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FAS HEARING ON OPTIONS IN THE PERSIAN GULF

Alton Frye (Moderator): This hearing is one of a series organized by the Federation of American Scientists to consider important issues of public policy. Our subject this morning is options for resolving the Persian Gulf crisis. I want to express our special appreciation to Senator Joseph Biden and Senator Edward Kennedy for making this hearing room available for this purpose.

The Crisis

Grave questions hang in the air. Can the present sanctions compel Saddam Hussein to back down? If so, when? Can the United States and its allies wait that long? What requirements are imposed on US policy by the need to maintain the multi-national coalition? What diplomatic initiatives should be mounted to persuade the Iraqi leader to alter course? When and by whom should those initiatives be advanced? Which approach to ending the crisis is most likely to bolster regional stability and that new world order toward which nations are striving?

What outcomes might be acceptable? What measures are best calculated to achieve an acceptable outcome?

Witnesses

The experience of this morning's witnesses spans virtual-



American soldiers in the Saudi desert

ly the entire history of post-war American statecraft. Among other roles, **George Ball** served as undersecretary of state, the number two official in the department, and as ambassador to the United Nations. **Richard Murphy** served as assistant secretary of state and as ambassador to a number of governments in the Middle East. **Paul Nitze**, as deputy secretary of defense and as ambassador-at-large.

Our interrogators also bring to the discussion long and varied backgrounds in national security and foreign policy. **Harold Saunders** served as assistant secretary of state and as the department's director of intelligence and research. **Bernard Trainor** was formerly the Marine Corps' deputy chief of staff for plans, policies and operations, and later military correspondent of the *New York Times*.

Mr. Ball, can we begin with your statement please.

The Bush Response to the Kuwait Crisis

George Ball: We hear a great deal from President Bush these days that the ending of the Cold War provides the opportunity, indeed the necessity, to create what he refers to as a new order. But we must recognize that the end of the bilateral struggle between the Soviet Union and the West does not mean the end of armed struggle, but the emergence of a plethora of local and regional quarrels.

In the 19th century, through the Concert of Europe, the great powers enforced settlements, usually for the aggrandizement of one or more of their own number. But following the two World Wars, the great powers devised arrangements based not on selfish national ambitions, but on a set of rules for the peaceful settlement of disputes through the application of established principles such as self-determination, protection of minorities, and so on.

FAS Hearings Prod Debate on Capitol Hill

This issue of the Public Interest Report presents condensed transcripts of the third and fourth in FAS' continuing series of hearings on science and public policy—hearings in which expert testimony is refined through expert interrogation. On Oct. 3, astronomer Carl Sagan, astronaut Charles Walker, and sociologist Amitai Etzioni testified on the feasibility and desirability of human missions to Mars, as proposed in the Space Exploration Initiative (page 12).

FAS examined options in the Persian Gulf crisis in a Senate room on Nov. 26. Remarkably, Congress had not, by that date, held hearings with outside witnesses. Our hearings, which were transmitted live by C-SPAN (and retransmitted three more times) reached a live audience with the views of three distinguished former officials: Undersecretary George Ball, Deputy Secretary Paul Nitze, and Ambassador Richard Murphy. Later hearings by the Foreign Relations Committee and the Armed Services Committee confirmed the thrust of the FAS hearings—that sanctions should be given adequate time to work. ■



Witnesses: George Ball, Paul Nitze, Richard Murphy

President Bush thus quite properly turned toward the Security Council of the United Nations when the invasion of Kuwait first occurred. He and his administration promptly secured the passage by the Council of a series of resolutions which first called for diplomacy, then authorized the economic embargo and finally the enforcement of the embargo by an armed blockade.

The object of these measures was, the president insisted, to deter the Iraqis from further plunderous expeditions, and to secure the withdrawal of Iraqi forces from Kuwait.

The Abrupt Turn in Policy

All that was commendable, but then the president abruptly changed both his philosophy and course of action. While repeating his earlier theme about collective action through the United Nations and the need to implement the blockade, he implied the need for unilateral action and poured in division after division of troops.

For the first few months, the administration constantly asserted that the economic sanctions were taking effect, or that Iraq would soon run out of food. And then, without adequate explanation, members of the administration began expressing deep skepticism that the sanctions were working. Now the president seems to emphasize that we can scare Saddam Hussein through the threat of force.

We now have, or will shortly have, almost a half a million troops in the desert of Arabia, so many that we cannot rotate them for lack of trained replacements. Now we must use them, or we may lose—that horrid cliché—the window of opportunity, whatever that means. I think the added deployments have trapped us in a situation from which it will be extremely difficult to extricate America without tragic loss of life and horrendous political costs.

Hazards of War

A war will be anything but the quick and easy one that proponents suggest. We have a long history of underestimating the intensity and duration of conflicts. We Americans made that error first in the Civil War, and repeated it again with the Korean War and finally, Vietnam. Europeans entered the First World War on the comforting assumption that the boys would be home by Christmas.

But General Schwartzkopf, who commands what we call

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Desert Shield, and would have responsibility for fighting Iraq's forces, has sternly warned against underestimating the enemy, and has made it clear that American casualties would be horrendous.

One bit of mythology which has been very widely noted is the myth that we can end this war solely by the use of air power. Both Mr. Nitze and I were directors of the United States Strategic Bombing Survey at the end of the Second World War, and I am sure that we would agree on the general proposition that wars cannot be won by air power alone. If we are to drive the Iraqis out of Kuwait, we will need to hold the position on the ground.

Moreover, it seems quite clear that we cannot mount an air offensive against Kuwait and Iraq and have the Iraqi forces sit still. Saddam Hussein is not a masochist. If we attack his capital and decimate it, and attempt to destroy the facilities for producing unconventional weapons, he will almost certainly move on the ground, and we will then be engaged in the kind of war which could be a ghastly mistake, in the sense of exorbitant cost.

In addition, any nation of Christian and Jewish infidels that unilaterally attacks an Arab state will not have a single friend left in the Middle East—except Israel, whose friendship renders America anathema to all Arab governments. We will be blamed, because we are perceived as indifferent or hostile to a diplomatic solution.

Almost immediately our fragile coalition will melt away. The Soviets and Egyptians have already indicated that they have no intention to join in any offensive action taken by the United States against Iraq, particularly since we have failed to organize a real United Nations force.

The President's Mistakes

The administration did a superb job of organizing a coalition and an effective blockade, but then the president made a series of costly mistakes.

The first was not to continue on the course prescribed by the UN Charter and move toward the creation of a true United Nations force flying a United Nations flag. That would have made it far easier to keep our fragile coalition together and to enlist further members such as the Soviet Union, France, Germany and other European friends.

The second mistake was not to hold as the national position that our objective was to deter and defend. What the president seems to contemplate is a *carte blanche* from the UN to launch attacks that will destroy the Saddam Hussein regime and eliminate all of Iraq's facilities for producing unconventional weapons.

Apparently having become hostage to our own over-deployment, the president has ignored the orderly process of the UN Charter, which provides for measured steps, from negotiations to a blockade. Article 42 of the Charter makes it explicit that the use of military force will be authorized only after the Security Council has considered that the measures provided for in the previous articles "would be inadequate or have proved to be inadequate" to maintain or restore international peace and security.

Another mistake, in my view, has been to stir up public opinion to hate the Iraqi leadership by inflammatory lan-

guage, such as equating Saddam with Hitler, and dragging out the classical tales of brutality which are normally aired just before a war is actually begun.

Why this Departure?

Why have we departed from our original idea, that our forces were to be used for defense and deterrence, and not to be used in any offensive way? Why are we not waiting to make sure that the blockade is really not effective?

The blockade is reducing the GNP of Iraq by five percent each month, and it has wiped out, almost completely, their ability to earn foreign exchange. If we continue this and sit there long enough, the blockade will not only destroy or seriously impair Iraq's economy, but also weaken its army by inability to get spare parts.

And just as we are worrying about the effect on troop morale if we keep our troops there very long, I think the Iraqi forces will have the same problems.

Frye: Thank you very much, Mr. Ball. We turn now to the initial presentation from Ambassador Murphy.

Will War Be Necessary?

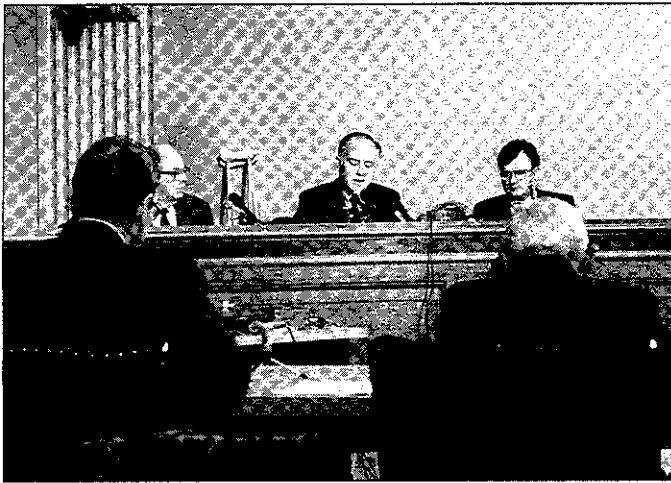
Richard Murphy: As our military build-up continues, and that of our partners in this coalition, the situation is far from static. At any moment, Saddam might look down the road and decide either to withdraw to the northern border of his so-called 19th province and allow restoration of the Kuwaiti government, or to withdraw completely. Either move would make it extremely hard for us to maintain the present coalition. But our dilemma would remain.

If Saddam withdrew peacefully, what guarantees would there be that he would not simply bide his time and return with nuclear weapons and more sophisticated missile delivery systems? I think this is why the military option has been depicted as so appealing. It is the only sure way to avoid future aggression—to smash the Iraqi military machine and its supporting infrastructure.

There is some evidence that bottlenecks are starting to



Richard Murphy: *There have been some 15 years of public debate, starting in the academic world, about whether the United States should seriously consider using force or the threat of force to protect the Gulf oil. Fifteen years later, that argument is one of the main reasons we find our ships, troops, planes, and tanks in Saudi Arabia, in the Gulf and outside the Straits of Hormuz.*



On the dais: Harold Saunders, Alton Frye, Bernard Trainor

develop in Iraq's industrial sector. Indeed, there is no evidence that before the invasion of August 2nd there had been such masterful planning and months of preparations by Iraqi authorities that there would be no difficulties for the economy should it be hit by sanctions. However, I think most now agree that however stringent these sanctions, Iraq is not about to be paralyzed, much less collapse.

The advocates of a military option say we cannot wait. Iraq is two, five, ten years from nuclear capability. The physical gutting of Kuwait, and the flight of more than 40 percent of its pre-invasion population, underscores the need for prompt and effective action.

I see two main disadvantages in the military option. One is the effect on the regional military balance. The other is the sheer unpredictability of a war.

This would be the first Arab-American conflict, and it will certainly affect future US-Arab relations.

The UN umbrella, sanctioning an offensive, might make it easier for the Saudis, Egyptians and Syrians to join with us and other non-Arab forces in a strike against Iraq. But will the regimes that are with us today be able to carry their populations in the event of a war? Certainly, the Iraqis will play the Arab nationalist card for all it is worth.

Yet the use of force may be inevitable if Saddam refuses to leave Kuwait and restore its legitimate government. I don't think our government is bluffing in the doubling of the US troops there, and so far, Saddam personally has remained adamant that Kuwaiti independence is dead.

If Diplomacy Succeeds, Can We Guarantee the Peace?

Will regional stability be better served if there are some type of negotiations that get Saddam out, whether we are directly involved or not? And if negotiations succeed in getting withdrawal, can we implement an arrangement that guarantees containment of a militarily potent Iraq?

I think the answer to both of those questions is a qualified yes, but only given extraordinary and sustained international cooperation. I want to outline a package of guarantees which might reasonably contain Iraqi military power if Saddam withdraws, based on the assumption that the international community can stay united.

The first is a worldwide arms embargo. This would put a special obligation on those who have supplied the Iraqi arsenal—mainly the Soviet Union, France and China. The embargo would have to be maintained until Iraq's enormous inventory has seriously degraded. I would suggest an extended period, perhaps five years or longer.

A second element would be to maintain the oil embargo on Iraq after it has withdrawn from Kuwait, in order to bring Baghdad to build down its arms inventory and allow international inspection of its chemical and nuclear sites. I submit this with some hesitation because of the strain that getting international approval for this would put on the coalition. I know it would be affected by the levels of oil supply over this coming winter and the year ahead.

Third would be a new regional security structure. Arab forces would be stationed in Saudi Arabia, under a Saudi command built around the core of the Gulf Cooperation Council units. I would think the principal foreign force would be the Egyptian army. Kuwait would host a United Nations peace-keeping force, which would serve as a trip-wire and a caution to anyone intending further adventures. Whether the US and Soviets should be members of that force would be open to discussion.

Fourth, a major inventory of American equipment would be pre-positioned in Saudi Arabia so that in the future the hundred or hundred and ninety day build-up that we have seen would not be needed before we were ready for all contingencies. And perhaps some US units would be stationed in Saudi Arabia. However, I see no way that we could keep US public or congressional support for a force of the existing size, and even if we could, it would likely expose the Saudis to destabilizing criticism.

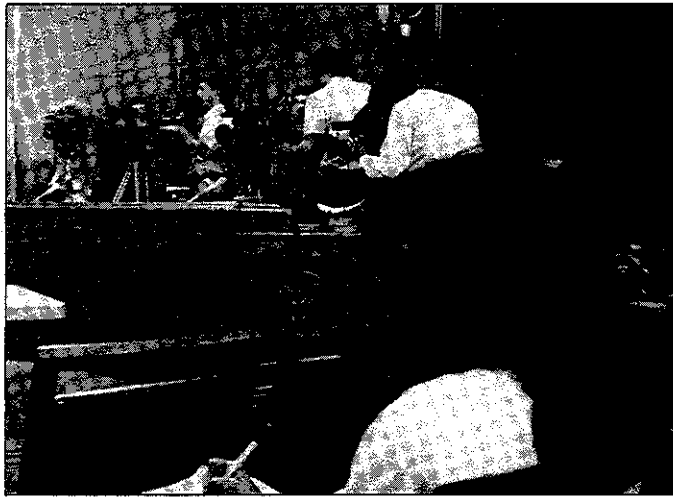
Regional Initiatives

I would suggest two other regional initiatives. One obviously would be the revival of Arab-Israeli peace talks to break out of the deadlock that has characterized that process for the past several years. These should be restarted on a broad basis, and not just aimed at stimulating an Israel-Palestinian dialogue. Perhaps such a framework such as the Conference for Security and Cooperation in Europe, in which the 35 nations met to adopt guidelines for several different baskets of issues, might be conceived of.

The second major initiative, perhaps to be taken sooner than the first, is arms control. Regional arms control has never been systematically pursued in the Middle East. We have recently decided to sell major new arms packages to the Saudis and to the Israelis. This is familiar. It has been a valid approach to crisis management, but it only prolongs one of the world's most dangerous arms races.

Arms control talks, admittedly, would take years to eliminate the weapons of mass destruction and reduce the conventional arms inventories. Middle Eastern states are unfamiliar with the language and the lore of arms control. Such talks have to be accepted as in the interest of all parties of the region. Exempting or excluding Israel from such talks would make them a non-starter.

The Gulf crisis continues to reveal shifts in power alliances, and it is not unrealistic to open the book on an



Besides C-SPAN, CBS and MacNeill/Lehrer covered hearing

international conference. Its agenda might range from security issues, including arms control, to economic cooperation, human rights, and preparation for negotiations to end the prevailing state of belligerency in the area and eventual establishment of a formal peace. I am well aware of US resistance to the international conference idea, but if we seriously want to foster a new world order, I can't think of a better place to start than the Middle East.

Expanding the agenda of Middle Eastern negotiations at this crucial time might, in fact, serve to soften the intractability of positions so deeply rooted in the past.

Frye: Thank you, Mr. Murphy. We will conclude our initial presentations by turning now to Mr. Nitze.

Acceptable Outcomes to the Crisis

Paul Nitze: I believe our overriding goal in the Gulf crisis is to demonstrate that an aggression such as Saddam Hussein's attack on Kuwait will not be tolerated by the nations supporting decisions of the UN Security Council. To so demonstrate is a necessary precondition to the creation of a more peaceful and just world order. Failure to do so would lead to a chaotic and unmanageable world.

To achieve that goal, there are several immediate results that we, in conformity with Security Council decisions, should seek: withdrawal of Iraq from Kuwait; restoration of the Kuwaiti government; release of all hostages; preservation of worldwide oil supplies at pre-invasion levels; reduction of Iraq's future threat to its neighbors—elimination of Iraqi nuclear, chemical, biological capabilities; and preservation of US relations with friendly Arab states.

The preferred outcome would be one that satisfied all these objectives. An outcome that satisfied most of them, but involved some disruption of oil supplies, or that, rather than eliminating the future Iraqi threat, produced a security arrangement to offset it, could also be acceptable.

Two Courses Before Us

The United States is faced with a crucial decision between two general lines of action. Course A is to propose to the UN Security Council a further resolution authoriz-

ing the initiation of hostilities against Iraq, and if it is approved, to initiate such action.

Course B, which I obviously prefer, would be to exercise patience and give the embargo approved by the Security Council more than a few months time to achieve the desired result. To make this possible, we would rotate and reduce our deployed forces in Saudi Arabia. We should strive for a position from which we could sustain the embargo longer than Saddam can sustain his recalcitrance, even if he can hold out for a year or two, or even three.

The embargo has completely cut off the export of oil by Iraq. The income that Iraq is forgoing amounts to a cost of approximately \$3 billion for each month that the embargo continues. Iraq can cannibalize its tanks and other sophisticated equipment, but month by month, more of its military and other equipment will become inoperable.

A significantly smaller number of troops stationed in Saudi Arabia should be adequate to deter an Iraqi attack on that country. We have good surveillance. We have a demonstrated ability to get reinforcements there in short order. Saddam Hussein could not be so stupid as to attempt to invade Saudi Arabia.

Conditions for Success by Military Means

In the event Course A is chosen, it would be crucial to its possibility of success that both houses of Congress give the effort their full support, despite not having previously consented to the executive branch's initiation of widespread hostilities against Iraq. This does not appear likely.

The principal member states of the UN Security Council would have to give more than passive support to the United States' attempt to bring Iraq into conformity with the Council's resolutions by direct military means. This also does not appear likely.

Also, the US will have to achieve full control of the air over the desert and over Iraq itself. This appears likely, but is subject to the usual hazards of complex operations.

If all these conditions were met, it could be possible to achieve most of the objectives I listed earlier. In particular, we should be able to significantly reduce Iraq's offensive forces and make inoperable much of its nuclear, biological and chemical weapons production facilities and laboratories.

Security Council Resolution 678

As the world knows, on Nov. 29, four days after this hearing was held, the Security Council approved a resolution interpreted by the United States as authorizing a military offensive. The actual language of Resolution 678 "Authorizes member states cooperating with the government of Kuwait, unless Iraq on or before 15 January 1991 fully implements . . . the foregoing resolutions, to use all necessary means to uphold and implement Security Council Resolution 660 and all subsequent relevant resolutions and to restore international peace and security in the area." ■

But I am concerned about the potential destruction of Iraqi, Kuwaiti and Saudi oil facilities in a war, as well as the effects on our relations with other Arab states. In defeating Iraq, we could inadvertently do great damage to the world energy picture and create an even more unstable Middle East.

More importantly, we have to worry about the great human costs, and the ability of the president to sustain domestic and international support in the face of those costs.

Considerations for the No-Offensive Course

If Course B is chosen, the embargo against Iraq should not be lifted until substantially the same results we would be seeking under Course A had been agreed to by Iraq.

It is anomalous that the United States should be asking Germany, France, the Soviet Union and others for permission to save them from the instabilities that would result if Saddam Hussein is successful, and that would affect them more than us. The position we should be taking is that the United States is prepared to join others in countering Saddam's aggression, but only if each country bears its share of the risk, cost and military effort. The Soviet Union should withdraw from its treaty of friendship with Iraq and withdraw its military and civilian advisors from Iraq. Otherwise, we should refuse to go beyond having our Navy continue to implement the blockade.

Can we be sure the embargo will eventually work? No. But if it is kept in place for an extended time, it should become clearer month by month, to Americans and to the world as a whole, that the only option remaining is military action. The likelihood for support of such action should then have significantly increased.

It is important that we and the world community not compromise our overriding goal. We must bring home to aspiring terrorists and madmen the message that the world community will not permit chaos and mutual fear to destroy the prospects for tolerable order.

In a chaotic world, the increasing raw material, environmental, demographic, economic and social problems could



Paul Nitze, Richard Murphy

not be managed. A world which permits the surprise seizure of the territory of one member of the United Nations by another would soon become intolerable.

Getting Saddam Hussein to Move

Harold Saunders: Ambassador Murphy, what can you see as the things that we might do, or the things that time might do to cause Saddam Hussein to make the critical judgment that it is time to withdraw? I think the viability of your specific proposals for political settlement may depend on the answers to this question.

Murphy: The sanctions are certainly a major tool. They have blocked 97% of Iraq's foreign exchange earnings. We can't say just how long it will take, but maintain those sanctions. Maintain that pressure. Maintain the military build-up. Those are the actions we can take.

Now, Saddam will be looking for an assurance of his survival. He may well suspect that whatever move he made, full or partial withdrawal, we would still come after him to destroy him personally, his military and the regime.

A Credible Third Voice

I think that what is needed is a third voice, a non-American voice, that can get the message across to Saddam that when President Bush says he does not have as his objective the destruction of the Iraqi regime, this can be taken at face value. Also, that if he withdraws, there will be negotiations, mediation, or arbitration of the causes, the problems he has described. No deal will have been made. There will have to be clear-cut withdrawal, restoration and freedom of the hostages. Then negotiations.

There can't be guarantees of the outcome, but whoever this third party is, they have to be credible enough to assure Saddam that the Americans will not come after him if he withdraws, and that he will have negotiations.

Saunders: Is it George Bush's move or is it the third party's move, or should Bush talk to the third party?

Murphy: We were very contemptuous of King Hussein and Arafat, and in fact their repeated visits to Baghdad brought no indication that Saddam was ready to leave Kuwait. But there have been others out there: the Soviets, the French, certain Arab countries who could be quietly encouraged. I think we can easily create the atmosphere in which other potential third parties will come forward.

Can We Let Him Save Face?

Bernard Trainor: Should we provide Saddam Hussein with some sort of a fig leaf behind which to withdraw? Can we allow him to get out with some sort of posture that he has stood up to the Americans and that makes him a hero in the Arab world and a continued threat to stability? Or should we ensure that he withdraw without any semblance of gain and in a sense be humiliated, regardless of whether his regime survives or not?

Murphy: I doubt we can deny him the chance to say, "I have achieved my real objectives." He is better able than any of us to devise that flow of words. He is a survivor and

he knows his audience far better than we do.

But you don't push the enemy against a locked door. He has to have some way out, unless we have decided that we want a war. Saddam is not suicidal, he is not known for having a messiah complex, but he could develop that.

In the real world, there aren't too many victories that he can have. You know of the enthusiasm on the part of the Palestinians for what he did. Well, that was before hundreds of thousands of Palestinians began to flood out of Kuwait and the Gulf states, out of jobs, with no likelihood of getting new jobs. I think the reality of what he has done has sunk in among the Palestinian community.

Trainor: In the press, there has been a lot of talk that five years from now we are going to find that we face a greater monster. You have outlined some proposals that would put some control over this danger, but these things—the arms embargo, the continuation of the oil embargo, the surveillance of his capabilities—all seem to infringe upon Iraqi sovereignty. Is this a realistic sort of proposal?

Murphy: If we think in terms of a broader regional package including the revival of the peace process between Arabs and Israelis, and a regional arms control negotiation, it would be close but I think my answer would be yes.

Would a Regional Peace Initiative Reward Saddam's Aggression?

Frye: You said that you think the burden should be left on Saddam Hussein to write the script that saves his face. I think we have already heard the first draft of that script in his references to a comprehensive settlement embracing an Arab-Israeli peace arrangement, including constraints on Israeli nuclear and chemical capabilities.

Isn't it going to be difficult for us to make any statement at all about those kinds of Arab-Israeli peace talks if it seems to create a linkage that, in effect, rewards Saddam Hussein or meets his terms?

Murphy: We don't have to give him credit for resuming our longstanding efforts on the Arab-Israeli peace process. That is unfinished business and the administration has said that it wishes to get back to that. There are good and sufficient reasons for arms control and a revived peace process, and we can't let our pride get in the way of being able to just disregard what Saddam may say.

Can We Shift to a Longer-term Strategy Without Appearing to Back Down?

Trainor: Mr. Nitze, the practical reality is that the president has sent an increase of force out there. Now, your proposal is to reduce the number and rotate them. But don't we run a risk under your plan of appearing that we are starting to back off, and thereby reducing the likelihood that Saddam Hussein is forced to make a decision and encouraging him to think that his strategy of waiting us out is going to work?

Nitze: I consider it to be a sign of strength to be able to show patience and to force this fellow to do something outrageous himself, if he wants to. I don't think he will



Bernard Trainor: *The practical reality is that the president has sent an increase of force out there . . . These simply can't be sustained over the sort of time that people seem to predict it would take for the embargo to have a real effect.*

want to. I think we can continue to squeeze him and squeeze him. I don't think that is a sign of weakness at all.

Saunders: What formula for an understanding between the president and the Congress would indicate to Saddam Hussein that a shift to a longer-term strategy did not reflect a weakening of the president's political base?

Nitze: Members of the Senate in particular have gone out of their way to make their position clear. They don't want to be attacking the chief executive when he is engaged in a very difficult negotiation, so they have tried to restrain what they are saying. But they make it crystal clear that they would prefer to take time, to exhaust the possibilities of the blockade before going to the extreme use of force.

Saunders: Let's assume you are writing a joint resolution of Congress in support of a longer-term strategy. What would it have to say to indicate to Saddam that the resolution is not a sign of American weakness; that at the end of the road, Congress would support military action?

Nitze: I don't think that is a very difficult resolution to write. It ought to be written on the Hill. You could outline where the Congress clearly supports the president and where they would prefer to see a different course.

And clearly, if the president were to tell Congress that he had made up his mind to take time rather than to initiate hostilities right away, I don't think there would be any difficulty at all in getting a resolution which would make it manifestly clear to Saddam Hussein that this was a stronger policy, tougher on him in the long run.

How Bush could Explain

Saunders: What would be the main points in the speech whereby Bush would explain his shift of gears?

Nitze: The president would say that it has become clear that there is wide political support, both in the United States and amongst our allies, to see to it that Saddam Hussein does not gain in any way from his aggression. The argument is about the course, about the time to be taken. Today the support for a prompt solution of the crisis by a

willingness on our part to engage in the ultimate type of hostilities promptly is not there, and instead there is wide support for achieving the same objectives but over a longer rather than a shorter period of time.

Frye: It perplexed me a little bit that you noted in passing your demand that if we continue the naval blockade, the Soviets ought to be disconnecting their relationships from the Iraqis. Some would suggest that the Soviet connection to Iraq would remain one of the possible channels through which diplomatic success may yet occur.

Nitze: Once Iraq is in a position where it really wants a settlement and is prepared seriously to negotiate, we wouldn't have any difficulty in working out a deal. We don't need an intermediary at that stage of the game.

Nitze: No Mediation Now

On the other hand, as long as we are the demander for a settlement from them in order to get out of the unsustainable position we have built ourselves into, I wouldn't want to have anybody negotiate for us, or even to try and open negotiations at this time.

Frye: You are saying, if I understand that correctly, that this is not the moment for diplomacy. We should simply demonstrate a willingness to stick to it until he breaks.

Nitze: I believe that strongly.

A True United Nations Force

Saunders: Mr. Ball, let's hypothesize that the president gave Paul Nitze's speech and said we are going for a longer time frame and moving to the track that you proposed, the UN track. Could you elaborate what you think it would take in terms of time? What would have to be done? What are the obstacles to bringing that about? Is it realistic?



Paul Nitze: The president certainly has given the impression that he has burned his bridges; he intended to give that impression to Saddam Hussein. But he can't burn his bridges behind him. He must continue to weigh what is in the best interest of the United States, to weigh the alternatives and weigh them realistically.

Ball: A real United Nations force would be responsible to a military staff committee as provided for in Article 47 of the United Nations Charter.

Article 43 of the Charter calls for the negotiation of agreements with the nations as to what kinds of forces they would be prepared to make available. So we would need to negotiate with the non-members of the coalition for their contribution of forces. They would at least be in a position not of joining the United States, which creates a lot of special political problems for some nations, but of joining the UN force at the request of the Security Council.

I can't see that being done overnight, but I don't think it would take more than four to six months. It does not necessarily need to be done by one overall agreement. It can be done by separate agreements with the various nations. You are not starting from scratch, in any event.

We did something like that in Korea, you may recall, and I don't see why it shouldn't be done here. I think it is attractive to have a force in the Saudi desert which flies the flag of the United Nations, not the American flag. It would make it a lot easier for the Saudis.

Saunders: What do you think about the reaction of the Congress or the US military forces to the idea of putting American forces under a UN flag?

Ball: My own feeling is that we could certainly arrange for the supreme commander of the forces to be an American. I imagine the situation wouldn't be very much different from Gen. Eisenhower in Operation Overlord.

No Threats or Demonstrations

Saunders: Is there a military step, or the threat of a military step, that might hasten the day when Saddam Hussein would reckon that he just cannot succeed and must get out? The military forces are there. Can they be used to hasten a peaceful settlement?

Ball: You've got to weigh that against what the consequences of such a military step would be.

You could bomb Iraq and aim at the facilities that are producing unconventional weapons, but it wouldn't be confined to that. There is no such thing as surgical bombing. Saddam could reply with his army, because he is inferior in the air and might be more equal as far as ground forces are concerned. That gets us into a great big war, and I don't think we have accomplished anything.

Nitze: I thoroughly disapprove of bluffs. I think to make threats which you don't really intend to carry out is counterproductive. When you try to bring threats against people, you increase their will to resist—"Why is this fellow threatening me? Because there is some reason why he doesn't really want to do it. So why don't I just sit firm?"

If he sees that you are building real capabilities and real political strength behind your policies, then he can be affected. When somebody is really faced with overwhelming military capabilities, he takes that seriously. He is not going to head into certain disaster. But if all he sees is chest pounding and saying "We will do this to you," that causes him to say, "We will show them, we are not timid people."

Murphy: I think the time for a demonstration of our capabilities probably was in August, and it is no longer possible to take such a step without triggering something much wider. The consequences are very unpredictable.

Is Saddam able to read the seriousness of the build-up militarily? Probably so. Certainly he has good officers, well-trained officers who can advise him.

What is harder for him is to read our political intentions. He has so little framework for understanding what it means when a Congressman speaks critically of a president, or a newspaper alternately supports and attacks the policy.

I would hope we were trying to get the message across through media such as the Voice of America, very calmly and factually, of where Iraq is going under the sanctions.

Have We Burned our Bridges?

Trainor: Mr. Nitze, it seems quite apparent that the president burned his bridges behind him. He is sending more forces out there and they are not going to be rotated. Given the difficulty of sustaining those forces over there for an extended period of time, it would appear that he is sending a clear signal to Saddam Hussein that he is not bluffing. If it works, George Bush may go down as being one of the greatest poker players in American history.

On the other hand, the non-bloody option appears to be to rotate out forces, hope this doesn't signal Saddam that there is no credible military threat against him, and go the route of the embargo. As Ambassador Murphy pointed out, there is really no secure judgment as to how long this would take to work, or whether it would work at all.

This fellow has established his position and incorporated Kuwait, and we are betting that the embargo is going to work in the face of evidence that embargoes don't really work that well and that coalitions don't stay together very long when everybody has diverse interests.

Aren't you panelists simply reluctant to step up to the necessity of using force to right a wrong, simply because of your abhorrence of war, and not because you really think the embargo is going to work?

Nitze: The president certainly has given the impression that he has burned his bridges; he intended to give that impression to Saddam Hussein. But he can't burn his bridges behind him. He must continue to weigh what is in the best interest of the United States, to weigh the alternatives and weigh them realistically.

I quite agree that one can't be certain about the effectiveness of the embargo. I wouldn't be certain that the Iraqis could not struggle along somehow, but if we tried the embargo, I think then there would be much greater support for whatever action might be necessary.

Sanctions Can Work

Murphy: I think it can work. We've got control of 97 percent of Iraq's foreign exchange earnings. Sure, they can smuggle across the Iranian-Turkish frontiers, but they can't smuggle a whole economy. If they are smuggling, they are going to have to pay a premium. They went into this war broke. In Kuwait they picked up an estimated one and a half billion dollars. That isn't going to keep the Iraqi

economy healthy for long.

People have become uneasy because nobody can tell just when the embargo by itself is going to bring the Iraqi leader to the point of deciding to get out. I don't know just when he is going to reach this decision. But I believe that he will, and I am concerned about the unpredictable effects of the use of force on our position in the region, quite apart from the destruction that it will bring to us and to other nations that are involved. You are talking about destroying an Arab army, and the morning after there are going to be a lot of problems between us and the Arab world, even though they despise Saddam and what he's done.

Frye: I am going to offer an opportunity for those among the press and audience to pose questions or challenges.

Congress and War Powers

Jeremy Stone: I would like to ask the panelists and interrogators whether they think the president has the authority to launch an offensive action without a declaration of war or some comparable congressional resolution.

Ball: I would say if he initiates offensive action without very clear collaboration from the Congress, it would shake the confidence of the country enormously. It would be politically a stupid thing to do.

Nitze: I think it is clear that the president has the authority as commander-in-chief to order the troops to do what he wants them to do, but it is also perfectly clear that he cannot declare war. Only the Congress can do that, and it is only the Congress that can appropriate and authorize the expenditure of funds. So within five minutes after he takes a warlike act, the president is entirely dependent upon the continuing support of the Congress.

Murphy: The launching of an attack would demand an immediate declaration of war. The political consequences of keeping the Congress out would be enormous.

Saunders: It doesn't seem to me to require open congressional debate about a declaration of war. If it gets to that point, I think the president has already put his authority in jeopardy. He ought to take advantage of the mechanisms for informal dialogue to work out some sort of understanding, such as I was raising with Mr. Nitze earlier, before he launches anything of this kind.

Trainor: While the legal issue may be debatable, from a practical standpoint, it is almost inconceivable that the president would not consult formally or informally with the Congress if he really intends to use the military option, unless he has a fortune cookie in his pocket that says he is going to get the operation over within 24 hours.

Willingness to Wait

Van Voorst: Bruce Van Voorst from *Time* magazine. I would like to hear the panelists explore the question of the virtues of waiting. What would be the impact on the UN coalition? What is the impact on the Arab allies? What is the impact on US public opinion?

Ball: Obviously waiting has its risks, but it is better than

the alternative. As Gen. Trainor indicated, the difficulty of maintaining close to a half million men in the Saudi desert over an extended period of time is a very hard thing to face.

But on the other hand, the costs of action in the meantime could be far, far greater, so I would think that with proper leadership from the president the country could buckle down to a very long wait. I think that it would require some indication that there was some progress being made as a result of the blockade.

Murphy: I think that the coalition would prefer that we wait. My impression is that the eagerness to attack and destroy Iraqi military capabilities has sloped off quite steadily, beginning some point in September.

They want Saddam defeated politically, and certainly the Arab world will welcome his paying a price for what he has done. The principal voices in the Arab world will prefer to see a very hard squeeze on Baghdad through the sanctions, and if it takes another six months or more, then they will ask themselves what the alternatives are.

Nitze: I think public opinion in the United States would be substantially in favor of giving the sanctions some time.

Ongoing Devastation of Kuwait

Saunders: One of the strong arguments I could understand for action sooner rather than later would be to bring an end to the devastation of Kuwait, already well underway.

Nitze: It seems to me that the Iraqis have already done their very best to destroy Kuwait. I don't think there are many people left there to be rescued at this time.

Ball: I don't see that they could do very much more. They have moved the pieces of Islamic art to Iraq. They have even taken out the street lights and moved them to Iraq.

There was the thought for a while, which some Saudis entertained, that perhaps this was the intention, that he was going to strip Kuwait and then he would be willing to withdraw, having gotten everything that he could.

Saunders: What about reparations or punitive damages in a final settlement? I think that is an issue that will be debated when it comes to the question of making any political settlement palatable—Did this guy get away with something? Has he been punished for it, etc.?

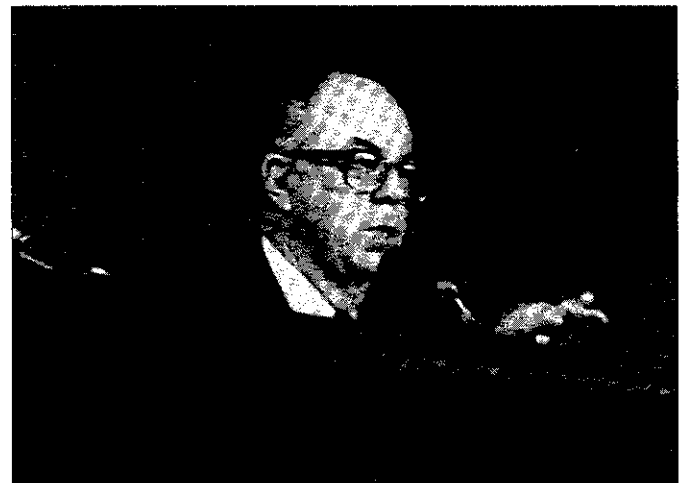
Ball: Maintaining the sanctions long enough penalizes him enormously. The economy is really ground down.

Nitze: I thought one of the UN resolutions does provide that Iraq is responsible for punitive damages.

Ball: It does.

Half a Million Troops

Saunders: Gen. Trainor, we have had an element of the 82nd Airborne Division in the Sinai since 1982, under the Egyptian-Israeli peace treaty. Obviously that element of that division can sustain itself through rotations and so on in the desert environment. What is it exactly about the current deployment that makes it so difficult to sustain?



Harold Saunders

Trainor: The problem comes when forces that everybody assumed would be rotating are now going to be kept there. For example, to maintain one aircraft carrier on station, you really need two to back it up. You need the same sort of three to one ratio for most rotating forces. We won't have that. You can do it for a short period of time, but when breakdowns start for lack of scheduled maintenance you start to create a hollow force.

The second thing would be the morale and the fighting edge of all of those forces. You just can't keep them up on the step prepared to go all the time. There have been some complaints about morale out there right now, and then you say indefinitely. We don't know what indefinitely is, and it may be two or three years down the road.

These are the problems, and the president put himself in a box by saying that they are going out there to sustain until this thing is over. That, in my judgment, is a clear signal to Saddam Hussein that sometime between now and March we are going at him unless he backs off.

That is a pretty dangerous strategy, but that is the one that the president appears to have adopted.

Frye: It is certainly the consensus that I hear this morning that a smaller force, a force permitting rotation if you will, would be ample to sustain the deterrent posture in support of the sanctions for a protracted period.

There has been at least some signal from within the administration, Secretary Cheney, indicating the final decision has not been made as to whether part or all of the original rotation as intended might not yet take place.

Saunders: We can reasonably assume that the president has on his desk a memorandum which outlines the military options that he will at a certain point have available to him.

I am equally confident that he does not have on his desk a memorandum outlining the political scenario for going the longer route toward political settlement.

I wish that somebody in the United States government were giving one-tenth of one percent of the time and energy to writing that political scenario as they have given already to outlining and putting on the president's desk the description of his military options. □

PRESIDENT GORBACHEV: FATE MAY GIVE YOU THE LAST WORD

The following letter was sent to President Gorbachev through the good offices of the Soviet Embassy in Washington, with their understanding that it would be an "open letter." But it represents a bit more than that. Gorbachev knows the Federation reasonably well, having more than once met with Chairman Frank von Hippel and the author of this letter in small groups. A year ago he responded in a highly personal way to an analogous appeal concerning Cambodia, sent to him just in advance of the Gorbachev summit with Chinese leader Deng Xiaoping.

December 6, 1990

Dear President Gorbachev:

Fate may be making you the last clear chance for peace in the Middle East. As the January 15 UN deadline for Iraq's withdrawal from Kuwait expires, you will be meeting with President Bush in Moscow. At that meeting, he will be well positioned to fulfill his commitment to the Soviet Union to advise it before launching an offensive attack. Indeed, January 17-20 or mid-February is the most likely time for the attack according to our newspapers' summaries of such matters as moonlight and tides.

We hope that you will find some way to oppose this near term offensive in favor of giving the sanctions much more time. By January 14, your opposition may well be the only justification President Bush could accept for further delay.

Iraq's actions and ours have backed Saddam Hussein into a corner from which retreat is unlikely if he wants to survive. Stalling and the maneuvers of a rug-merchant are all that can be expected as he awaits opportunities.

And Congress cannot fail to support the president lest it be blamed for making the offensive necessary by undermining the credibility of a military threat.

US Offensive Is Not the Solution

The US attack will create more problems than it will solve. Certainly, it will not teach future aggressors a lesson. On the contrary, the resultant casualties will teach the United States a lesson—the same lesson it learned in Vietnam—that its society can tolerate only very infrequent wars. And what other nation is willing to put significant troops on the line?

Only when aggressors see that they can be punished effectively *without* war, through economic and other pressures, will the world become a safer place. Politically isolated Iraq provides the perfect opportunity to prove that collective security can be maintained over time by the only means that can themselves be maintained over time—non-military means. This is something which you, in particular, are well-positioned to explain to the president.

Moreover, oil prices are likely to be lower in peace than after war—as the oil markets repeatedly reflect. The Middle East can be expected to be still less stable after Iraq's military forces are decimated than it is now. The proliferation of weapons of mass destruction can be more easily resolved, to the extent it can be resolved, diplomatically than through periodic repeated bombing of proliferators.

The dead resulting from war will far outnumber our hostages. In general, the costs of war dwarf the costs of even a heavily armed peace. Peace is better by every standard that has been invoked so far for war—if longer term means exist to secure our goals substantially.

Better Ways to Deal with Iraq

And other means do exist. The punishment would fit the crime quite well if Iraq were not permitted to sell its oil ever again—until the regime changed and the new regime disposed of Hussein and removed itself from Kuwait.

Perhaps you and your foreign ministry could suggest creative means of further isolating Iraq in other ways. Surely a world-wide coalition that can produce a UN consensus for war can produce a stable consensus for virtually all means other than war including long-term embargoes.

President Bush deserves great credit both for securing the world's oil supply by organizing a defense of Saudi Arabia and for organizing the collective isolation of Iraq. Instead of resting on these laurels, however, and letting time and isolation work their course, he has permitted the momentum of his successes to put us all on the brink of an unnecessary hot war.

The recent lessons of World War II and of conflict in Vietnam are driving our president into the older errors of World War I. In seeking to avoid both the appeasement of Munich and the drawn out conflict in Southeast Asia, he has acquiesced in sending such quantities of troops to the Persian Gulf as cannot be sustained over time. Thus we may see again the experience of 1914 in which mobilization schedules set the stage for an unnecessary war.

Gorbachev Is the Right Intermediary

The situation cries out for an intermediary since, clearly, the spot light of publicity has made it impossible for our nation to have real discussions, much less negotiations, with Iraq. But this is something which you could do. The same unique intellectual and moral qualities which won you the Nobel Peace Prize put you in a unique position to help us avoid this hot war.

We recognize, only too well, the life and death issues with which you are already grappling in the Soviet Union. And we recognize, as well, that our nation is already indebted to you for your astonishing work in reducing the risk of nuclear war—and that this debt has not, as far as the Federation is concerned, been yet paid. Nevertheless, we appeal to you to continue your help to our administration in this matter. And if you can be successful in keeping our policy on a steady course, we believe that all Americans will feel a redoubled sense of gratitude toward your country.

Respectfully,
Jeremy J. Stone

President,
Federation of American Scientists

□



Astronaut Charles Walker (right) explains rationale for going to Mars. Other panelists are Amitai Etzioni (left), and Carl Sagan (center).

SCIENTISTS' HEARING ON HUMAN MISSIONS TO MARS

Alton Frye: During the 1950s and '60s, a generation raised on Buck Rogers proved that science fiction was not always fiction. They reached the Moon, and with unmanned payloads they stretched our knowledge of the deeper reaches of the solar system. The United States continues to mount a substantial space program, but stringent budget pressures make the choice of direction increasingly difficult.

Which of yesterday's fictions should we try to make tomorrow's facts? President Bush has proposed that placing humans on Mars by the year 2019 should be one of them. Congress seems less inclined to make that kind of a commitment. Is such a commitment realistic? Is it wise?

Panelists

We have with us an exceptionally knowledgeable panel of witnesses: Professor Carl Sagan, director of planetary studies at Cornell University and president of the Planetary Society, astronaut Charles Walker of McDonnell Douglas Space System Company, and Professor Amitai Etzioni of the George Washington University.

Our interrogators include Dr. Sidney Winter, chief economist of the General Accounting Office, and Mr. John Pike, director for space policy of the Federation of American Scientists.

Professor Sagan, may we ask you to begin?

Carl Sagan: On July 20th, 1989, the 20th anniversary of the Apollo 11 landing on the Moon, the president of the United States announced what is now called the Space Exploration Initiative (SEI), a sequence of goals which includes a space station, a return of humans to the Moon, and the first landing of human beings on Mars.

Subsequently, the White House has indicated that discussions will be conducted with the European Space Agency, Japan and the Soviet Union on international cooperation in SEI. In a still more recent statement, the president has indicated that 2019 is the target date for the first footfall of humans on Mars.

Uncertainties and Criticisms

Estimates of the costs for SEI range to \$500 billion. Yet it is impossible to estimate costs before you have a mission design. That depends on such matters as the size of the

crew, the extent to which you take mitigating steps against possible radiation hazards and zero gravity—and what risks you consider acceptable with the lives of the crew members.

Do you go there on a slow trajectory of the order of nine months or a year, which is consistent with existing chemical rocket technology, or a much quicker trajectory which would involve nuclear propulsion? What about spinning the spacecraft or rotating a tethered system to provide artificial gravity? How much redundancy in equipment do you need? Do you use closed ecological systems or just depend on stocks of food, water and waste disposal facilities? What kind of roving vehicles and exploratory and experimental technology do you carry?

Until such issues are decided it is absurd to accept any figure for the cost of the program. But it is equally clear that the program will be extremely expensive.

On the political side, SEI runs five or so presidential terms of office into the future, and if our present president attempts to commit his successors, there is doubt as to the reliability of that commitment. And there is the question of where, in practical terms, the money is to come from.

There is no question but that we must support fundamental scientific research—up there in space and down here on Earth—not for any specific practical benefit, but because the unfettered pursuit of basic knowledge is the way the most important practical advances come about. But this can be done without human crews. The question is whether it makes sense in the next few decades to send men and women to other worlds.

Mars Movement Began in the Mid-1980s

For me, Mars has been calling since childhood. The exploration of other worlds seems to me the natural continuation of the long human history of exploration. Self-sustaining human communities and on other worlds would be a transforming event in human history, in the history of life. But that doesn't mean it has to happen today. It will also be transforming if it happens 100 years from now.

I have been advocating human missions to Mars with some vigor since 1984-85. With the Planetary Society's Mars Declaration it became clear that a stunningly ecu-

menical group of American leaders supported such a program, giving a wide variety of justifications.

After a little time, we found the Soviets embracing the idea. President Gorbachev, on a number of occasions, has announced joint human exploration of Mars as a long-term goal for the Soviet Union. In the height of the Reagan "evil empire" days, finding a common, constructive, long-term, high-technology goal for the two nuclear superpowers seemed to me extremely important.

The World Has Changed

So now the Soviets have indicated their interest and willingness. The United States has. The Soviets have explicitly urged doing it cooperatively with the US. The United States is at least moving in that direction.

But the trouble is, the world has not remained static in the interim. New facts have emerged. The first new fact is that the US national economy is in much worse shape than was generally recognized in the Reagan years, and if we're talking about expenditures of enormous amounts of money, the ability of the nation to make such expenditures becomes a relevant issue.

Secondly, as I've said, a major argument was the immense danger that the cold war and the nuclear arms race posed for our civilization. I advocated human missions to Mars as a way of creating a shared and worthy goal for the two cold war adversaries. This was also the principal reason that President Gorbachev endorsed it.

US-Soviet relations are now at their warmest point since the end of World War II, and cooperation is occurring on many levels. However, the two nations still have some 55,000 nuclear weapons between them, and benign shared objectives extending decades into the future may still be important to help maintain present levels of superpower amity. So the argument for going to Mars that emerges from the US-Soviet competition has less force today, but I think it still has considerable force.

Other Pressing National Needs

My chief misgiving is that there are clear, crying national needs which cannot be met without major expenditures, while there is now an extremely limited discretionary federal budget that can address those needs.

We have the budget deficit, the disposal of chemical and radioactive wastes, and the need to invest in energy efficiency and alternatives to fossil fuels and technological innovation. In a decade, the United States has gone from being the largest creditor to the largest debtor nation, a stunning achievement. Also, the collapsing urban infrastructure, the AIDS epidemic, homelessness, malnutrition, infant mortality, education—there is a painfully long list and nobody can tell me that money is not needed to solve these problems. Some of these matters have multi-hundred billion dollar price tags, or more. And then every now and then there are unexpected little fiscal perturbations provided by private and public corruption, such as the savings and loan scandal.

If there were 20 percent more discretionary funds in the federal budget, I think I would not feel so worried about



NASA artist's conception of a human landing on Mars

advocating such enormous expenditures in space. If there were 20% less, I don't think the most die-hard enthusiast would be advocating something like SEI. Surely there is some point at which the national economy is in such dire straits that sending people to Mars is unconscionable if it costs hundreds of billions of dollars.

If we're talking about a relatively minor increment to the NASA budget in order to accomplish SEI, then I agree, perhaps it's inappropriate to make zero-sum arguments. But when the cost gets very high—say, in the \$100 billion range or more—then I don't see how we can pretend to be insulated from zero-sum arguments.

The Ticket to Mars Is Cooperation

So if we are convinced on other grounds, as I am, that sending humans to Mars is important for the long-term human future, the key to getting there is to save money. Some propose that quick, dirty, and incredibly cheap missions of humans to the Moon and Mars are possible. Review panels have found such proposals unconvincing. There might be new technologies, missed by NASA, that could produce enormous savings in the cost of such missions. But failing this, the way for the United States to go will be to do it cooperatively.

NASA would then commit to something like SEI, but scale back on projects such as the space station and heavy lift vehicles where substantial capability is available from other nations—in this case the Soviet Union. If the cost of going to Mars were shared equally among the Soviet Union, Europe, Japan and the United States, the cost for each nation might be low enough for the project to be feasible.

If we can be clever about reducing costs and making true international partnership work, the justifications become more compelling. I don't know how to do this calculus, but there ought to be a national debate on this topic.

Why the Space Exploration Initiative? Why Now?

Charles Walker: In the proposal for a Space Exploration Initiative, the president stated that space is the inescapable challenge to all the advanced nations of the Earth. What was once improbable is now inevitable, he said.

He also set as a goal the establishment of the United States as the preeminent space-faring nation. He reminded us that from the voyages of Columbus to the Oregon Trail to the journey to the Moon itself, history proves that we have never lost by pressing the limits of our frontiers.

The president at that time directed the National Space Council to determine what is needed in terms of schedule, money, manpower and material, and the feasibility of international cooperation.

Why do we propose to establish a permanent presence, in the form of Space Station Freedom, in orbit around the Earth, to be followed by a return to the Moon to stay, and then in the next century, manned missions to the planet Mars? Why?

Because it is big, because it is not mundane. It is a challenge that is the positive equivalent of war. It is derived from the basic human need and motivator of competition—not aggressive, immoral competition, but intellectual and economic competition. The Space Exploration Initiative promises to advance planetary and life science. It promises to advance our educational system and stimulate interest in science and technology, which certainly will be the cornerstones of a competitive and leading nation in the 21st century. It would promote innovative high-tech R&D, help advance the United States' technological competitiveness, and ultimately position us better in the global marketplace and improve our balance of trade.

Our economic competitors have, in fact, targeted space. But more than that, with reduced superpower tension, we now have a perfect opportunity for long-term cooperative endeavors. The Space Exploration Initiative promises to promote international cooperation, building bridges of trust.

Thirty-three years have passed since Sputnik demonstrated that we, as a species, could in fact leave the planet, beginning with our instruments and following with ourselves. It is rational that we set targets and milestones for the further human advance that is inevitable.

Our economic competitors have, in fact, targeted space. But more than that, now is a propitious time to begin to prepare for the execution of the Space Exploration Initiative, with Mars as a target. With reduced superpower tension, we now have a perfect opportunity for long-term cooperative endeavors.

The year 2019, which the president set as the date for a human landing on Mars, is a do-able goal. A human landing on Mars could in fact technically be accomplished in 1999. Economically, it is certainly a much more difficult issue. But probably a date sometime before 2019 is an objective that can and should be met.

Long-Term Imperatives to Space

In the long term, the justification may be human survival. Limiting ourselves to one planetary source of raw materials for an ever-expanding population is short-sighted. Limiting ourselves to one global environment, with proliferating capacities for nuclear, biological and environmental disaster, is foolish. Living on one world with a game of celestial dodge-ball going on around us in this solar system,

without the means to do anything about asteroidal and cometary impacts is dangerous.

A strong element of the need for the Space Exploration Initiative is very basically human, and has to be recognized as being intangible and unquantifiable. The drives or needs of the spirit are met in a variety of ways, but satisfaction is often simply gained by achieving what is beyond our reach today. And of course, what is beyond our reach today will be in our hands tomorrow if we are an expansive species, as we always have been.

It is appropriate to reach for goals that are that far away in time and in space because in achieving them, ultimately the accomplishments, and what is gained, are going to be beyond measure.

Amitai Etzioni: I join the call for a national debate. What are going to be the terms of that debate?

Will it be a serious, responsible deliberation in which experts talk about matters about which they are experts, rather than reaching in other fields they know nothing about? And will they inform the public and assist the public and its representatives in a serious deliberation, on such a momentous expenditure and commitment?

Or will we see, as we have seen for so long, hype heaped upon hype, deliberate systematic attempts made to confuse the public—by complexes who run out of real reasons to keep their federal tax dollars flowing, and so hire hypesters to make claims that don't stand up after a minute's examination?

Bombastic, Vacuous Claims

The sad fact is that NASA, and its allies in the industry and on the campus, have discovered that hype pays off better than straightforward information. So they make bombastic, vacuous claims, which don't stand up to the minimal examination. What we need to do here is to retrieve the democratic process from this Madison Avenue approach to public policy issues.

Take the claims NASA made for project Apollo, one of its more successful efforts, and see what happened to those. How much did we mine the Moon? Indeed, how much did we add to scientific knowledge by the visit to the Moon and taking some pictures and samples?



Amitai Etzioni blasts "American macho."

Where is the lift of the human spirit which resulted? Where is the improvement in children's education in science which resulted?

Now, take any one of these claims made for the Mars mission. Any one of them. You don't have to make a major study, spend ten years, get a Ph.D., have a committee. You just scratch and they fall apart.

For instance, take the notion that the kiddies are going to sit up in school and study science—and I'm quoting the president—because we are going to send somebody 20 years from now to a faraway planet.

First of all, I am not sure I want to get the kiddies excited about astronomy. Why not biotech? Why not excite them about sending messages to the genes to restructure the human body so we can conquer illnesses?

In any case, the fact is that the deterioration in American school science occurred after Project Apollo.

Why go knee deep in hype? The answer seems to be that it is impossible to come up with any other justification. There is no reason I have heard that would justify sending persons to Mars instead of machines.

I could forgive hiring public relation firms and subsidizing propagandists if they would just keep the missions clean. But NASA has been aware from the beginning that the best way to hoodwink the public is one that involves more than just color brochures and inviting kiddies to space camps, and that is to structure the missions so they have a high PR content. That's where the costs really run up, and the public really gets fooled.

I would start by sending a machine to Mars and by focusing on near space. That way, we would separate the mission from PR and unwrap it from the hype.

Public Consensus Is Not There

The administration's budget request for NASA this year was a larger increase in expenditure than for any other major agency, 24 percent at one point. What can possibly justify this? The answer given is that the public is rallied around the cause. But this is not supported by polls.

In 1980 there were twice as many people who favored cutting space exploration as those who wished to spend more. By 1987, the difference grew: 46 percent wanted to cut space exploration, 12% wanted increase. In 1988, before the recent increase in the budget, 27% of Americans favored increased expenditures, compared to 67% who wanted to cut. And in 1989, 19% of Americans thought it was very important that the United States make the first manned landing on Mars, and 48% didn't think so.

Finally, let me say those who hope to dazzle the third world will find, in polls conducted in any place from Nigeria to India, that, far from being swayed by the American macho of hurling heavy objects into orbits and such, people in the third world very much share with American people the notion that a caring society, a society committed to human decency, a society that takes care of its elders, and its homeless, is what is important.

Was Apollo Not a Moral Success?

Sidney Winter: Professor Etzioni, I thought personally



Interrogators: Sidney Winter, Alton Frye, John Pike

that my spirit was lifted a bit by the Apollo mission, and I would like to know if you give any weight to the idea that the mission, and the pictures of the Earth from space, may prove to have a fundamental long-term effect on the human psyche and teach us something important about how we are going to survive on this planet?

Etzioni: Apollo did have an effect on public enthusiasm, but only for a limited time. It is the old circus and bread issue. The circus was in town and everybody could smile for a few days, and then it moved on. I don't know of any evidence that it had a lasting deep effect on peoples' feelings and commitments.

Winter: Well, the proposal is to bring the circus back to town for a while, so do you think there might be some enthusiasm stirred up again?

Etzioni: Maybe for a moment, but then again, times have changed. Yesterday we were to go to Mars because we were at war with the Soviet Union. Now, we have to do it for joint enterprise with the USSR. They can't keep the story straight. That doesn't sit well with the public. If you really care about Soviet-American collaboration, there are many things we can do which will cost less and will have a more lasting effect than bringing the circus back to town.

Isn't the Public Prepared to Pay for a Good Show?

John Pike: So what? If the public through Congress is prepared to pay for the circus, isn't that a very concrete and direct measure of the utility of the circus?

Etzioni: I completely agree, if you are willing to abide by a genuine democratic process. But the public doesn't vote separately on space expenditures. So to understand where the public is on that issue, we ask them through random samples, and the public is unmistakably clear on the subject. They do not want to pay for it, and so the reason for the hype, flag-waving and stomping up and down is to hoodwink the public into putting up with decisions which are not reflective of public opinion at all.

Pike: I think we have seen that the public is prepared to spend somewhere between \$5 and \$10 billion a year on a piloted space program that is mainly circus with a little bread on the side. That has been the output of the Ameri-



Carl Sagan responds to questions.

can political process for several decades. It must be about what the public wants to see.

Etzioni: No, I don't think it is either fair or accurate to put this at the feet of the public. When we come to specific appropriations, as distinct from broad policies, we encounter a large number of members of Congress beholden to parts of specific industries, and you can trace specifically, dollar by dollar, the correlation between votes of congresspeople and the amount of money and contributions given to them from specific industries.

Mission to Mars and Mission to Earth

Winter: We have recognized that there are some important questions of priority to be faced here, and I wondered if Professor Sagan could compare the urgency of understanding the issue of global warming here on Earth, with the urgency of the mission to Mars. Perhaps he could also comment on whether one of the points that could be made for the Mars mission might be some improved understanding of the Earth's own processes.

Sagan: My view is that we have booby-trapped ourselves through the fossil fuel economy, and we now face, in only the next few decades, a deteriorating global environment, increasing summer drought in agricultural areas, increasing global temperatures, and a rising sea level. If we do not soon make major efforts at mitigation, we will have an extremely serious catastrophe, worldwide.

Measures for mitigation involve much greater fuel efficiency, development of alternative sources of energy—wind, solar, biomass conversion—and massive replanting of forests. If you think of all of that, it is clearly a multi-trillion dollar cost worldwide. The United States share has to be some significant fraction of it because the United States is the worst greenhouse polluter on the planet. That money must come from somewhere.

We can and do learn about the environment of Earth by investigating other planets. Venus is a planet with a 900 degree Fahrenheit surface temperature produced by a massive greenhouse effect—largely by carbon dioxide, the

same problem we have here. Understanding the Venus greenhouse effect is very useful when you come upon politicians or fossil fuel industry executives who say this is all some fantasy made up by the scientists.

Nuclear Rocketry vs. Soviet Energia Rocket

Frye: You endorsed an international approach to the Mars mission. You also said there would be a question of using chemical rocketry or nuclear rocketry. Of course, the United States spent a lot of money exploring nuclear rockets and abandoned the effort some years ago. Is it not more plausible that chemical rocketry is the best way? In which case, is it the Soviet Energia rocket, the largest booster presently operational, that you would rely on in building an international effort to get to Mars?

Sagan: The issue of nuclear propulsion depends on the seriousness of ambient radiation in space and the feasibility of shielding, and the problem of zero-G in long-duration spaceflight. That has not yet been adequately assessed. It may be that the only solution is to get there fast. In that case, some greatly advanced NERVA or solar-electric propulsion, or solar sailing, might be the way to go.

But let's assume that's not the case, that we agree to use chemical rockets. What about cooperation with the Soviets? We destroyed the remaining Saturn 5 boosters and assembly line after Apollo 17. The Soviets have Energia. They also have an operational space station, Mir, and they have experienced spaceflight in excess of one year in micro-gravity, roughly the transit time to Mars.

So the Soviets have experience in just the areas that are needed and that we lack. We have a kind of instrumental reliability and scientific capability that they don't have. It might be a marriage made in heaven.

The Department of Defense seems to be perfectly relaxed about cooperation with the Russians. Yet NASA has a self-imposed taboo on even thinking about joint missions with the Russians. There are not even contingency plans for joint robotic or human missions to Mars.

Will SEI Really Help, or Hurt, the US Economy?

Winter: Dr. Walker, you spoke of the contribution that the Mars mission might make to enhancing American competitiveness, reducing the trade deficit, and strengthening the American economy generally. There is a different school of thought on the matter, which says that the way to achieve all of those objectives is, first of all, to reduce the federal budget deficit so as to make it possible to have lower real interest rates in the United States.

It seems that the prospect of a half-trillion dollar expenditure, even one spread out over a few decades, is not a positive contribution toward solving that part of the problem of American economic strength.

Walker: Well, I certainly am not qualified to debate the economic theories of one school of thought versus another. But I think that capital strength in the marketplace—the strength of the industrial base, the strength of the institutions that provide goods and services in international trade—is what keeps you in the black as a nation. Techno-

logical investment builds that capital strength. We do not fail to see products from technological investment.

Looking at this country over the past 20 years, it is clear that we can see failure to grasp the reality of technology that we developed—for instance, electronic technology. We failed to grasp that and organize the needed capital, build industry and produce products. We have let that go. We let others utilize the technology in the marketplace and we pay the price for that.

My response is that what kinds of investments we make in a world marketplace that is highly technological—that has high technology products as a significant part—is highly important and is of growing importance.

I believe I am right when I say that today the aerospace industry, aerospace products, are the only positive sector of our international balance of trade. We can look to that as the example of what can come from technological investment and from taking a leadership role in demonstrating technology for the decades to come.

Investing through SEI, versus Direct Investment

Winter: We certainly do need to invest in tomorrow. We need to invest in education and research and development and, it is sad to say, we need to invest in prisons and we need to invest in protecting the environment. Dr. Sagan is right about the greenhouse effect, we need to invest very heavily in a conversion away from fossil fuels.

But the question that keeps coming back is, Why can't we invest in those objectives directly? Why do we have to have a mission to Mars in order to get some taxpayers' support for R&D and education?

Walker: We do invest directly in the tangible human benefits of our society—improved environmental quality, public transportation, infrastructure, health benefits. In fact, this nation has increased its investment in total human services—Social Security, Medicare and other retirement benefits, plus housing and other social spending—by over 350 percent over the past 25 years, as accounted by the Congressional Budget Office in 1986. It has also during that same period of time reduced the NASA budget by 50-



Charles Walker

some percent. So we have not, in fact, invested first in NASA and only then made the other investments of this nation—health and human services.

But we have also invested in technology, and I think that an educated public, educated as to the benefits of its investment in technology, will want to continue to do so. The benefits of investing in safety nets, in environmental quality, etc., are also often hard to measure.

We need to create new wealth, and we can do so by the technological investments that we're talking about here.

Why Mars Now? What has Changed?

Pike: I was a little frustrated by your giving as one of the rationales for going to Mars, that now is a good time.

Looking at the efforts over the last year or two to attempt, for instance, to recover the engineering heritage of the NERVA program, it seems to me that the United States today is less well prepared to go to Mars than we were 20 years ago. We are certainly no closer to getting on Mars today than we were in 1969. Yet every year over the last 20 years, the idea that "Now is the time" has not proved to be an adequate rationale for starting the process.

In fact, all of the rationales that have been laid out today—the cultural imperative or manifest destiny, and the benefits of technological spin-off—all of these rationales have been valid for the last two decades. Indeed, in previous years, we had an additional reason—to get there before the Russians did.

Walker: What's different today is leadership. What's different today is an administration that has seen a part of the national future, as the president put it, a destiny.

We have, in this administration, recognized and made a proposal based upon the recognition that the nation needs this kind of objective. This nation believes that it is and should continue to be a leader among the community of nations. So it should lead in recognizing the fact that this planet has, ultimately, limited resources. We need to recognize our human nature and go about it.

On your presumption that in fact we are not ready to go, as illustrated by nuclear technology, that of course presumes that we need nuclear technology to go to Mars. I don't think that is necessarily the case.

Lack of Enthusiasm in Congress

Pike: Well, the White House has run this up the flagpole and, basically, the Congress has not saluted. The president has outlined a very long-term, ambitious, expensive program, and I think the Congress has made it fairly clear this year that they have not found the rationales that the White House has offered to be compelling reasons for funding it.

Walker: Congress has, I believe, played with the Space Exploration Initiative proposal as a political football. It's one thing the president wants, while the Democratic Congress wants something else. I think that is a large part of the difficulty that you see in the difference of opinion between 1600 Pennsylvania and Capitol Hill.

It is a complex issue. SEI is an expensive proposition, although the \$500 billion number, as Dr. Sagan pointed

out, is purely hypothetical. In fact, I hold the personal opinion that the whole thing can be settled in 30 years time for a lot less than \$500 billion.

Congress tends to look at the total number and presume it to be an issue to be settled today. I think that if Congress had looked at the need for a national highway system in the 1950s, and at its cost as running out at \$2.5 trillion, we wouldn't have the interstate system today.

Frye: I am going to ask now if there are questions from the audience or the press.

Mechanics of Conducting the Public Debate

Doug Isbell: Doug Isbell, *Space News*. I have a question for the whole panel. How do we communicate to the masses? How do we have this educational debate? Do we have more ideas on how to do that than TV shows and educational posters and that sort of thing?

How do we measure public opinion? Is it a massive opinion poll, a bigger number? How would we do that?

Frye: John, do you want to respond?

Pike: We have the Stafford Panel, and we have an 800 number where you can call in your favorite technical suggestion for how best to get to Mars. We are spending millions of dollars and hundreds of work years, leaving no stone unturned, to make sure that we do not miss a single insight as to the answer to the "How" question, and yet we have no remotely comparable effort to try to get at the "Why" question. The "Why" is generally addressed by people giving the three reasons they think it would be fun to go to Mars and pulling out the public opinion poll that seems to provide some support for their position.

I think the congressional reaction to SEI this year indicates that the problem is not "How", but "Why?"

We need to find out what rationales for the Space Exploration Initiative the American public is prepared to respond to, having also heard the other side of the story. There are a lot of people in Washington and New York who make a living by quantifying public attitudes and opinion, using in-depth polling and focus group work to get a sense of what people really think.

Closing Statements

Walker: Let me say in conclusion that the proposal of a human Space Exploration initiative, it seems to me, is very simply and very basically for the human, the economic and the societal betterment of the United States and in fact, of this planet Earth and its peoples.

We have got to recognize, in the debates that go on today, the historical perspective. Senator Daniel Webster, in 1840, stated to the Senate that he would not vote one cent for the development of the West of these United States because it was, and I quote, "a howling wilderness that would never be of the slightest use to anybody."

Etzioni: Let's use this opportunity to retrieve the democratic process. Let's have an honest discussion. Let's retire the demagogues.

Let's inform the public about the real options, without



John Pike: *The important question is "Why?"*

waving flags or claiming that somebody has a monopoly on understanding what destiny is. And let's abide by the genuine, informed response of our fellow citizens.

Sagan: I agree with both my fellow panelists. I can feel the tugs in both directions inside of me. I have been advocating human missions to Mars in the scientific and the cold war context, and I have also been advocating that pressing human needs must be addressed. Both of these are valid concerns. There is no contradiction, except in the zero-sum economic context. There they fight each other.

I'm moved by the idea of a long-term, high-technology, benign, historic goal that can excite young people, that can stir in them the idea that anything is possible, and give them an alternative to the vision of a closed small planet with all our energies directed towards ourselves. I like the idea of the frontier. I like the idea of an expanded planetary consciousness—by exploring other planets, we will better understand the fragility and preciousness of our own.

Were we to go to Mars, it would be the beginning of a new era—humanity as a multi-planet species. This is the first moment in human history when it is possible to contemplate such an idea with any seriousness.

I would hope that the binding up of the wounds down here on Earth and the exploration of other worlds can go hand in hand. But I don't see a way of guaranteeing that we can do either—much less both—without a serious national debate, and also a serious improvement in the economic condition of these United States.

Winter: I think we've all been impressed with the drama in the idea of a mission to Mars, and I think that the curtain will certainly go up on that drama one day.

For the moment, however, I think we've also touched upon a lot of problems of the Blue Planet that deserve our attention. I think they require our attention in the interests of our survival, and I think that we need to understand how serious those problems are, and be sure that we direct enough resources to those problems before we consider lifting the curtain on the Red Planet mission.

Pike: As somebody who grew up at the beginning of the space age, I personally find the case for going to Mars to be compelling and I have felt that way since elementary school. However, this is a case that not everybody else in the United States finds equally compelling. □

FAS NEWS AND ACTIVITIES

FAS-Soviet Research Project on Arms Reductions

The Committee of Soviet Scientists for Global Security hosted an FAS delegation led by Frank von Hippel at a workshop in Moscow in early November. The participants discussed technical aspects of nuclear warhead dismantlement, fissile material production cutoff, and declarations of fissile material stockpiles. A joint report on these topics is in preparation.

At the workshop, a letter to the Chairman of the Supreme Soviet was drafted, proposing a number of actions in support of a verifiable fissile cutoff and warhead dismantlement. Among these: a halt to Soviet production of plutonium for weapons, which would result in an effective bilateral moratorium on such production, since all US plutonium production reactors are currently shutdown for safety reasons; Soviet declassification of the same categories of information on their nuclear weapons complex as have been declassified by the US government concerning US nuclear weapons; a Soviet governmental study of verification arrangements for a permanent fissile material cutoff, warhead dismantlement, and safeguarded disposal of nuclear material—a similar US study was mandated by Congress in the recent defense authorization bill.

Strategic Nuclear Weapons Modernization

David Wright is investigating new nuclear weapon technologies and the possibilities for restricting their development. His research will provide the technical basis for limitations on the flight testing of ballistic missiles and reentry vehicles. Preventing the development of new delivery systems, such limitations would complement a nuclear test ban for restricting nuclear warhead development.

The project is currently focused on two particular potential developments: "depressed trajectory" SLBMs, whose short flight times would be useful only for a nuclear first strike; and earth-penetrating warheads, which would penetrate into the ground before exploding to increase their destructive potential against hardened missile silos and underground command centers.



New FAS senior researcher, physicist David Wright (left), talks with former FAS Chairman (1968) Cameron Satterthwaite at the 1990 Council meeting. See back page.

Chemical and Biological Weapons

The FAS Working Group on Biological and Toxin Weapons Verification is preparing a report on "Implementation of the Proposals for the Third Review Conference of the Biological Weapons Convention," a follow-up to its September 1990 proposals. The report, to be released in January, is intended to provide negotiators with a more detailed examination of the details involved in verifying compliance with the BWC through on-site inspection.

The 10th issue of FAS' well-received research journal, the *Chemical Weapons Convention Bulletin*, was released in December. Readers wishing to obtain copies of the *Bulletin* or report should contact Lora Lumpe at FAS.

Space Policy

December marked a victory in our long-running battle against excessive secrecy in the military space program with the announcement that henceforth military flights of the Space Shuttle will not be conducted in secret.

Over the past five years the Defense Department has flown half a dozen secret missions on the Shuttle. Neither NASA nor the Air Force would comment on the payloads, and very little information was released about the launch, flight or landing of the Shuttle. The purported rationale for this secrecy was to protect the identity of the satellites from the Soviets. But reporters and other observers, among them FAS Space Policy Director John Pike, were always able to determine the nature of Shuttle payloads.

In 1985, the Air Force threatened to prosecute any news organization that speculated on the identity of the military payloads, which only prompted greater media interest. After five years, the Air Force finally recognized the futility of its policy and acknowledged that the next military shuttle mission will carry a Defense Support Program early warning satellite.

Peace in Indochina

Jeremy Stone went to Australia for ten days to lecture and to speak with Australian government officials in Canberra. The main obstacles to a Cambodian settlement, at the moment, lie in the difficulty of getting agreement among the four Cambodian factions to accept—and to fill in the many blanks in—the still-classified document held by the five permanent members of the UN Security Council as a settlement blueprint, based on an Australian initiative.

In the absence of such agreement, there is a clear tendency among the permanent five and the Australian government to wash their hands of the entire problem, in effect blaming the Khmer people for factiousness—rather than the genocidal Khmer Rouge, which poses the threat that makes agreement so difficult.

If agreement cannot be reached, there will be no real alternative to supporting the Phnom Penh regime against the rising danger of a Khmer Rouge takeover. But whether governments will be willing to move in that direction in time is quite uncertain. □

1990 FAS PUBLIC SERVICE AWARD TO JOHN H. GIBBONS

When it comes to intellectual support, compared to the executive branch Congress ain't got much. There are, of course, the Library of Congress, the General Accounting Office, and the Botanical Garden. But when issues get complex, none of these fill the need for in-house scientific advice.

For the last decade, John H. (Jack) Gibbons has anchored the existence of a Congressional Office of Technology Assessment (OTA)—a congressional think-tank for technology that fills this gap. Started in 1972, it had never really found its feet until, in 1979, Gibbons became its third director.

To be the servant of a politically motivated collective is a supremely difficult task. Jack Gibbons' unquestioned expertise in energy conservation and his wide interests in matters concerning science and society provided him with a platform. His Clark Kent-like demeanor gave it a teflon coating. His political horse sense provided OTA with radar while his determination provided it with inertial guidance. Meanwhile, his honesty and intelligence attracted an able crew. And his Tennessee wit was always there to disarm the misguided, parochial or pompous opposition.

For no less than ten years, Gibbons has kept this teflon coated platform moving forward in high political seas. During this time, OTA has worked on such hot issues as star wars, nuclear wastes, biotechnology, agriculture, computers, acid rain, and health technology.

Gibbons was told, in 1979, that he was the last chance for OTA to become a permanent fixture on the Hill and certainly OTA was then in a very vulnerable situation. A decade of his hard work has now, we think, made OTA something which Congress knows it cannot do without. Thus Gibbons has succeeded in grafting onto this soft underbelly of the US government a technological conscience. For this we provide him with our heartfelt congratulations. □



Andrew M. Sessler presents award to John Gibbons (right).

1990 FAS Council Meeting

The 45th Council meeting was held on December 15th. A report to the Council described this as the beginning of FAS' third era, the period from 1945-1970 having been the first era and the period from 1970-1990 the second. In the new political circumstances of the post-cold war era, FAS has new opportunities to fulfill its disarmament mandate and many new problems to address in other areas.

The Council approved a resolution that the Federation should seek some capital gifts to give it the financial heft necessary to set its own agenda long enough to get started in some new fields, while pursuing traditional concerns in an era of fiscal stringency for disarmament-related groups.

Members who can suggest persons who might be interested in helping to stabilize FAS in this fashion should contact the FAS president. ■

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