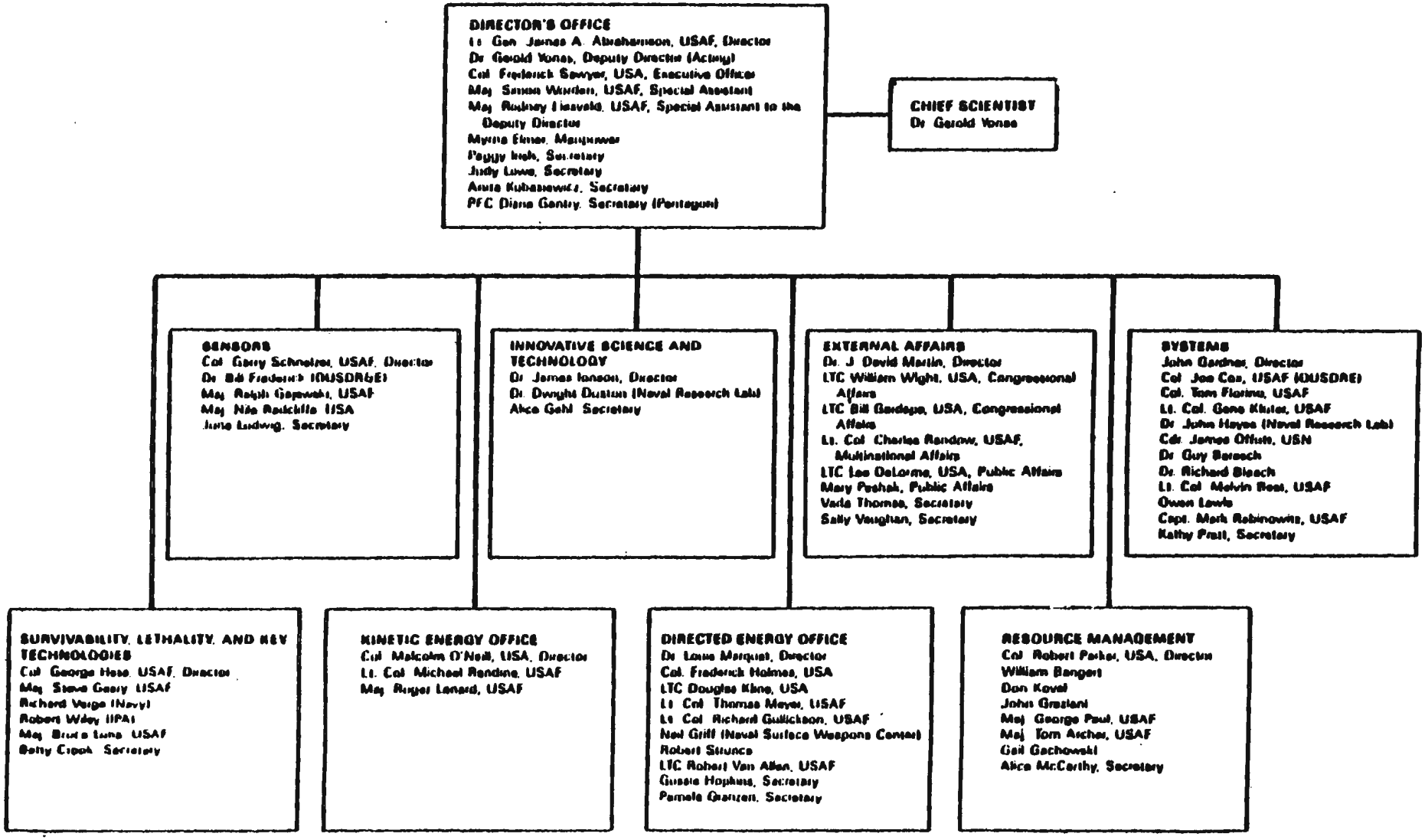
FBIS July 5, 1985 I4

Positive Reply to Space Defense Invitation Expected
TA040723 Jerusalem Domestic Service in Hebrew
0700 GMT 4 Jul 85

[Text] Israel will apparently respond positively to the U.S. initiative on participation in the star wars plan. The matter was discussed yesterday during a consultation with the prime minister. The meeting was also attended by the defense minister. The participants discussed the recommendations by the defense establishment delegation which negotiated on this matter in the United States. Our political correspondent Shim'on Schiffer reports that the prime minister and defense minister think Israel should give the United States a positive answer. They are now texting the formal reply and the fields Israel will ask to participate in.

STRATEGIC DEFENSE INITIATIVE ORGANIZATION

April 9, 1988



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DEFENSIVE TECHNOLOGIES STUDY TEAM MEMBERSHIP

Study Team Leadership

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Dr. David Packard	Hewlett Packard Company

GLOSSARY

active sensor — A system that includes both a detector and a source of illumination. A camera with a flash attachment is an active sensor.

airborne optical adjunct — A set of sensors designed to detect, track, and discriminate an incoming warhead. The sensors are typically optical or infrared devices flown in an aircraft stationed above clouds.

algorithm — Rules for solving a problem using computer language.

architecture — The physical structure of a computer system, which can include both hardware and software (programs).

birth-to-death tracking — The ability to track a missile and its payload from launch until it is intercepted or reaches its target.

boost phase — The portion of a missile flight during which the payload is accelerated by the large rocket motors. For a multiple-stage rocket, boost phase involves all motor stages.

booster — The rocket that "boosts" the payload to accelerate it from the earth's surface into a ballistic trajectory, during which no additional force is applied to the payload.

bus deployment phase — The portion of a missile flight during which multiple warheads are deployed on different paths to different targets (also referred to as the post-boost phase). The warheads on a single missile are carried on a platform, or "bus" (also referred to as a post-boost vehicle), which has small rocket motors to move the bus slightly from its original path.

chemical laser — A laser in which chemical action is used to produce the pulses of coherent light.

UNDERSTANDING THE SDI PROGRAM

The SDI program is designed to gain an understanding of the technologies needed for defense against missles in their boost, post-boost, mid-course and terminal phases. The five basic functions of defense are as follows:

1) Detection of the threat and alerting the defense elements;

2) Acquisition and tracking of the threat to locate it in time and space;

3) Identification of the threat and discrimination against decoys to ensure efficient allocation of the defense resources;

4) Interception and destruction of the threat; and

5) Assessment of the results of the engagement.

The Research and Technology Program desinged to fulfill these basic functions of defense has been divided into 5 categories;

1) The Surveilance, Acquisition, Tracking and Kill Assessment Program (SATKA)

Explanation of the SATKA program (sensor program)

The Surveillance, Acquisition, Tracking, and Kill Assessment (SATKA) Program Element includes a mixture of some of the most and least mature technologies being developed by the SDIO. It includes technology base efforts to support surveillance, acquisition, tracking, and kill assessment that provide: (1) data on the observables from ballistic missiles and their warheads, (2) new radar and optical sensors capable of obtaining detailed imagery of warheads and warhead deployment, and (3) on-board signal and data processing capable of performing necessary computations right at the sensor. The experiments include three general classes: boost-phase surveillance, midcourse tracking, and terminal-phase tracking and discrimination. Space-based surveillance experiments are planned for the early 1990s to demonstrate survivable means of detecting and tracking boosters from very high altitudes in space. Other space-based sensor experiments are to be conducted in the same time frame to explore our ability to track tens of thousands of objects during midcourse flight. Such platforms may ultimately include active sensors to aid in discrimination. A sensor experiment will determine the feasibility of using optical sensors to aid in target discrimination. A terminal imaging radar experiment is planned to demonstrate rapidly evolving ground-based radar capabilities.

2) The Directed Energy Weapons Program (DEW)

Explanation of the DEW program

The Directed Energy Weapons (DEW) Program Element is advancing the state-of-the-art in the technologies for: (1) high power laser and particle beam generation, (2) optics and sensors for correcting and controlling the high power beam, (3) large, lightweight mirrors and lightweight magnets for focusing the beam on the target, (4) precision acquisition, tracking, and pointing to put and hold the beam on target; and (5) fire control to capitalize on those unique features of directed energy weapons such as the ability to measure and control the energy delivered to the target. The DEW technology program includes major experiments at the subcomponent level in the four concepts currently being examined: space-based lasers, ground-based lasers, space-based particle beams, and nuclear-driven directed energy. These concepts are candidates for boost and post-boost phase intercept and for discrimination functions in the other phases. In addition, selected subcomponents for these concepts will be integrated in on-the-ground experiments designed to test interface approaches and resolve technical issues arising from the integration. The work on nuclear-driven directed energy is largely pursued by the Department of Energy and is designed to establish its technical feasibility. Equally important, the work ensures that the U.S. understands the potential impact of these emerging concepts if they were to be used against it by an adversary. It should be reiterated that emphasis in the SDI program is being given to nonnuclear weapons for defense.

3) The Kinetic Energy Weapons Program (KEW)

Explanation of the KEW program*

The Kinetic Energy Weapons (KEW) Program Element is a collection of related research that would make use of the very high velocity of a small mass to render a ballistic missile or its warhead ineffective. The KEW program contains some of the more mature technology being investigated in the SDI. Efforts include interceptors and hypervelocity gun systems for boost-phase intercept, midcourse intercept, terminal intercept, and defense of space platforms. Both space-based and ground-based kinetic kill vehicles (KKV) are being investigated. The technology thrusts for the space-based KKV include research into a high performance multiple kill vehicle (MKV), fire control/guidance, and booster propulsion. Ground-launched interceptor studies involve both exo- and endo-atmospheric kill. Both space- and ground-based electromagnetic (EM) gun investigations are included. Space-based EM gun investigations include critical technologies such as high-g propulsion, high-g compact structures, long-range high resolution tracking, and multiple MKV tracking. All of the experiments will be designed and conducted to conform to ABM Treaty constraints.

4) Survivability, Lethality and Key Technologies (SLKT)

Explanation of the SLKT program

The Survivability, Lethality, and Key Technologies (SLKT) Program Element provides critical supporting R&T. Understanding the vulnerability of ballistic missiles to the various kill mechanisms is fundamental to assessing their effectiveness against current and responsively hardened targets. Survivability to mission completion, particularly of any defense space assets, is fundamental if defensive options are to be viable. Economical space transportation, on-orbit logistics and maintenance, kilowatt/megawatt sources of power, and multi-megajoule energy storage and conversion are potentially key needs in an affordable defense deployment.

Lethality and target hardening efforts will provide the basic theory underlying kill mechanism/target interactions, the resulting damage and response of the target to damage, and fundamental limitations in hardening countermeasures. The survivability problem includes substantial technology development, particularly in the case of space-based components. It also includes identification and assessment of innovative survivability hardware and tactics and evaluations of the survivability of conceptual designs. Space transportation, logistics, and space power efforts are designed to take advantage of existing DoD and NASA definition efforts and to expand them into the definition phase and satisfaction of the more demanding requirements of a defense-in-depth.

5) Systems Concepts/Battle Management Program (SC/BM)

Explanation of the SC/BM program

The Systems Concepts/Battle Management Program Element is designed to allow intelligent choices among competing approaches to defense architectures and to develop the technologies necessary to allow eventual implementation of a highly responsive, ultra reliable, survivable, endurable and cost-effective battle management/command, control, and communication (C^3) system. Threat analyses, mission analyses, conceptual design of defensive architectures and performance requirements definition, and system evaluation for all levels of a layered defense against ballistic missiles will be performed. The battle management/C^3 efforts will provide the tools, methods, and components (1) for development and eventual implementation of the system and (2) to quantify risk and cost of achieving such a system.

PROBLEMS WITH THE EUROPEAN INVOLVEMENT IN SDI

Although Secretary Weinberger in his letter of March 26, 1985 asked that nations interested in participating in the program respond withing 60 days, the United States has so far failed to receive one official acceptance. Subsequently, the United States has already recieved four official "nos" coming from Norway, Denmark, Greece and a major leader in European technology, France. The French, in what has been characterized as an exercise in "continental chauvanism" have started their own R & D program called Eureka. As described in AW&ST, June 3, 1985:

> "Eureka calls for a 'European technological community' that would improve cooperation among the nations in both civil and military high-technology fields such as lasers, computers and telecommunications."

[Additionally, the Atlanta Journal and Constitution of April 28, 1985 page 34, reports:

> "A French Foreign Ministry spokesman said Eureka was not only a reply to President Reagan's SDI, but also an 'effort to mobilize European unity through the development of a complex financial-technical project."]

There are a number of key problems that have prevented the Europeans from accepting Weinberger's offer of involvement in SDI:

1) "Brain Drain" and Technology Lag

The Europeans fear that the American effort will drain the European continent of their best scientific minds and leave the Europeans years behind the U.S. in a wide range of technological fields.

2) Problems with Technology Transfer

The U.S., in efforts to prevent the Warsaw Pact countries from obtaining sophisticated technologies, has a policy of tight control over the transfer of high technology goods. The Europeans fear that they will be "used" to help develop the technologies necessary for missile defense (and the related spin-off technologies) yet will be prohibited by U.S. policies from obtaining and exploiting these very same technologies.

3) Contracting Problems

The Europeans have also expressed their concerns that they would only be considered for sub-contracting projects whereas they are looking forward to prime contracting positions.

It is for the above three reasons that Francois Mitterand has decided to try and unite the European Community in an effort to make their own advances in civilian and military technologies.

[U.S. Response to Eureka Defense Daily 30 May 1985 p.162 .

"ABRAHAMSON SAYS SDI & EUREKA ARE NOT IN COMPETITION"

The director of the Strategic Defense Initiative program, Lt. Gen. James A. Abrahamson, says the French proposed European Eureka program is not in competition with his program of developing technologies for defense.

Abrahamson told an international television linkup that he viewed the SDI and the United States invitations to its allies to participate in the program as an attempt to "tie the Western allies together."

He said he did not consider the establishment of the Eureka program to develop laser, particle beam, artificial intelligence and computers, with Britain and France agreeing this week to set up a study group to outline areas for joint projects, as a setback to the SDI program.

Abrahamson countered charges that European countries would end up with "subcontractor" status in SDI, stressing that the Europeans can be expected to be fully on a par with the United States in developing the technology.

He referred to the establishment of "associate contractor" relation between U.S. and European contractors and the implementation of "direct contracts" with "certain facilities and certain teams" in Europe. He also said there will be no "percentage plan" in which the participant's portion of the SDI research would be in direct proportion to the amount of investment by the participants.

4) Problems with Arms Control and Strategic Planning

The Europeans greatly fear the decoupling of the West's security brought about by the U.S obtaining a feasible system for missile defense. President Reagan on his recent trip to West Germany, reassured the Allies that the "U.S. would not 'go it alone' in deploying a space based missile defense program." (St. Louis Post Dispatch 3 May 1985 p. 10) For President Reagan to go so far as to reassure the Europeans of this fact before the SDI program has gotten off the ground, let alone deployed, is an indication of the magnitude of concern of the Europeans part that the defense of the the U.S. and Western Europe would be no longer linked.

Secondly, the Europeans, according to a study by Briton Bruce George, would consider the Geneva Arms Talks a failure if the U.S. refused to accept limitations on SDI development and thus would not want to be part of such a failure.

Individual Countries

The problems of participation in SDI have not just confronted Europe as a continental community but rather, individual governments are finding it difficult to accept the U.S. invitation based on their own respective national interests and foreign policies.

Great Britain

While it has been suggested that Britain is "America's strongest 'Star Wars' supporter", this support is being strained by continental loyalties and the efforts by Francois Mitterand to enlist all of Europe in his Eureka project. Despite Margaret Thatcher's statements of British support for SDI, her Foreign Secretary, Sir Geoffrey Howe, has warned that SDI is nothing more than a "maginot line of the 21st century." On May 31, Howe sent a letter to French Foreign Minister Roland Dumas backing the Eureka project. When asked to clarify the statement of support for the French plan, a spokesman for Howe suggested: "We intend to be fully involved in Eureka." [Note: The U.S. is interested in two British research groups - one at Heriot Watt University working on "computers using optical switches that could process instructions up to 100,000 times faster than todays machines." The second group at Fort Halstead, Kent, is working on "rail guns" that could propel plastic bullets at speeds of 12 to 19 miles per second.]

> In a speech to Nato legislators in Stuttgart, Kohl said: ' We cannot predict today whether SDI will prove to be an alternative means of preventing war and a way to reduce dependence on nuclear weapons.'
> ' SDI means opportunity and risk for the North Atlantic Alliance at the same time,' he said. "

Ten days later, Kohl's opinion of the Eureka project appeared in DEFENSE DAILY (30 May 1985 p.162)

" Kohl agreed that it is 'vitally necessary for Europe to develop its own potential in high technology fields.' He said France and West Germany also agreed to set up a commission to study proposals for the Eureka program..."

On June 2, 1985, the New York Times reported (p.16):

> "NEUSS, West Germany, June 1 (Reuters) - The Free Democratic Party, which is the junior partner in the West German Government, urged Chancellor Helmut Kohl today not to join in the United States space-based missile defense research without other Western European countries."

As late as July 8, 1985, the Christian Science Monitor (p.12) noted " the distress of both promoters and critics of SDI over the Bonn government's ambivalence, pending a decision in September on whether and how Germany should partiicipate in the project....The principle motivations appealed to in this contest are technological rivalry, loyalty to the United States, and startegic worries."

While all this was happening, West Germany's Foreign Minister Genscher, like Sir Geoffrey Howe of Great Britain, came out urging more support for the Eureka project.

The importance of West Germany's indecision and growing uneasiness with SDI is summed up in the opening sentence of the CSM article: " As West Germany goes, so goes Europe."

To further aggravate the delicate political situation of European involvement in SDI, there is a growing rift between the parlimentarians and the businessmen of Europe. During the Paris Air Show in June, European companies showed their enthusiasm for SDI as one after another announced their "willingness to bid for SDI-related development work." (Armed Forces Journal International, July 1985) The French Matra defense conglomerate, the West German MBB, and Italian Aeritalia were some of the leading companies expressing interest in SDI without the expressed authorization of their governments. The article explains the interest in SDI - " the multibillions earmarked for SDI by the Reagan Administration , which European industry would very much like to share in."

THE INCIDENT WITH RICHARD PERLE

(See FBIS V. 31 July 85 I3)

On July 31, 1985 at 0400 GMT, Jerusalem Domestic Service in English reported that Assistant Secretary of Defense, Richard Perle, had informed a conference in Bonn that the Israelis had been the first nation to accept the SDI research invitation. Perle was clearly in error and the Israeli Ministry of Defense immediately and loudly protested this comment claiming that they have yet to give a formal acceptance but are still in the process of considering the invitation.

It was obvious that Perle's intention was to shake up the Europeans as they are lagging in effort and spirit when it comes to joining the American initiative. It is public information that no one, including the Israelis, has formally accepted Secretary Weinberger's invitation to date, but alluding to Israeli advances in cooperation with the United States on the SDI project, Perle was attempting to rejuvinate the inertia behind SDI and bring about some sort of positive European response.

INTERVIEWS

* Desmond Ball, at the AIPAC offices

* Robert Jastrow, by telephone

* Yosef Rom, former MK, visiting at the Wilson Institute

* Frank J. Gaffney, Jr., Deputy Assistant Secretary of Defense Nuclear Forces and Arms Control Policy, The Pentagon Rm. 4C 762 697-2473 and Bill Heiser, works on coordinating Allied partcipation from policy perspective. July 12, 1985 10:30a.m.

* Col. Ehud Aviran, R & D Attache, Embassy of Israel , July 17, 1985 3p.m.

* Hirsch Goodman, at the AIPAC offices, July 23, 1985

* J. David Martin, Director External Affairs SDIO, 653-0053 July 24, 1985

* Nachman Shay, Spokesman for the Israeli Ministry of Defense, by telephone July 30, 1985 Tel Aviv office: (3) 205-153
(3) 205-750
Knesset office: (2) 524-213
Home: (2) 543-169

* Uri Simhoni, Defense Attache, Embassy of Israel, and Col. Ehud Aviran August 7, 1985

TRANSCRIPTS OF INTERVIEWS

Desmond Ball

Missile Defense:

Des Ball suggested two technologies necessary for launch detection:

1) Infrared to pick up ballistic missiles

2) Radar (in line of sight)

Israel needs:

Microwave antennas on tall towers or on tethered baloons (like in Australia or the USAF "Skyhook" in Key West) to increase line of sight or look-down capabilities. Israel also needs to improve look-down capabilities on E2-Cs. Possibly use lasers to improve look-down capabilities or use baloons for radar or helicopter tracking.

Israeli contributions:

Data processing requirements are "out of Israel's ball park." Selective technologies in early warning and target acquisition that are within the technological capacity of the Israelis are:

1) Infrared systems, and

2) Electro-optics.

SDI:

should use infrared for launch detection (with large plumes of smoke) and after the missiles "cool off", they should go to other

infrared system to track missile and warheads. 2 infrared systems:

1) Initial detection, and

2) Post-boost detection (comparable to tracking Cruise missiles w/o enormous plumes of heat - like conventional systems).

Spinoffs - Tactical spinoffs will be greater in Europe with longer flight times.

Bob Jastrow

* Israel would benefit in missile defense

* Participation would help Israeli missile defense research

* "SDI would be even more accurate vs. SS-21's"

Yosef Rom

* Israel wants sub-system technologies.
* Israel won't be prime contractor but rather sub-contractor
* "Set Aside" contract is best for Israel because it gives them 100% of the business BUT also causes political backlash in the U.S.
* Joint ventures are "exchanges of know-how".
* "You need programs to accelerate technology as a national goal."

Frank Gaffney and Bill Heiser

* "Right now we are feeling our way" in the process.

* U.S. had one "productive" session with the Israelis

* Process of cooperation with the Allies:

  1) Explanation of the purpose of the SDI program to the Allies,

  2) explanation of the technological requirements and capabilities,

  3) cross-identification of the areas of expertise.

* Israeli response to the invitation:

  - Investigated their skills

  - Assembled team of experts on related areas

  - Covered their capabilities in classified briefings with the U.S.

  - "Come up with areas that appear to be lucrative" for Israeli participation and U.S. R & D goals. [AT THIS POINT NOW]

    "Israel has a good feel for those areas and so does the U.S."

  - Team up Israeli and U.S. scientists in governemnt and in joint ventures and team arrangements in companies (jt. ventures and sub-contracting).

* " Area of collaboration will determine the type of collaboration."

* " Israelis are looking for battlefield applications."

* " Those who are 'more cooperative' will get more work."

NOTE: Both Gaffney and Heiser seemed to be quite impressed with the Israeli presentation on their potential contributions to the SDI program. They spoke highly of the professionalism exuded by the Israeli delegation and looked forward to further meetings with the Israelis and with working with us at AIPAC, especially Heiser.

Col. Ehud Aviran (Wed. July 17, 1985 first meeting with Aviran)

* After Seth's intro on AIPAC's interest in Israel and SDI, Aviran responded: " Right now, Israel doesn't need any help."
* " We (Israel) don't want to be the first country to accept" (the invitation to participate in SDI).
* " Main subject (of the invitation) is political."
* Aviran came up with the figure of $800 million for expenditures on the foreign research effort, claiming that at most, Israel would receive $100 million.
* Aviran also stated that expenditures being pumped into the R & D community would drive a further wedge between the civilian R & D and military R & D communities in Israel.
* When asked what Israel had to offer SDI....."No comment."
* Dr. Ben Zion Naveh, Ministry of Defense - in charge of Israeli participation in SDI

Hirsch Goodman

* "SDI is a way of involving Israel which is <u>essential</u> from the military and economic points of view."

* Spin-offs:

  Weizman Institute developed the glasses that automatically change tint depending on the amounts of sunlight for the astronauts in the NASA space program. These same glasses are now being sold on civilian market.

* Possible areas of Israeli participation:

  - communications
  - jamming
  - miniaturization
  - computers
  - fiber optics
  - lasers

* Hirsch suggested I call Nachman Shay, Spokesman for the Ministry of Defense Tel Aviv office (3) 205-153
  (3) 205-750
  Knesset office (2) 524-213
  Home (2) 543-169

Dave Martin

On Process of Cooperation in General:

* "It's probably pre-mature to give much thoughtful commentary."

On Discussions Before Invitation Was Extended:

* "No one was able to know exactly where the contributions were to be made based on the unclassified information (before the invitation was sent out)."
* "U.S. had some general ideas where contributions would be made but there was no comprehensive analysis."
* "(There was) No dialogue with Israel before the report went out."

On The Invitation to the Allies (and Israel)

* "Reasons for the invitation:
    1) General recognition of technical expertise,
    2) To give the Allies a sense of confidence in the program ("The U.S. could've done all the research activity here and then consulted with the Allies without them being part of the process - w/o involvement in the technical program, but there would'nt have been any confidence in the overall involvement.")
* "Some people ascribe greater political importance on the decision of inviting Allied participation - BUT there was an obvious interest (on the part of the Allies) not to be left out of the technological advancements."
* Political motivation was played down as it was not the primary motive

[Like the 1)technological contribution, and 2)sense of confidence.]

* "Involvement of Allied industry is not just for political reasons. A contribution has to make technical sense otherwise Congress screams about the loss of jobs."

On Israeli vs. Allied Response:

* "Allies are very skeptical."
* "We can't say (to the Allies) that participation is carte blanche."
* "The Israelis don't have the same concerns as the Europeans - that's why it is much easier dealing with them."
* "At first we kept Allied industry at an arms length to keep up the governmental dialogue - now we're talking to Allied industry on an unclassified level."

On Meeting with the Israelis:

* "Meeting was helpful - the U.S. was not as prepared as we coul've been."
* "Israel had done a fair amount of homework (in the areas of)
    - technical assessment
    - mechanics of cooperation and agreements
* "Israelis wanted to brief us - they spent a great deal of time telling of their capabilities."
* "Dialogue on where they can work is still going on."
* "So not to look so stupid - the U.S. did their homework. Israel wanted to brief us and we suggested that all countries now brief us."
* "Next step is getting laboratory people here together with lab people there."

On Areas of Israeli Participation:

* "They sat down and specified 6 to 7 technical areas (of possible Israeli participation)."
* "3 to 4 hours of briefings - from 'soup to nuts' - from work at the university level to major defense activities - From that they got 6 to 7 fields (of possible cooperation). One or two will fall out, leaving 3-4-5 areas to begin with."

  [Note: Briefings were classified as were the technical areas of participation decided upon]

On Questions of Technology Transfer and Future of Program:

* "There cannot be an overarching policy to these points (tech transfer) before we begin."
* "We want to get the process started."
* "Pathfinder projects could conceivably be started as early as FY85"
* "Tasks are'nt funded until they are found and identified."
* "There has been no aggregate budget numbers for monies to the Allies."
* "Everyone is getting the message to get back to us quickly."
* "No milestones for success have been established in securing Allied participation."

On Benefits to Israel's Security and Economy:

* "Too fuzzy to tell."
* "Can have interesting applications:

  - sensor and computer technologies,

- rail-gun technology used on the conventional level.

* Dr. Keyworth's staff at SDIO is working on a paper of possible conventional spin-offs from SDI research. The results should be published within the next month.

* "Big money is in the production later on of spin-offs (exploiting technology)."

* "Predicting spin-offs and economic benefits is also 'murky'."

[i.e. Process of splitting ions for particle beams to be possibly used in metallurgy in a process for hardening certain metals.]

Question(SR): "Could there be hard contracts between Israel and DOD in the next few months?"

Answer(DM): "Dialogue with Israel is mature and it 'can happen quickly'. Pathfinders are directed at labs that can get started more quickly."

Question(SR): "Will you set up 'country desks' for the Allied participation?"

Answer(DM): "It has been decided that establishing 'country desks' is <u>not</u> a good idea."

"This is the Office of Allied Cooperation (originally called Planning and Development)."

Question(SC): "In order for Israel to participate, will we have to negotiate more treaties?"

Answer(DM): "We can use existing agreements to some extent and amend them."

"There are some 'Buy America' type clauses that are obstacles to foreign participation. If you believe there is a unique capability overseas, you go through a process of advertising the overseas participation while also letting U.S. firms get involved. Some funding goes through the Dept. of Energy without obstacles. Most funding that goes through the Dept. of Defense faces obstacles."

Closing comments:

* "There is lots of interagency involvement in SDI -

Bill Furness, Bill Heiser, and Frank Gaffney - policy responsibilty,

Dave Martin - program responsibility,

Fred Ikle - sometimes part of the process,

Steve Steiner and Bob Lindhurst - White House people.

Nachman Shay

Q. What can Israel contribute to SDI?

A. For security reasons I cannot talk about this over the phone.

When asked about the CURRENT SITUATION and STANDING - he responded in the same manner as did Bill Heiser and Frank Gaffney - a delegation was sent to the United States and held classified discussions on the potential contributions Israel can make to SDI and are "working from there."

When asked about the official acceptance - Shay responded that through the meetings and discussions it is evident that they are investigating areas of Israeli participation and would like to get started.

"Israel wants to participate in areas lucrative to Israel where we won't have to spend more money than we can afford."

Shay also commented that the high level officials are still discussing the matter of Israeli participation and have not reached the point at which they can give their formal acceptance. They are not, according to Shay, play a political poker game, waiting for the Europeans to go first(*), but rather it's "a matter of time" as to when the official acceptance will come.

(*) Note that this is in contradiction to statements made by Ehud Aviran during our second meeting with him, when he claimed that Israel was indeed waiting for the Europeans to go first.

Ehud Aviran and Uri Simhoni (second meeting August 7, 1985)

* There are bound to be spin-offs when you devote so much time and resources to a program like SDI - Israel can now build better planes because of components developed in the Apollo program.
* There exists a good relationship between Aviran and Dave Martin.
* Israel was ready last week to present over 100 projects for their participation in SDI.
* Aviran would not devulge what technologies Israel had to offer the program but did mention work on lasers powered by solar energy.
* Interested in a number of possible military spin-offs;
  - lasers used to "blind" enemy tanks on the battlefield,
  - lasers used for communications devices,
  - lasers used as tactical weapons against aircraft,
  - improved command and control.
* Israel does not want to step in first because they feel that the Americans would prefer it if the Europeans accepted first.
* There will not be alot of contracts the first year, but rather "path-finder" projects and "follow-ons."
* Aviran also stated that the $800 million figure he quoted us in the first meeting as the total expenditure in the allied research effort was provided to him by General Abrahamson.

POST Favors Participation in 'Star Wars' Research

TA110921 Jerusalem THE JERUSALEM POST in English 11 Apr 85 p 9

[Commentary by Hirsh Goodman: "Star Wars Opportunity"]

[Text] "Star Wars," as President Ronald Reagan's new strategic defence plan has been dubbed by some unkind pundit, may prove to be totally impractical in the long run. That is not the point. What is the point — at least where this country is concerned — is that the U.S. administration intends to spend $26 billion pursuing the dream of a defensive weapon that will limit the chances of a nuclear holocaust, and Israel has been asked to be part of that effort. It is an effort that will engage some of the best minds in the world in probing the outer limits of scientific knowledge and taking applied science to its furthest horizons.

Israel has to be part of that effort, for Israel's industrial future and ultimate security depend on the ability to remain in the forefront of developing technology. No matter how small the slice of the Star Wars cake that will eventually be allocated to Israel, it will mean a life-giving accretion to the almost non- existent research funds of the Israeli scientific community. It will mean jobs for exactly the type of people we need to keep in this country. It will mean an exchange of knowledge and information with top scientists in the field.

It will mean that if this project is successful, Israel will be in on the ground floor of a system that could make it unnecessary to bomb the next Iraqi reactor.

President Reagan's intention is to build a defensive system in space that would aim to "kill" incoming enemy nuclear missiles before they could reach their targets, negating the need for a counter-strike. Theoretically, this would reduce the possibility of nuclear war at this stage, for it would render the atomic weapons in the hands of the aggressor useless while still in their silos.

As a result the element of deterrence that has miraculously kept the world from destruction during the second half of the 20th century, but has prevented neither nuclear proliferation nor the multiplication of nuclear warheads, will undergo a basic re-thinking. And just as well. There are already enough active warheads to blow up this planet several times over, leaving not a single particle in existence.

Pakistan now has nuclear potential. India has it. Libya, Egypt and Saudi Arabia are pursuing nuclear knowledge. The threatened whites in South Africa are said to have it. Europe is on its way to becoming a virtual forest of tactical nuclear weaponry — weapons that could conceivably be used, as opposed to the strategic varieties, in submarines and under the wings of aircraft patrolling the skies

Israel's geography and demography dictate, in my opinion, that Israel does not have an effective nuclear option based on deterrence. A random nuclear strike against Israel would be catastrophic; Israel's response — if it has one — on the other hand, could only be relative. Israel would pay a total price, the aggressor a bearable one. Hence the incentive for the other side to use its weapons. It is crucial, therefore, for Israel to be involved in the development of an alternative strategy, no matter how improbably its ultimate application may be

The only other alternative is to use force to prevent the other side form attaining a nuclear capability, as Menahem Begin decided to do in the case of the Iraqi reactor. Such a strategy is myopic at best, given that the weapons we wish to destroy, or even the potential means of making them, may be supplied by our closest ally, making pre-emption politically impossible.

Critics of the Star Wars programme are against space being turned into a celestial battlefield. Space is one segment of the universe that should be free of potential war: a sort of last refuge of sanity. But it already is a battlefield, and has been so for some years. There are hundreds of spy and communications satellites in orbit, "killer satellite" programmes to destroy the other sides' ability to communicate and function in war.

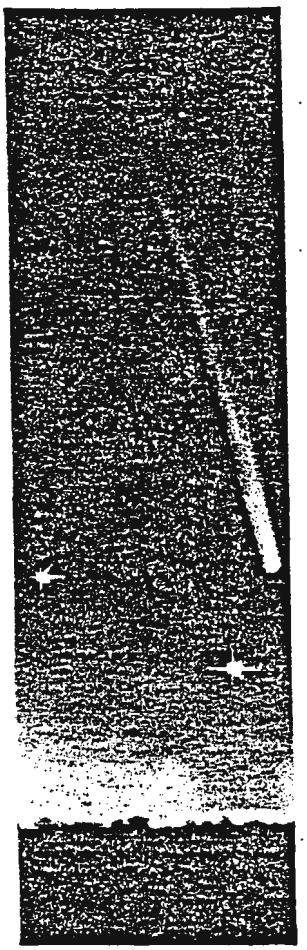
Advance work has been proceeding on satellite destroyers for years — probably before Reagan ever conceived (or brought) the idea of a celestial defence system that would destroy weapons instead of destroying people. Is Star Wars any more insane than the idea of a neutron bomb that would only kill people and leave buildings intact, as conceived by Jimmy Carter, the "human rights" president? After all, what is the sense of sanitary space, if there is no earth to enjoy it.

Reagan, through Defence Secretary Caspar Weinberger in late March, approached 18 countries to take part in research and development of the initial stages of the programme. Israel was among them. This in itself shows how highly the Americans regard Israel's current technological and scientific capability. There was another implication: that America considers Israel a long-term, stable ally which can be trusted to participate in its most secret and most serious defence effort.

Defence Minister Yitzhaq Rabin was right both in thanking the U.S. for the request, and in saying that he would recommend a positive response. Inherent in Star Wars participation, no matter how unrealistic the proposal may be at this stage, are potentially real answers to this country's economic and defence needs. Israel does not have a credible nuclear option. It cannot keep up with the money being spent on sophisticated conventional weapons by the confrontation states. Its economic situation is living off money from the scientists we rely on to continue providing the qualitative edge that keeps us secure. On all these counts, President Reagan's invitation is one to be grateful for.

Lack of debate over 'Star Wars'

By SHLOMO AVINERI



IT NOW APPEARS that Israel is about to decide in favour of participating in research with the U.S. aimed at what is popularly known as President Reagan's "Star wars" strategy. Both the decision to participate, as well as the way in which it is about to be taken, raise serious doubts about the method used to arrive at fateful decisions for Israel's future.

The United States Strategic Defence Initiative is a novel concept, introduced by President Ronald Reagan as part of his confrontational policy vis-à-vis the Soviet Union. Its details are complex and highly technical, and it is not my intention to describe them here: ponderous articles in the U.S. press merely hint at the complexity of the issues involved. None of this has ever found its way into the Israeli press or public debate.

My intention is to focus merely on the Israeli aspect of the problems posed by possible Israeli cooperation in the project, and my doubts are both on the substantive and procedural level.

No one can seriously challenge the proposition that being invited by the U.S. to participate in the research to develop SDI is a sign of the present close relations between Israel and the U.S. Few countries outside of Nato were invited by the U.S. to participate, and Israeli science should be justly proud of the compliment thus paid to our research capabilities in some of the most sophisticated areas on the very frontiers of knowledge. Nor is there any doubt that Israeli participation will be financially rewarding.

On the other hand, there is no doubt that the SDI is the most controversial piece of policy as yet offered by the Reagan Administration. Whatever its justification in terms of the putative balance of power between the U.S. and the USSR, serious doubts have been raised about its advisability from practically every corner.

- Within the U.S., "Star Wars" is hotly contested both in Congress and in public opinion. It will launch, it is said, a new era of escalation of the arms race, exacerbate relations with the USSR and have a catastrophic effect on the balance of power inside the USSR. There is little doubt that the USSR will retaliate in kind, thus giving more power within the Soviet hierarchy to the military segments of Soviet society at the expense of those civilian sectors who may be more interested in the development of consumer goods production and thus less involved in polarizing relations with the U.S. Some of the harshest critics of SDI in Congress are among Israel's best friends, and they certainly will be put in an uneasy position if Israel responds positively to the initiative.
- Among American allies in Europe, there are serious doubts about SDI. Some have politely declined; others have responded that they have to study the matter further. In some countries, detailed parliamentary debates have ensued, and in one case parliament has voted not to proceed with cooperation on SDI, against the wish of the government. In Israel, on the other hand, the media – and the government – appear in the last six months to devote more time to the price of frozen poultry than to Israel's involvement in one of the most momentous, and controversial, weapons systems to be developed since World War II.

THE OTHER aspect is, of course, the future of Israeli-Soviet relations. Maybe Israel should be happy with the present state of its relations with the Soviet Union. But in the last week we have heard repeated expressions of hope by President Chaim Herzog, by Foreign Minister Yitzhak Shamir and by the director-general of the Foreign Ministry, David Kimche, that the recent changes in the Kremlin may portend better relations with the Soviet Union. How can one express such views and at the same time get involved in a project which is considered, rightly or wrongly, by the Soviet Union as the most confrontational tool of U.S. policy vis-à-vis the Soviets? It is very easy to make rhetorical statements about better relations with the Soviet Union; but this entails at least some caution about rushing, without any serious debate, into SDI.

This leads me to the last set of issues, namely, the way in which the debate, or rather non-debate, about the project has been going on in Israel. It is known that the defence establishment is naturally interested in getting involved in the project; so is the electronics industry, for obvious reasons. But not all that is good for the Israel electronics industry is naturally and automatically good for Israel. There has been no public debate, no independent studies about the political and military costs entailed in this involvement.

Example: it is conceivable that the Soviet Union might intensify its support for Syria as a response to our involvement with SDI. Has this ever been discussed publicly? Have the Ministry of Defence committees dealing with SDI seriously considered what this means in terms of our ability to counter Syrian-sponsored terrorism aimed at Galilee? Who, at all, is aware of these considerations?

To the best of my knowledge, the government has never had before it any position paper, not to speak of several opposing position papers, on this issue. Nor has it been seriously discussed in the Knesset Foreign Affairs and Defence Committee. The public in Israel knows more about the South Lebanese Army than about SDI.

In the past, Israel has paid more than enough for decisions taken hastily, without public debate or serious consideration. In some cases, security considerations make it difficult to discuss issues publicly: not in this case.

Most of the debate in the U.S. is public, and so it could be here. The present minister of defence, who justly thinks himself a first-rate expert both on security and Israel-U.S. relations has, however, made some serious mistakes in the past in assessing consequences of certain policies where cooperation with the U.S. was involved (the in-depth bombing against Egypt in 1970, for example). He should not be reluctant to risk public debate; it may correct even his own views, reluctant as he has been in the past to listen to outside advice. But no person, knowledgeable and sharp-witted as he may be, is infallible.

Two last points: the present U.S. secretary of defence is not known for being among those in the Reagan Administration who usually favour more involvement with Israel. Why this generosity all of a sudden? Isn't that another version of the ill-fated Memorandum of Strategic Understanding of Ariel Sharon's days?

Secondly, during the recent TWA hijacking to Beirut, the U.S. was playing its cards very close to its chest and left Israel – its strategic ally – whistling in the dark. When the chips were down, Israel was not really treated by the U.S. as an ally, but as a nuisance. Some people in the U.S. Administration may not be overly unhappy that Israel's standing in American public opinion has suffered during the last terroristic outburst. Should this not cause us to insist on more specific reciprocity?

I am not suggesting that Israel should reject any form of participation in SDI. Perhaps, after due consideration and an intensive public debate, we should go ahead. But the public is entitled to know more, and the government which takes inordinate time in discussing minor affairs of secondary importance, should at least shoulder the responsibility and not leave such a momentous decision to a small group of people whose interest – legitimate as it may be – in participating in the project should not be the only voice heard. This is not as dramatic a decision as going to war in Lebanon, which was likewise taken without due consultation inside the government: the consequences may be even more tremendous, though spread over a number of years and therefore less immediately perceptible.

All this is sufficient reason not to allow the government to take a decision without a serious public debate. The military-industrial complex, as President Dwight Eisenhower once reminded all of us, should not be the exclusive arbiter of political decisions.

The writer is professor of political science at the Hebrew University and a former director-general of the Ministry of Foreign Affairs.

Participation in SDI Reportedly Already Begun

TA160920 Tel Aviv HA'ARETZ in Hebrew 16 Aug 85 p 3

[Report by science affairs correspondent Yerah Tal]

[Excerpt] *HA'ARETZ* has learned that despite the fact the Israeli Government has still not reached an official decision about participating in the U.S. Strategic Defense Initiative project, a special team in the Defense Ministry's research and development department is already preparing material on the subject of military-technological research and development to be proposed to the Americans.

A senior source in the Science and Development Ministry told *HA'ARETZ* that Israel has actually started participating in the "star wars" project already. A public announcement of this decision, however, will only be made — if at all — at a later date, when it will be convenient for Israel, and once European countries announce their participation in the project. So far, only Portugal has declared that it will participate.

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GUEST: LT. GENERAL JAMES A. ABRAHAMSON

DIRECTOR, THE STRATEGIC DEFENSE INITIATIVE ORGANIZATION

DEPARTMENT OF DEFENSE

THURSDAY, MAY 23, 1985

8:35-9:35 AM EDT

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MR. MACLEISH: Our guest today is Lieutenant General James Abrahamson, Director for the Strategic Defense Initiative Organization of the Department of Defense. General Abrahamson, welcome to Euronet.

GEN. ABRAHAMSON: Thank you very much.

MR. MACLEISH: We will now turn to our audiences overseas for their questions. I would like to remind all the questioners to please identify themselves and their organizations. We'll begin with Oslo. Go ahead, Oslo. (Pause.) Are you there this morning, Oslo?

Q: -- from NCRV Television in Holland, The Hague.

MR. MACLEISH: Well, we seem to be having a confusion about where we're going first. So, instead of Oslo we are going to begin with The Hague. Go ahead, The Hague.

Q: Good morning. This is Roel Oostra of NCRV Television, The Hague. The first question, General: President Eisenhower, whose government is often said to serve as an example to the Reagan administration, left as a legacy

decisions, and that, again, he would hope that it would be a cooperative kind of transition with the Soviet Union.

So, I believe that whether the Netherlands participated or not, that their governmental opinion would be a valued input into a western decision process, that would decide whether or not all of the West would go forward together, and just how we would do that.

MR. MACLEISH: Thank you, Hague. We now move to Tel Aviv. Your first question, please, Tel Aviv?

Q: Tel Aviv. Here is Zev Shiff (?), military commentator for Ha'Aretz in Tel Aviv. My first question is understand, General Abrahamson, that an Israeli delegation is visiting now Washington, and they briefed the delegation just a few days ago. Can you tell us, please, what was the reasoning you gave the delegation in order to convince the Israeli Cabinet to join the Strategic Defense Initaitive?

GEN. ABRAHAMSON: Well, these are private discussions between your government, representatives of your government,

and ours, and I think it's most appropriate if you ask them and get from them the results of the discussion.

Let me put it in a larger context. Each of the nations are all trying to understand more fully two very important things. The first one is what is the Strategic Defense Initiative in terms of the many technologies that we're looking at. And then the second one is -- and how is it that participation can benefit both that nation, as well as this initiative? And the only way that one can really begin to make those kinds of judgments and do them together, between nations, is to talk about what it is. So, the Israeli visit was precisely that.

There have been similar visits and there will be more visits from our other allies as well. So, what they are doing is getting a better understanding of technology, and we are getting a better understanding of if there were a national decision on the part of Israel, how it is that they can contribute, as the other allies could contribute, and the benefits that it would be to both nations.

Q: Good morning, General. This is Gideon Remez, foreign news editor, Israel Radio. Nonetheless, could you elaborate on the question whether you have pinpointed any specific areas in which you figure Israel could contribute, at what level any research work might be farmed out to Israel, and whether Israel would have access to the results of development, both in this and other fields of SDI research?

GEN. ABRAHAMSON: First of all, again, this goes back to my F-16 experience. I was fortunate enough to conduct an industrial survey in Israel of your entire aerospace industry, back in the F-16 days, when it was being considered whether or not Israel should enter into a participative industrial arrangement on the F-16. And, therefore, I am familiar, at least in those days, with the impressive technical capability that Israel has. So, I think that there are many areas. And those areas range from some of the very fundamental technologies such as in optics, even in some of the laser applications, through data processing, through advanced materiels, and finally even some of the more conventional applications of some of the advaned

technologies, meaning improving missiles, making missiles more effective.

So, there is a broad range and you should not consider that it's something that is very narrow.

It's premature, however, to say which specific ones or how much money would be involved, what are the size of the contracts. It's probably instructive to point out that the SDI is not a production program. What it is is a large, large number of very small, very specific contracts. Each contract or each laboratory effort aimed at moving forward an area of technology in a dramatic way.

In the United States already we have something over 800 contracts. And you can see from that large number that most of them are quite small. But each of them are trying for a dramatic move forward in certain technologies. And that, of course, is a potential benefit to any of the allies that participate with us.

Q: General, there is an opinion which was expressed here in Israel and also in the United States that Israel was

asked to participate in the SDI, not just because of its ability to contribute in scientific and technological point of view, but mainly because American political domestic reasons. Can you comment on this?

GEN. ABRAHAMSON: (Laughs.) That's not the case. Let me try to identify, again, some of the reasoning for all of Allied participation, and -- that is in our internal papers. The first and most important one is that the United States does not have a corner on the market in terms of brilliant people and effective teams that are able to move technology forward. We understand that. And in the Western Alliance we would like to be able to call on wherever the best people might be to help us with this very formidable job. It is a formidable job. So that's the first and most important reasoning.

Israel, amongst many nations, has a very strong technical capability.

There is a second one, and that's that some day there will be this western decision, and that it won't be just a decision between NATO nations themselves; it'll be a decision

that will involve many, many nations in the West. And that decision shouldn't be based on an American team that has worked on this program, worked on it quietly back in a corner, and then some time in the early 1990s this team would come over and offer a short briefing to the heads of our allied governments and say "Look, look at this neat thing we've done; why don't we all go ahead and do this?" That is just the wrong way to do it.

The right way is for your governments, as well as our own, to have a clear understanding of how effective we've been in these technologies, how these technologies then can support a more effective strategy, one that will help preserve the peace as opposed to be just a war-fighting capability in space. And it is out of that search for a deeper understanding that we, in the United States, feel that it will be most useful to the overall decision process to have participation.

Now, all nations can't participate. But we would try to structure the various participative mechanisms so as many nations as possible could have some role, and out of that

role gain a greater understanding. And those are the fundamental reasons. And they're very straightforward.

Q: General, could you tell us whether you foresee, as the SDI is now conceived of, of a direct impact on Israeli security, or more specifically, whether the system, as you consider it now, when it is deployed, will also serve, perhaps, to interdict short-range missiles that might be aimed at Israel, from within the Middle East?

GEN. ABRAHAMSON: The SDI system that is most often publicized or talked about is the multi-layered defense, that clearly would be most effective against longer range missiles, and by "longer range" I mean that I believe that if we can find the right systems to make this multi-layered defense work effectively, it will work effectively against not only intercontinental range missiles, like SS-18s or future versions of SS-18s, but that it can clealry operate against theater range missiles like SS-20s, that we can get all of the layers working.

However, the very short range missiles, like the SS-21s and the tactical range missiles that threaten not only Israel

but also Europe, those are a special problem, a very difficult problem. We're not ignoring that. We are working on those kinds of systems. And I believe that as we are successful in finding ways to deal with that, that it can contribute not only to the nuclear strategic defense, but also to the many, many conventional threats that are, indeed, facing many of our allies, in different ways than they are threatening the United States.

So, I think the answer is yes. Simply and very clearly, yes. These advanced technologies can be applied not only in the strategic arena, but also in the tactical arena. And that is one of the benefits of a participative program, with many allies.

MR. MACLEISH: Thank you, Tel Aviv. We will now go to Paris. Go ahead, Paris, with your first question.

Q: Marc Gilman (?) from Paris Match and Radio Luxembourg. My question is about the patent system. If a European firm finds something inside a contract they have with SDI, what will be a right for the patent?

Lieutenant General Daniel O. Graham (Ret)

Biography

Daniel O. Graham was born in Medford Oregon where he attended public schools. He attended college at the U.S. Military Academy at West Point.

During his military career, General Graham served in Germany, Korea and Vietnam. His assignments included analyst of Soviet and East European affairs in the office of the Assistant Chief of Staff of the Army, serving on the staff of the Office of National Estimates of the Central Intelligence Agency, Chief of Current Intelligence and Estimates for the Military Assistance Command in Vietnam, Director of Collections and Director of Estimates at the Defense Intelligence Agency, Deputy to the Director of the Central Intelligence Agency and Director of the Defense Intelligence Agency. In addition to holding these posts, General Graham also attended the Army's Command and General Staff School and the U.S. Army War College.

During his career, General Graham received some of the highest decorations our nation bestows. These included the Distinguished Service Medal, the Distinguished Intelligence Medal, the Legion of Merit with two oak leaf clusters and the National Armed Services Award presented to him by the Veterans of Foreign Wars in 1980.

After his retirement from military service in 1976, General Graham became a Research Professor at the University of Miami. He also served as an advisor to President Reagan during his 1976 and 1980 campaigns. In 1978, General Graham left the University to become Co-Chairman of the Coalition for Peace Through Strength and a staff member of the American Security Council. In 1981 General Graham founded and became Director of High Frontier.

General Graham has authored or co-authored numerous books and monographs in the area of national defense and ballistic missile defense. These include A New Strategy for the West, 1976; Shall America be Defended, 1980; High Frontier: A New National Strategy, 1982; and A Defense that Defends (with Gregory Fossedal), 1984.

The SDI: Its Importance for Israel

Most of the arguments over the SDI concern either its technical feasibility or its implications for the U.S./Soviet strategic balance. Very few of these debates focus on the crucial implications of the program for the so-called "third world," including the Middle East. This is unfortunate since the real importance of the nuclear balance -- and the effect on that balance of U.S. ballistic missile defenses -- is for the ability of the two major powers to extend either domination or security in the third world.

To understand this more fully, we must first have some idea of the reasons why the Soviet Union attaches such great importance to the achievement and maintenance of strategic superiority. The Soviets tend to believe that superiority at the strategic level is not something to be used directly; say, to launch a first strike against the U.S. Rather, it has its effect indirectly, by making the U.S. more circumspect with regard to such Soviet policies [redacted] as support for "National Liberation Movements" and so-called "Freedom Fighters". The rationale behind this is: if the Americans do attempt to stand in the way of the Soviets at low levels of conflict, there is some threat that the conflict will escalate. Since the Soviets are strategically superior, they will be better able to cope with that escalation than will the Americans. As a result, the Americans will not wish to escalate and so will not seriously challenge Soviet policy in the first place and thereby court such a risk.

As an example of how such a scenario might work, take the

possibility of another Arab-Israeli war similar to the Yom Kippur war in 1973. In the midst of that war the Soviets made several threatening gestures, including the airlift of the headquarters units of two airborne divisions to Damascus and the dispatch of several ships carrying cargo -- which might have been radioactive -- to Egypt. The United States responded with its own military alert, DEFCON 3. This convinced the Soviets to back down. But this incident took place in 1973, when the U.S. still enjoyed "rough parity" with the Soviets in strategic systems. Since that time, the Soviets have added thousands of new, highly accurate warheads to their inventory and have dramatically increased the capacity of both their civil defenses and their "air defenses." They have added a whole new type of "dual capable" air defense missile (the SA-12) which has significant capacity to shoot down U.S. ballistic missiles as well as bombers. The result of these developments is that the Soviets may now possess the capacity to launch a first strike against U.S. land-based strategic forces and to survive the kind of uncoordinated U.S. retaliation which might -- or might not -- follow.

In this new circumstance it is not at all clear that a U.S. military alert would bring about Soviet compliance with American wishes. Instead, it might only bring about a similar Soviet alert. At that point an American President would have to decide whether it is in the U.S. interest to run the risk of a war we did not choose and might well lose, or allow the destruction of an ally whose demise would be a serious blow to, but not the end of, America. Given this choice, the U.S. might well opt for the

latter over the former. Moreover, this possibility increases with every day the U.S. allows itself to remain undefended while Soviet offensive power continues to grow.

Should ballistic missile defenses be deployed to defend America, this situation would be changed. The U.S. would not have to fear intimidation at the hands of superior Soviet offensive forces and active and passive defenses. As a result, it will be far more willing to act on behalf of its allies and far more willing to stand in the way of Soviet policy when it contravenes their security. To put it simply, a defended America is more likely to aid its allies than a vulnerable America!

Another reason why the SDI is of great value to Israel and other U.S. allies lies in the specific products of this effort. Not only Israel, but also our European and Pacific allies, live under the threat of Soviet or Soviet-supplied tactical ballistic missiles such as the SS-21, 22 and 23. These offensive weapons are especially threatening to Israel due to their incredibly short flight-time over such a small distance as that, say, from Damascus to Tel Aviv. One of the first technologies likely to emerge from SDI research is anti-tactical ballistic missiles. These weapons would enable Israel actually to defend itself against this threat rather than simply attempt to deter it by threat of retaliation. This ability to defend rather than simply deter would appear to be of special importance in the Middle East, populated as it is with a number of so-called "crazy states" which may not be deterred by threat of retaliation.

Thus, the SDI should be viewed as a program especially

important to the survival of Israel and, therefore, worthy of special support by American Jews.

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