

BU:

Our second program on ABM will cover points not ~~previously~~ covered in the previous discussion; but inevitably will also touch on some points covered in the discussion with James ~~Burnham~~ Burnham and Senator Gore. We have here in opposition to ABM, Dr. Hans Bethe, a Professor of Physics, a Nobel Laureate, the principal theoretical intelligence working under J. Robert Oppenheimer at Los Alamos when ~~they~~ ^{we} developed the atom bomb, a refugee from Hitler's Germany who, having served a whole string of American Presidents ~~xxx~~ as personal adviser, is now at peace at Cornell University. (LAUGHTER)

~~XX~~ Asked what the special range of his interests is, Dr. Bethe recently replied the quantum theory of atoms, the theory of metals, the quantum theory of collisions, the ^{energy} theory of atomic nuclear/production in stars, ~~ex~~ quantum electrodynamics, shockwave theory and microwaves, so that, as you can see, we have a lot in common. (LAUGHTER) Dr. Donald Brennan has been the Director of the Hudson Institute, where he continues to work as a mathematician and a student of national security problems. He is a graduate of M.I.T. where he also took his Doctorate, and he has worked most of his adult life on the problems of arms control and disarmament. Although, he was at the ~~outset~~ outset of the debate an opponent of ABM, he has changed his mind, and in fact he wrote for Foreign Affairs probably the single most influential statement in support of ABM published anywhere. Dr. Bethe

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suggests that we begin by discussing the question of how best to defend our ground missiles, the so-called hard point defense. Would you tell us what you have in mind on that subject, Dr. Bethe?

BE: Well, there are two questions about this. One is is it necessary? And second, if it is necessary, ~~is~~ is this the way to do it? And my answer to both of these questions is no.

BU: And, first of all, then, you want us to believe that it is not necessary to what? To protect the to protect the Minute Man Missiles, or what is it that you say is not necessary?

BE: Well, uh it has been stated that the reason for our going into this is an acute danger to our Minuteman Missiles. It has been stated by Secretary Laird that by 1975 the Russians will have enough ~~missiles~~ missiles and have equipped them sufficiently so that our Minuteman bases will be in acute danger. Moreover, he says, that this will expose us to a so-called first-strike attack~~xx~~ by the Russians.

BU: And your contention is technical or political? Technical, in the sense that you do ~~not~~ not believe that our ~~first~~ first or that our Minuteman Missiles are in any conceivable or political in the sense that you do not believe any enemy on the horizon would seek a first-strike advantage?

BE: They are technical. I believe that it would be insane for the Russians or for anybody else to try and make a first

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strike. And it would be insane because, in addition to the Minuteman we have many other offensive weapons. We have Polaris, soon to be Poseidon. We have bombers. It would mean, if the Russians wanted to make a first strike against us, they could do this only if they believed that they really would knock us out so that we could not do major damage to them. And if they wanted to do this, they would have to knock out not only our Minutemen, not only our Polaris, not only our bombers, but they would have to do it all at the same time. If they do only one and leave the other around, then they will be in mortal danger from retaliation.

BU: Well, Dr. Brennan, do you believe, well, first of all, let's assume that the discussion is going to go forward on the basis of a general agreement that we have to deal with an enemy that will seek its maximum advantage. So, I think it would be worth our while to agree not to go into motives. Right? That is to say, let's assume that the enemy were talking about, would consider a first strike, if it were possible for that enemy. Okay? Fair enough ground rules? Now, do you agree with Dr. Bethe that it is so inconceivable that simultaneously an enemy could plan for the neutralization of all three of our defensive weapons arms, then it makes no particular point to go to ~~any~~

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extravagant lengths to protect any single one of them?

BR:

I think I'd like to answer that with a parallel. I think it would be perhaps as difficult as it was for the Japanese to execute a surprise attack on Pearl Harbour, and catch the battleship fleet at ^Pearl Harbour. It was very hard for the Japanese to do that, and it would be very hard for the Soviets to execute a nearly completely successful attack on the strategic ~~offensive~~ defensive forces. If anything, I would go a little bit towards Hans ~~xx~~ in saying that probably the attack on the strategic defense forces is harder, but not as we should say in the technical community by an order of magnitude. I think that it is a threat that one must be concerned with, and while it's a judgmental issue, it's not something you can say in black and white terms. It does seem to me that it's entirely reasonable at this juncture to be spending some additional money on the offensive the protection of ~~defensive~~ forces.

BE:

I would agree with that. It is worthwhile to spend money on the protection of the offensive forces, I would remind my friend ~~xxxx~~ Don Brennan that the Japanese lost the war. That attack on Pearl ~~Harbour~~ Harbour, while succeeding to knock out an important part of our force, did not by any means knock America out of the war. And I think the same thing would could be said about an attack on our Minuteman forces.

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BU: Umhm. It did a lot of rather permanent damage to human beings in ~~xxxxxx~~ Pearl Harbour, of course, didn't it?

BE: The next war, if it ever comes will do more permanent damage to a ~~xxxx~~ vastly larger number of people.

BU: Which, presumably, is why we want to concert together to avoid such a war?

BE: Absolutely. The ~~xxxxxx~~ first, I think we all agree on this, that our first task in all this is to avoid the war, not to fight the war, but to avoid the war, what forces will make it most possible to avoid the war.

BU: Well, let us for a moment, proceed hypothetically, and ask ourselves this question: assuming that we didn't have a Polaris defense system, and assuming we didn't have airplanes, with hydrogen bombs, on which we could ~~xx~~ rely under ~~xx~~ certain circumstances, assuming we had, in other words, only our Minuteman defense system, would you then be in favor of ABM?

BE: I would then be in favor of some ABM, although one still, there is still a very important point ~~xx~~ which has to be made. Suppose while our Minuteman is made very hard, it is made such that it can resist very strong explosive forces. In fact, if you read the unclassified testimony of Secretary Packard, Deputy Secretary Packard, you can deduce exactly how hard it is. I will not tell you the number right here; but it is very, very hard, and it is made very hard, so that

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hypothetic
we can take a very substantial Russian attack, ~~hypothetic~~
attack, and still wait and not respond, but I am sure if
we say by our advance radars, if we saw that a ~~thousand~~
thousand ~~missiles~~ missiles were coming at us, and were coming
into the areas of the Minuteman in particular, or anywhere
in the country, we would not wait.. I am sure that in this
case we would not wait until they all come and ~~destroy~~ destroy
our Minuteman. So, that if we had only Minuteman, and this is
a hypothesis which is definitely contrary to fact~~xx~~, even
then we would not be helpless against such an attack.

BU: Dr. Brennan?

BR: Yes, may I comment on that?

BU: Yes, sir.

BR: Uh, I'd just say I'm mildly surprised that Hans would
advocate what we call a launch-on-warning posture, if I
understood you right. You are

BU: What did you call that?

BR: The launch-on-warning posture. When you see the in-coming
missiles coming on~~the~~ radar screen~~s~~ at that point you

BU: Strangelove it all over the lot, huh?

BR: What was that?

BU: You Strangelove it all over the lot. (LAUGHTER)

BR: That's right. Push every button in the house.

BU: Yeah.

BR: My Hutchins Institute colleague, Herman Kahn, has a term

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that he originally used for a different kind of posture but I think it's well adapted to this posture. He used to speak of a thing called a doomsday-in-a-hurry machine, and I think a launch-on-warning posture should be labelled a doomsday-in-a-hurry machine.

HE: I would

BU: Your point is that there ought to be variable alternative responses to the total response and Dr. Bethe

BR: ~~xxx~~ Absolutely.

BU: ~~xxxx~~ resists this

BR: No President should be in a position where he feels that his best option is to launch a thousand intercontinental ballistic missiles

BU: Now, wait a minute, Dr. Bethe was talking about a radar screen that picks up thousands of missiles coming in, now, we're not gonna have a White House conference (LAUGHTER)

BR: No, no, well, I think if you ~~xxx~~ have seen them only on the radars that most Presidents are going to be very reluctant to believe the electronic warning is all that good. It is possible that you can find circumstances under which it would seem plausible, the coincidence of enough warning systems might together give you ^{reassurance} ~~xxx/xxxxxxxx~~, so it's important that there would be several warning systems, and I assume that Hans is talking about something more than seeing them on the radars of the

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BE: Precisely.

BR: (BOTH TALKING) itself. But still we have had some strange coincidences

BU: Excuse me.

BR: we have had some strange coincidences before.

BU: Just one second. Excuse me. Be right with you.

BREAK

BU: You were saying, Mr. Brennan.

BR: We have had some strange coincidences in warning systems before, some involving indicators that seemed to be confirmatory from several different sources, ^{that} there was a Soviet raid impending on the United States. We had a near SAC alert, several years ago, from the Air Defense warnings System. that came in from the existing Air Defense ~~xxxxxxx~~ And this experience, I think, will make many people skeptical of relying for our national security posture on the capability or even you know potential desirability of launching the intercontinental forces on radar ^{warning.} ~~xxxx~~

BU: Now, is this a point of disagreement between you?

BE: No.

BU: It is not?

BE: It's not. I think it would be highly undesirable to launch on such warning; but after all we make the hypothesis that all other systems have failed. That there is no Polaris, I can't conceive of that. But if we were in this position,

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any time, that Polaris was somehow negated, or somehow this made, circumvented by the Soviets,--I can't believe that ~~xxx~~ will ever happen,--but suppose this were the case, then we would still have this alternative. I think it is an awful alternative, I don't like Dr. Strangelove, I don't like to launch on warning. I would say, however, that there are several warning systems, and that missiles are somewhat more (BOTH TALKING) /distinctive, may I say, than planes. Maybe so./ A thousand ~~missiles~~ missiles certainly are more distinctive than just a few.

BU:

Well, let me raise a point that I haven't seen widely ~~speculated~~ speculated about, a point made by Senator Gore, namely, that to the extent that the United States has available to it optional responses of various kinds, you know, do we go with ABM, or do we go with the whole bit, or do we throw in Polaris, or do we contribute this other, to the extent that there are variable responses, then value judgments are called for, and the exercise of those value judgments in a period of time which is critical, may, in fact, lessen the deterrent impact of our pre-programmed reasoning and that under the circumstances the very existence of ABM might tantalizingly suggest to the Soviet Union, or to whomever, that one ~~might~~ might actually risk a first-strike against the United States, precisely because we will become enmeshed in all of these alternatives. Does that make

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any sense to you?

BE: If I understand you correctly, you are afraid that we will
~~STAR~~ start
~~xxxx~~/debating what to do

BU: Or debating, yes.

BE: In the crisis. In the ~~xxxx~~ crisis. It seems to me, and
I certainly hope that this debate has taken place, and that
we do not wait till the moment of ~~xxxxxx~~ crisis to debate
what to do . And I suppose maybe you have attributed
to

BR: To some of the less (BOTH TALKING) pre-crisis in our
lives, ~~yeah~~ yeah. (?)

BU: Well, now does that strike you a legitimate concern? Now,
I grant that coming from Senator Gore it comes from a
camp least expected. That ~~xx~~ is to ~~say~~ say, he seems to be
saying let the Soviet Union never be under any doubt
whatever that any hostile atomic offensive against us will
be greeted with the whole ~~xxx~~ shebang by us. Let them not
think that we're going to, at that moment, think well it
might have been a crazy mistake, and under the circumstances
we'll simply pick out some ~~xxxx~~ nubile target in the Black
Sea, and let it go at that. He believes that to encourage
them in that kind of differentiated optimism is to encourage
which
them to indulge instincts ~~xxxx~~ we don't want ~~xxxx~~ to
encourage them to indulge. Now, is this an argument against
ABM? Mr. Brennan?

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BR: I should ~~think~~ not think it's an argument against ABM.
It's an argument against what is sometimes spoken of as
controlled ~~ex~~ response. Or limited strategic war. It's
a fairly common argument, but one not given much weight
in the quarters that ^{you} might call professional analysts.

BU: Why?

BR: Well, for instance, we would be worried about catalytic
attacks. If you advertise that if you get ten missiles
you're going to push ~~every~~ button in the house, you might
sometime invite ten Chinese missiles from a Chinese
submarine under circumstances when you might be expecting
some Soviet missiles, for instance.

BU: Well, it means obviously that you've got to instruct the
machines to consider ~~the~~ the direction from which the
missiles, right?

BR: Yes, but if, for example, if some (BOTH TALKING SIMULTANEOUSLY

BU: So, that if some are in Cuba, you don't necessarily bomb

~~MOSEKOW~~

BR: Moscow.

BU: Moscow. Right?

BR: No, but if they come from submarines, and the Cubans don't
have submarines, there might be more concern.

HE: I agree

BU: What do you do then? What do ~~you~~ ^{people} tell the machines ~~to~~ to do
then?

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BR: Well, as far as telling the machines is concerned, all you can tell them is to look further and harder. There's nothing you can tell machines that they don't know.

BU: In the 12 minutes they have, or whatever it is?

BR: Well, that's one of the reasons I'm saying that you should not have a posture in which you have a reflex response of sending everything in response to some limited attack.

BU: And, but what about you Mr. ~~Berk~~ Bethe?

BE: I entirely agree, And the only circumstance, the only last ditch ~~circumstance~~ circumstance in which I advocated this strong response was when we see really a thousand missiles coming at us. They can only come from one country.

BU: What if it's five hundred? (LAUGHTER) No, really. This is not idle. (BOTH TALKING SIMULTANEOUSLY)

BE: If it really were five hundred, and I could count them, then I would say we should not immediately respond.

BU: What if it's one?

BE: Then we should certainly not respond in any massive way.

BU: Well, now, wouldn't it be convenient, if it were one, to have at our disposal some means of aborting it?

BE: That would be convenient. Very convenient.

BU: Well, why don't we indulge our desire for this convenience? It's only going to cost four or five million dollars.

BE: This is the Mad Russian, and it's really a part of the second question; but

BU: Well, it's not only the Mad Russian, it's this catalytic

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business that Mr. Brennan speaks ~~lx~~ about, right? Some
q ~~xxxx~~ some third force, the anti-power or whatever, seeking
to trigger an ~~apocalyptic~~ apocalyptic encounter between the
two major powers.

BE: Yes, absolutely. And this really belongs in the second
part, and if you will permit me, I would like to

BU: Of course.

BE: to, uh, discuss the second part of the

BU: Yes, sure.

BE: missile defense,

BR: Pardon me, before we get off that first part, I wonder if
I may ask Hans one direct question that I still, ~~walk~~ on
the first part.

BE: I want to continue the first part.

BR: I see. Well, then let me ask you the question anyway.
The question ~~was~~ was if you had to choose between ~~the~~
launch-and-warning posture to save the Minuteman force or
deploying missile defense to protect the Minuteman force,
which would you choose?

BE: If I have to choose, and I say I don't have to choose, because
we have the other weapons, if I had to choose, I would choose
missile defense and I am in a general way, in principle, I
am not against ABM defense of our ~~xxxx~~ missiles, only I
think that the system which is being proposed is ~~lx~~ completely
the wrong system. And I believe that because in that system

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the radar is quite soft. It is harder than you and I, but it is very soft compared to the Minuteman silos. Now, the Russians would undoubtedly know where the radar is, they would undoubtedly direct their missiles against the radar, which can be easily knocked out, and once the radar is knocked out the whole defense is knocked out. Therefore, I think it is totally wrong to put one expensive radar in a missile wing which is what, the present plan, and instead we should have a dozen inexpensive, very hard very simple radars distributed over the complex. If we had such a dozen radars, if they were equally hard as the missiles, and the experts assure me that this is entirely possible, then it would no longer be attractive for the Russians to attack, attack the radar.

BU: How do you cope with that, Mr. Brennan?

BE: By disagreeing with it, first of all. There are two planes ~~xx~~ on which I would disagree. One, a purely ~~technical~~ technical question having to do with whether or not radars can defend themselves as well if they're as hard as they are, or if they could defend themselves much better if you make them as hard as Professor Bethe suggests. Professor Bethe is saying that maybe you should make radars as hard as the missile silo, but the missile silos were designed for an ~~xx~~ environment in which there is no active defense, and the radar is designed for an environment in which one is

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putting in interceptor missiles that could intercept a large
~~xxx~~ number, in all likelihood, a large number of incoming
enemy warheads. And the radar is very good at defending
itself against this attack that Professor Bethe speaks of.
And it will sop up about as many interceptors ~~xxx~~ ~~xxxxxx~~
that radar is destroyed as it would if it weremade as hard
as he suggests.

BU: What do you mean, when you say sop up? What do youmean by
that?

BR: Sorry. The offense would have to spend missile warheads
on attacking radar and it would spend them in a way that,
the expenditure would actually be against our interceptors.
You see, our interceptors would destroy these incoming
enemy warheads and it will destroy more effectively when
they're directed against the radar than when they're directed
against any other target. Radar is better defending itself
than some Minuteman silo out in the far edge of the field.

BU: ~~Bx~~ In other ~~xxx~~ words, the very fact that the radar is
exposed and acts as a ~~xxxxxxx~~ cynosure for these weapons.

BR: Except that it's not.

BU: Makes them sitting ducks for our intercepting missiles.

BR: More ~~xxxxx~~ nearly, yes. Sitting ducks may be an overstatement.

BU: What's wrong with Dr. Bethe's suggestion that we have a
dozen set of one?

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BR:q Well, that gets to the second plane of the difference that I have with him, and that is that is that the system that is being deployed does have a dual purpose. It is intended to defend not only the Minuteman bases, but it is intended also to defend bomber bases and provide some relatively thin defense of the cities. And, if you went to the kind of system that he advocates, then you would not have the second kind of capability

Wx BU: Why?

BR: the system would be, well, it would have a short-range
make that radar
radar, if you're gonna/hard and less expensive and cheap,

BU: I see

BR: then it will not provide the kind of functions that the existing radar is intended to provide.

BU: Dr. Bethe.

BE: Well, that is absolutely true. But I would like to recall the example of the F1-11, where we lost directly by making one plane do dual duty. The F 1-11 was invented in order to serve both the Air Force and the Navy, but it doesn't serve the Navy at all. The Navy ~~has refused it,~~ has refused it, the Air Force is not very happy with it, I believe, at least we have had more crashes than there ought to be on any airplane. It seems to me that it's often false economy, and probably is no economy to try and make the same radar, let us say, for two very different purposes.

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BU: You, and you want to comment, Mr. Brennan?

BR: Yes. If I may. I should say, first of all, that the plane, F1-11 was not invented as a dual purpose ~~plane~~ it was decreed by Mr. MacNamara to be a dual purpose plane, which is a very different thing. You know, it was not developed in the first instance, as a dual purpose system; but it was something merely decreed to be a dual purpose system and the decree more or less failed, you know, I think we can all agree ~~with that~~. In contrast, the ~~Niki-X technology~~ Niki-X technology, that is being used ~~for the safeguard~~, or as proposed for the safeguard deployment of missile defense, has been under development for six years, as a dual-purpose system.

BE: But to repeat the same words, it was invented for city defense, and it's now decreed to be by the new Secretary to be also missile defense.

BR: No, sir. It was conceived to be dual purpose many years back. The development program for several years has emphasized the dual-purpose possible application of the Niki-X technology. I should make another point, by the way, that even if it were correct, what Dr. Bethe says, that you could somehow defend the Minuteman better with this type system that he speaks of, it is not established that it's correct, but even if it were established that it's correct, the technology is not developed at the present time, and if you want to have some system deployed that can provide some

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protection in say the ealy ~~mid-1960s~~ mid-1970's, then you
kind of
could not possibly do it with this/system, as matters now
stand, that hardware is not developed, and you would have
to wait some appreciable period of time to develop ~~an~~ it,
insert
and this would, you know,/further delay before you would
~~active~~ active
have the ~~active~~/protection.

BREAK

BU: Did you want to reply to that, Dr. Bethe?

BE: I do indeed. I don't think so. The radars that I advocate
would be very simple, and therefore it wouldn't take very
long. It would not take nearly as long as

BU: You and the boys at Cornell ~~xx~~ could whip it up in a few
weeks. (LAUGHTER)

BE: Absolutely. But then there is the other very important
point on this and that is we need surely, if we want to
go into Minuteman defense, we need ~~xx~~ tremendous numbers
of interceptors. There are a hundred fifty Minuteman
missiles in one wing. If we want to make life more
difficult for the Russians to attack these, it only makes
sense if we defend them by a considerably ~~xx~~ larger number
of ABM Missiles. And that is not all what is in the present
plan.

BR: Can you explain that? Why do you say you'd need a larger
number of interceptors?

BE: Well, it does not, if , well, let me take your example, that

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we take the present radar. The present radar, the senior
(?) radar has to be very well-protected which means that we
have to send at least two interceptors against any missile
which attacks the radar, because interceptor ~~reliability~~
reliability surely isn't much higher than 90%, is it?

BR: Well, there are two different kinds of ~~reliability~~ reliability.
One is a launch~~reliability~~ reliability, in getting, say, a Sprint
away from the silo, that probably would ~~be~~ ~~much~~ much
~~not~~ higher than 90%. Or as the Sprint gets on its way,
and is well on its way ~~to~~ to its target, then the ~~probability~~
probability that it kills its target~~is~~ is essentially
won. Now, yes, it's very high. Whereas if

BU: (BOTH TALKING SIMULTANEOUSLY) still only have two on account
of the launch, uh,

BRL Well, if you have some uncertainty in the launch reliability,
the way is fixed within the system is that the ~~radar~~ radar
service
~~beat~~ beat keeps track of whether or not the thing is on
the way, and if the missile does~~not~~ not launch properly, ~~if~~
if the interceptor does not launch properly and does not
go on its way

BU: You should know.

BR: then the system, the system knows, then it fires a back-up
interceptor. So, it's not necessary to fire two for one, it's

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only necessary to fire a replacement.

BU: That's good news. You hear that, Dr. Bethe?
true

BE: If it is really ~~xxx~~ that the ~~Sprint~~ Sprint, once launched, has better than ~~xx~~99% ability of intercept, this I find very hard to believe, because I have never seen a system which ~~has~~ thatxx reliability.

BR: Have you ever known of a nuclear weapon, a developed nuclear weapon, as I'm not sure if the ~~xxxxx~~ answer to this is
But

accessible. /perhaps you can say something. You know more about the weapon business than I do, for example. Have you known of an operational nuclear that was being subject to that a proof test ~~and~~/failed to go off on command? I don't know

BE: I don't know of any, and I

BR: I don't know of any, either.

BE: Yes, yes.

BR: And ~~xxx~~ roughly speaking, that is the problem involved here. Because the reliability of getting the Sprint close to its intended target, once it is launched, is very high indeed.

And the only remaining possible uncertainty in destroying this target ~~xxxxxxxxxxxxxxxx~~

Is

~~xxx~~ BU: ~~The~~/detonation.

missed distance (?)

BR: is the detonation. The ~~xxxx~~ ~~xxxxxxxxxx~~ is very low. distance (?)
I'm sure you must have seen data on the missed ~~instances~~.

BE: I have seen data on the missed distance (?) and I hope they are right.

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BU: Well, let me ask you this, because something confused me, Dr. Bethe, in reading through your published positions on this business, you've been quoted as saying that the Sentinel System will be technically ineffective and unnecessarily expensive and will create instability in the arms race.

BE: Yeah, yeah.

in the
BU: This is, ~~of course~~ of your general denunciation, but then in the Bulletin of Atomic Scientists, you say I assume that they ~~will~~ (Sentinels) will work as designed nor am I troubled by the safety aspects of the ~~my~~ nuclear weapons deployed. You go on to list other objections. Now, is it that between your first and your second statements you were reassured on the technical point?

BE: I said I assume.

BU: You assume. In other words, you're prepared to assume?

BE: I am prepared to assume

BU: So, you disavow those of your colleagues who say they won't work?

BE: Uh, no, I just didn't want to discuss that ~~particular~~ problem. Other of my colleagues discuss this problem and

BU: Well, you were saying, arguendo, they will work?

BE: Yes, exactly.

BU: Oh, oh, oh, oh. So, you haven't satisfied yourself, as a professional, that they will work?

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BE: That is correct.

BU: But you have, Mr. Brennan?

BR: That question doesn't have a black and white answer.

BU: Well, that's, the reason I ask it is because I find a lot of people who are situated somewhere between you. Who say, for heaven's sakes, let's proceed and at least in the course of a year or so discover whether the technical doubts of some members of the community are justified or whether the confidence of the other members ^{of the community is} ~~xxx~~ justified, because then at least ~~xx~~ we'll be able to argue the value questions without that particular doubt. Now, would you go along in the spirit of science that far? Or do you find other arguments that obtrude?

BE: It's very difficult to do. Because the greatest ~~xx~~ problem which these other people bring up is will a complicated system work? I think they will all agree that you can fire one Sprint, you can get a small miss-distance, and I am happy to hear from Dr. Brennan that the miss-distance really is that small. And if you do it once in a friendly environment I ~~xxx~~ am pretty confident that this is all right. That this ~~ix~~ can be done. But I think what

BU: Would you be willing to suspend your treaty long enough for us to experiment?

BE: Well, I'd rather not, and I don't think it's necessary because all you need to know is to have a radio-type

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indication of the closeness.

BU: I see.

BE: What some of my colleagues object to is the complication of the system, will this complicated system work as advertised? Will all the parts of this system work ~~together~~ together? Will it work in a hostile environment?

BU: You mean, sufficient to ward off a fairly, an attack by fairly numerous warheads?

BE: That's right.

BU: In other words, you have no doubt that it would work with a solitary or two or three

BE: Yeah.

BU: but you wonder whether it would work with ten or 15 or ~~was~~ 20, is that it?

BE: Or a hundred.

BU: Or a hundred. Uh huh. What do you say to that, Mr. Brennan?
a

BR: Well, it's obviously/more difficult question as to whether it would work with 15 or 100 weapons bursts going off in the environment of the defense.

HU: But even if it (BOTH TALKING SIMULTANEOUSLY) were 90%, that would be better, wouldn't it? Than nothing?

BR: Oh, yes, I believe so. Yes.

BU: ~~xxxxxx~~ Do you agree if we end ~~xx~~ up sparing Chicago, that's good?

BR : Yes. Even Chicago. I'd like to go back to the question

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and explain why I said the
you put to me/ ~~XXXXXXXXXX~~ answer is not in black and
white. You asked did I as a professional have confidence
that the system would work.

BU: Yeah.

BR: Well, I might be professional in different ways, and I'm
not quite sure which way you had in mind, I ~~am~~ am a sometime
technical type, and you might have been ~~am~~ asking have I
gone out and investigated the performances of/radars ~~in~~ the
Kwajalein (?) and have I watched Sprint firings and in
Kwajalein (?) and things of this sort.

BU: No, I mean that you've satisfied yourself of the competence
of people who (BOTH TALKING SIMULTANEOUSLY) should.

BR: That's right. It's exactly the latter point. I have
investigated the distribution of opinion within the quarters
relevant
that I think most ~~XXXXXXXXXX~~ to form a ~~judgment~~ judgment,
about this question of whether it will work technically
or not, and I think it's an interesting datum that so far
as I can see no one who has been really close to the
evolution of the system in about the past six years has
a high degree of skepticism about the technical performance.
I find that even Hans for example is at least not emphasizing
the
this problem of ~~this~~ ~~ex~~ technical failure, departure ~~XXXXXXXXXX~~
center
~~XXXXXXXXXX~~ from the, you know, design ~~XXXXXXXXXX~~ ~~XXXXXXXXXX~~
expectations of performance. Penosky (?), for example, is
also not emphasizing the possibility of large-scale failure.

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And I think the people who have been closest to the system in the evolution of it, ~~during~~/the past six years, during the growth of the Niki-X phase, are for the most part all convinced that ~~it~~ it will work.

BU: Well, Mr. Bethe, as I understand it, has been concentrating his attack not on the conceptual ineffectiveness of the ABM System, but on the ease with which it can be foiled by penetration aids.

BE: Yes, that's

BU: You listed four or five things blackout and chaff (?) and all that kind of business, now, as I understand, the other people are saying for heaven's sake, where ~~xx~~ have you been? We've known ~~the~~ about the problem of penetration aids for ten years. And we are pari passu on top of that program and for every black-out or chaff or balloon that you've conceived, we have got something that will cope with that problem. Is that fair?

BE: I don't believe that ~~xx~~ anybody would say that. At least I hope not. This belongs to the second problem, namely the area ~~of~~ defense. In the case of the hard point defense I freely agree that it is almost impossible to make penetratio aids ~~against~~ against hard-point defense. I would still, however, repeat what I said before. You need an awful number of interceptors to make any difference. Suppose the Russians send 150, well we have 150 Minuteman in ~~the~~ wing.

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Before it makes ~~xy~~ any difference, we have to use at least that number, and maybe if, and I think preferably a much larger number of Sprints as interceptors to make that attack unattractive. If it was ever attractive.

BU: Umhm. Well, there's nothing wrong with that, is there? I mean even if we decided simultaneously to retaliate, couldn't we simultaneously rely on ABM to minimize damage to America and resort to our retaliatory system in order to punish the offender and attempt to make it more difficult to renew, come in on a second wave (?)

~~MMX~~ BR: Well, we were talking about the attack on our Minuteman, can we preserve the Minuteman capability? And I was now agreeing with Don Brennan that we would like to, just hypothetically, we would like to preserve that Minuteman~~xx~~ force against a very heavy Russian attack. Well, okay, we might use ABM to do this; but to make it worthwhile to protect the Minuteman it is necessary that the number of our intercept~~ors~~ be at least greater than the number of the Minutemen now deployed.

BU: You're shaking your head?

BR: Yes, I don't understand that, Hans.

BE: It's, to me, it doesn't make any sense to start a completely lot new system, costing a ~~xxxx~~ of money if you don't at least double the number ~~xxxx~~ of missiles that the Russians have to send ~~xxxx~~ in to destroy your capability.

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BR: Well, you might be interested in improving the prospects for a substantial number of Minutemen surviving, without necessarily being committed to doubling that surviving ^{understand} capability. I don't ~~understand~~ that (BOTH TALKING SIMULTANEOUSLY)

BU: You're still much better off, aren't you?

BR: Yes, I think so.

BU: ~~Excuse~~ me.

BREAK

BU: Dr. Bethe, you were being asked why we wouldn't be better off by preserving some Minuteman missiles, even if it's not established that we can defend them all.

BE: I quite agree with that, but the Russians now would have to send over a thousand missiles to destroy our Minuteman force. If we add a hundred interceptors, they have to send over a thousand and one hundred, if they are ready by 1975 to send over a thousand missiles against the Minuteman, then by 1976 they'll surely be ready to send over 1100, and ~~xx~~ so I ~~don't~~ don't see that we buy anything that way. If we go into this business, and I still don't see why we should, then I'd like to go into this business with a lot of defensive missiles, into the Minuteman defense, and if I can raise the price for the Russians from 1,000 to 2,000, ~~then~~ that I would recognize as something worthwhile.

BU: ~~Now~~ Now, but, you've looked into this ratio, haven't you?

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And you're rather satisfied that something has happened in recent years that makes that ratio work in our favor?

BR: Yes, this is a slightly different point.

BU: Yes, I know.

BR: This is a question of whether it is more expensive for the Soviets to offset the defense than it is for the defense to be built in the first place. And that has changed in late years -- it's now a few years back -- but the point that was Hans was raising ~~is~~ a rather different one. It is my understanding that through phase 2 of the safeguard program, which would be in the time period you ~~are~~ were speaking of, there would be actually several hundred interceptors deployed and if there are several hundred interceptors deployed, that would require at least several hundred interceptors on the part of, several hundred missiles on the part of the Soviets to get them out of the way, ~~before~~ before they could go on attacking the rest of the targets.

BE: They are not deployed on the Minuteman sites. The number deployed on the Minuteman sites, unfortunately, I can't say. tell ~~xx~~ in public, but it is much less than what you ~~think~~ think.

BR: Well,

BE: Much, much less.

BR: It's, quite a few of the number that would be in the total would be Spartans, so located that they could intercept target, weapons addressed to Minuteman sites. So, a rather

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large fraction of the total would be available for that purpose if it ^{was} ~~was~~ so desired. Now, it might well be desired to use them for other ~~xx~~ purposes as well, protecting bomber bases and perhaps cities, and ~~xx~~ perhaps this ~~xx~~ is a good point to shift to that.

BE: I think we should shift.

~~xx~~ BU: Okay. But let's just then briefly, before we turn to the panel, and ask you what is it that you have in ~~mind~~ mind to do in the event that a non-massively equipped hostile power should move against us? What plans do you have for that kind of contingency? Or do you simply abandon hope in such an event?

BE: I don't abandon hope at all. On the contrary, I have strong beliefs that no power is totally insane. The Russians would have to be quite insane to try a first-strike against us; not so insane to have a nuclear exchange. But for any other country it would be totally insane.

BU: Don't you think Hitler's Germany was insane?

BE: They were indeed.

BU: Well, don't you think they'd have fired at us if they'd had the resources ~~xx~~ to do so?

BE: I would doubt that very much. But the country that we have most in mind, namely China, has given considerable signs of insanity in internal affairs, and what they have done to themselves, I think, is unbelievable. On the other hand,

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they have been very sane in their externals.

BU: But isn't it a hellufa thing for us to have to bank on

~~sanity~~

BE: On sanity?

BU: Well, no, abso-, certainly on sanity, but even on something

~~is~~ more reliable than sanity, namely, your rather pollyannish

~~pollyannish~~ historical notions. A moment ago, you said

that you don't believe that nations are insane, and ten
have to

seconds later, you/say, well, except for Hitler's Germany.

Now, there is no guarantee covenant that a Hitler type

might not seize power in, let's say, China sometime in the

future, and if so, that he might not be, might not embark

in kamikazi enterprises, against the United States, which

would be rather serious, if they had at their disposal

hydrogen weapons. Now, what kind of reassurance can you

given the cautious community which understands the problem

simply to be ought we to invest 10-dollars per taxpayer

in order to give ourselves ABM or ought we not to, because

Dr. Bethe has told us that we live in a sane world?

BE: I would ~~ex~~ be the last to say that we live in a sane world.

I had ~~ex~~ enough examples of the contrary. I think not even

Hitler would have made an attack of which he was sure that

it would immediately bring the complete destruction of his

country. Even Hitler would not have been that insane.

However, I suppose what you would like is some protection

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against a nuisance attack from a country, and especially an ~~xxxx~~ attack which ~~xx~~ might be designed to provoke us from shooting back at the Russians instead of ~~xxx~~ at the originator.

BU: Good.

BE: ^a
For this/very modest~~xx~~ ABM System might be useful. I don't see that there is any urgency in this. I don't see that we have to do this at the present time.

BU: How do you cope with that, Mr Brennan?

BR: Well, once again, by disagreeing with it. I think that it's time to get started~~xx~~ in the business.

BU: Why?

BR: Well,

BU: If we ~~do~~ delay, what?

BR: ^{you}
~~xxxxxx~~ If ~~we~~/delay you'll have threats that we could be protected against that we ~~xxx~~ shall not be protected against. By the mid-1970's there will probably be five countries operating nuclear missile-launching submarines.

BU: Well, now, do you agree with that, Dr. Bethe?

~~XXXX~~ Because, if so, I'd like ~~for~~ you to tell me when you think you think it would be appropriate to give ourselves this ABM protection. Next year? Or the year after, or the year after that, or do you have an idea in mind of a specific date?

BE: For instance, after the end of the Vietnam War.

BU: Well, how do you know how long that will be?

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BE: I don't know.

let's, suppose

BU: Well, /~~xxxxxx~~ that's five years. But, Mr. Brennan

BE: If it is five years, I would take the ~~xxx~~ risk of the other.

BU: Oh, okay. Then, you would take the ~~xxx~~ risk, but you grant that it's a risk. So, it's up to the United States to decide whether it wants to share the risk that you're willing to inflict on yourself.

BE: It is not up to me to decide that anyway. It is ~~ix~~ only my advice.

BU: But you do call it a risk? The delay of ~~EX~~ ABM is a risk?

~~KKX~~ Correct?

BE: It is a moderate risk, ~~xx~~ the kind of ~~xxx~~ risk I take crossing Times Square after leaving the studio.

BREAK

BU: Mr. Greenfield.

As

GR: ~~xx~~ we ~~xxxxxx~~ leave this cheery hour of Chinese submarines and oncoming missiles, and the other goodies that we've had, I wanta ask Dr. Brennan what I think is a non-technical question. We had some stories come out of Washington about some unfortunate pricing schemes of the Defense Department. A 2-billion dollar~~xx~~ cost overrun (?) on the C-5A Cargo Plane, Hiawatha Helicopter ~~xxxxxx~~ can't fly, the F1-11, misinformation from the Defense Department on everything from when we're getting out of Vietnam to the sheep they

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did or did not kill at the Dugway (?) Proving Grounds.

Now, the Defense ~~Department~~ Marketing Survey of McGraw-Hill tells us that the 6.6-billion dollar~~xx~~ ABM may in fact cost 11-billion dollars, leaving out the warheads, doesn't this create some sort of presumption that perhaps at long last we might not accept the judgment of these very learned men who have been wrong so often about so much? Just once?

BR: Well, they haven't been uniformly wrong. I'm not here as a Defense Department spokesman.

GR: I understand

you know

BR: And I'm/quite willing to admit that there have been a number of points on which they were wrong. I think the Dugway incident was , you know, just a major blunder on a moral plane, among others, you know, they should have not have made the statements that were made in the early days. There have been a number of systems that did not incur large cost overruns, and these have been the systems that have on the whole been better studied, and were under better program management. For example, the Polaris submarine force came in at almost exactly the estimates that were originally made for it. It's a little bit hard to say because the system changed as it went along; but it certainly had no major, it had no cost overrun at all.

XX GR: But on the otherhand, the program that John Kennedy ordered an end to, isn't it now universally regarded that that would

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have been a disastrous mistake~~xx~~ to go ahead and build?

BR: The ~~Niki~~ Niki-Zeus System.

GR: Yes. Yes.

BR: Yes, there was very little support for Niki-Zeus.

GR: Yes.

BR: I among others was supposed to it.

GR: Except in the Defense Department.

BR: I don't, I, among others, was opposed to Niki-Zeus. I agree that it would have been a mistake.

BU: Miss Fitzgerald.

FI: Uh, excuse me, Dr. Brennan in your article in the April issue of Foreign Affairs, you seem to be arguing for this defensive system, somewhat^{at}/to the expense of our offensive system, as part of ~~the~~ the strategic posture of the United States. Uh, but the Nixon Administration doesn't seem to be taking that line at all, and rather increasing both systems at the same time. And it seems to me that rather ^{what's} this is what/everybody is so much against, the ABM, or a good part of the reasons, and uh the sort of question which non-technicians like myself ask is who is there who defends the ABM who hasn't got a vested interest in seeing that money spent on the military?

~~BR~~ BU: Me. Mr. Brennan?

BR: I don't own any stock in any aerospace company, for example, and I have no vested interest whatever in ~~this~~ this deployment.

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GR: Well, there are two.

FI: There are two. Okay.

BR: There are quite a few, actually, if you look around, You'll find that most of ~~the~~ the ~~xxx~~ analysts who have been actively supporting it do not own any shares of aerospace stock, that they expect to make money off of.

Ex BU: Mr. Coyne, a real fast one.

CO: / The
Comment so far sounds suspiciously like ~~Ixxxxx~~ I. F. Stones
(?) in the New York Review of Books, but Dr. Bethe, do I understand you to say that you would wholeheartedly and happily go to work on an ABM System were the war to end tomorrow?

BE: No, I did not say that.

BU: Unhappily?

CO: Unhappily.

BE: Very unhappily.

CO: But dutifully.

BE: And in fact I ~~take the~~ think the then ~~xxx~~ at least the one argument would not longer apply, namely, that we can't afford the money, and there are more important things for us to spend it for.

CO: This is typically scientific reasoning. This concern with money, the ~~expenditure~~ expenditure

BE: Yes, that's very scientific. I

BU: It is odd you brought that up all of a sudden.

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~~XXX~~

You know, that that is a critical consideration. The fact that we can or cannot afford it, but you haven't mentioned that up until now.

BE:

I hadn't mentioned that. But, well, I still would have my doubts whether it is a reasonable thing to buy the system, and I have especially my doubts if it is intended to act against submarine-launched missiles. That's not really what it is most designed against. It's designed against ICBM's and it's , it is precisely my doubt about submarine-launched missiles which would make me go for some other defense rather than this.

BU:

Thank you very much, Dr. Bethe, and thank you very much, Dr. Brennan, and ladies and gentlemen of the panel, I which were appreciate very much your views, ~~and your~~ excellent.

THEME

END OF TAPE