

Frank Gaffney, Assistant U.S. Secretary of Defense for International Security Policy, addressed this issue in the briefing, with the following warning:

"I think it is the case that the Soviets, as a rule, have built with brute force and for massive effect—some call it overkill. We should take no comfort from the fact that, to varying degrees, their proficiency, their skill, their competence seem inferior to ours.

"The reports that a general who was responsible for the Krasnoyarsk construction would, were he in this country, be court-martialed because the concrete flaked or because the construction appeared shoddy is, in my view, the kind of condescending contemptuousness which has caused us often-times to misjudge the real capability of Soviet systems.

"Many of you," Gaffney continued, "will recall the MiG-15 that flew into Japan some years ago and the ridicule that was heaped upon that system when it was discovered that it was enormously heavy, and that it had exposed rivets, and that it had a very early variant of a radar system.

"The fact of the matter is, on closer inspection, it was actually a pretty good aircraft for the mission that it was designed to serve. And the fact that it could be produced in quantity and was being produced in quantity, I think, is something we tend to lose sight of, but we shouldn't—because we can, unfortunately, grossly underestimate the actual threat to defense."

Potemkin Village?

Gaffney closed his press conference with a pointed quip about the typical Soviet practice of spreading disinformation:

"In addition to the closed society with which we are forced to deal, with the Soviets as our adversary, we should remember there's another tradition in the Soviet Union. Indeed, this goes back to the time of the Czars, and that is the phenomenon of showing people what you want them to see.

"And this, perhaps, reached a high-water mark in the time of Catherine the Great and the Potemkin Village, but I think we ought to be cautious in judging on the basis of a very limited data base what may well be the Potemkin radar."

In other words: If the work on the radar station at Krasnoyarsk looks shoddy, maybe that's just because the Soviets want us to see it that way, to lull us into complacency about the threat Russian military power poses to us.

Below is a transcript of the Sept. 10 press conference. We are also including an excerpts from a recent article by Lt. Gen. James Abrahamson of the Strategic Defense Initiative Organization based on his testimony to Congress on the Soviet antiballistic-missile defense capability, including emphatically the Krasnoyarsk and eight other similar radar stations now under construction. This, along with a short section from *Soviet Military Power*, verifies that the Soviets did not tell us anything which we did not know already, even if some congressmen do not wish to admit this.

Krasnoyarsk violates heart of ABM treaty

What follows is an edited transcript of the Defense Department briefing by Frank Gaffney, designated Assistant Secretary of Defense for International Security Policy, and James McCrery, Defense Intelligence Agency, on Soviet non-compliance with the ABM Treaty on Thursday, Sept. 10, 1987.

Mr. Sims: . . . We have with us Frank Gaffney, who is the designated Secretary of Defense for International Security Policy, and with him is Jim McCrery of the Defense Intelligence Agency. They are here on a single subject and that is to discuss the Soviets' non-compliance with the ABM Treaty, specifically with regard to the Krasnoyarsk radar. . . .

Sec. Gaffney: . . . As I think you know, there has been some interest expressed in the Krasnoyarsk radar as a result of the Soviets' invitation to several members of Congress to visit the site last week and some activities that have ensued upon the return of those members, and we thought it would be helpful to try to provide you an update on our reading of the Krasnoyarsk situation and to put it into context for you, in particular, in light of some of the comments that have been made by members of Congress and other people traveling with the party, in the light of their visit.

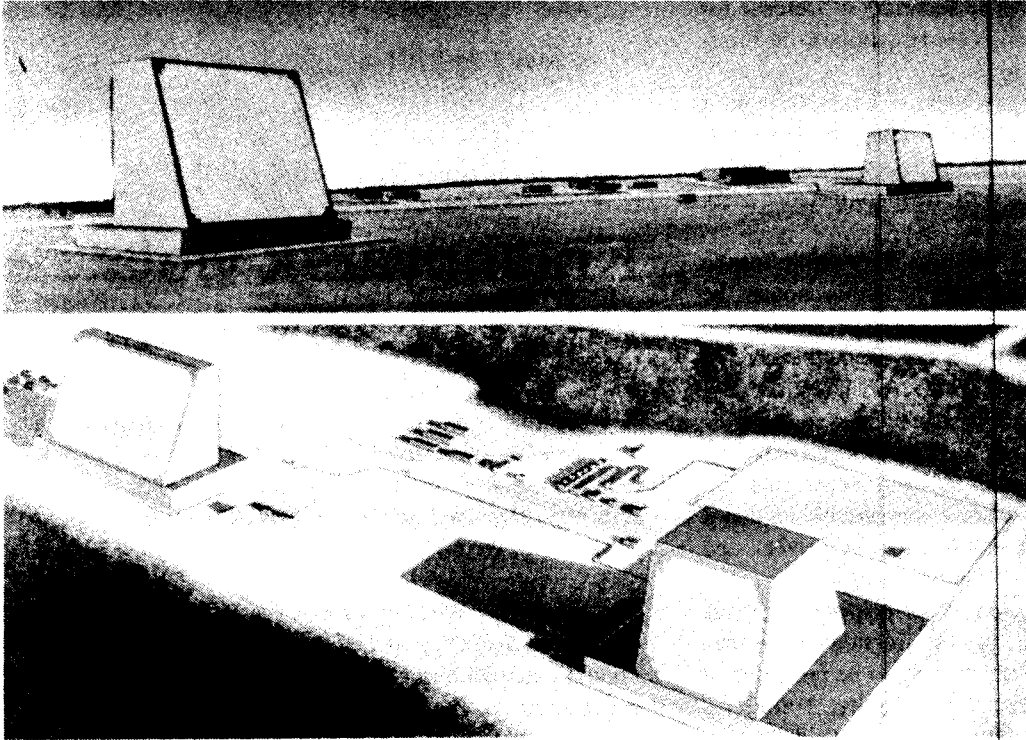
. . . As the result of the trip by our members of Congress, we've had this model made up [see Fig. 1], actually before the members of Congress made this trip, and just to give you a sense of the scale of this beast relative to some of the objects you know well. The United States Capitol is here; the Washington Monument here. This is the receiver—rather the transmitter building and the receiver building for the Krasnoyarsk radar, another associated infrastructure. I would point out to you that this model was made without benefit of any insights gained from on-site inspection, such as it was.

It was, in fact, built, based upon the information available to us through national technical means, and I think it can serve as the basis for our discussion here with you this afternoon. . . .

Let me begin by saying that I think there are certain things that we agree with the members of Congress about, and there are certain things that we disagree with them about.

First, we clearly agree that the Soviets are lying now and

FIGURE 1



This is the Defense Department's sketch of the giant Soviet Anti-Ballistic Missile Defense and Early Warning Radar currently under construction at Krasnoyarsk, which violates the 1972 ABM Treaty.

Department of Defense

have been lying in the past when they have said the purpose of this radar is for space-track functions. Interestingly, that was not a conclusion that you needed on-site inspection to arrive at, but the members of Congress have, nonetheless, affirmed the view that we have long taken in the administration, that that simply was not the purpose of this radar installation. Indeed, it is the wrong radar, operating with the wrong design, with the wrong orientation, and in the wrong location for effective space-track functions.

This is not to say that the Soviets don't know how to do space-track, nor is it to say that if an object in space flies through the field of view of this radar, that it will not, in fact, be able to track that object.

It's simply to say that it is unlikely in the extreme that the Soviets would spend upwards of half a billion dollars to build a radar that is so remarkably incompetent for the ostensible purpose, namely space-tracking. A further data point is that this radar, as Jim will be able to elaborate, is sufficiently identical to a number of other radars of the so-called Pechora-class that the Soviets themselves have identified to us as early warning radars, that it would be very difficult indeed to construe this radar as being other than also for early warning purposes.

And indeed that is another point that the members have made upon their return, and we agree with them, this radar is a ballistic missile, detection and tracking radar. As such, it is a clear-cut violation of the ABM Treaty. Again, we didn't

need on-site inspection, such as it was, to determine that. In fact, that has been the position of this administration for several years. Turning to where we disagree—we disagree categorically with the contention that this is a technical violation of the ABM Treaty or a militarily insignificant violation of the ABM Treaty.

Quite to the contrary, as the President himself has put it, militarily, the Krasnoyarsk radar violation goes to the heart of the ABM Treaty [see Fig. 2]. As I said, we've asked Jim McCrery, the Defense Intelligence Officer responsible for Strategic Programs in our Defense Intelligence Agency to join us today and to present you with some additional information which I think will leave you in no doubt as to why we are correct in our judgment that this is both, in and of itself, a clear-cut violation of the treaty, and in the context of the class of radars of which it is a part, in the context of the other radars that form the nationwide network of ballistic missile tracking and detection radars, of which it is also a part, and in the context of a variety of other programs, about which I think you've all been briefed, about which we have written in *Soviet Military Power*, it is against all of that backdrop that this presents the kind of significant military development that fundamentally undercuts—indeed goes to the heart of—the ABM Treaty. . . .

Mr. McCrery: I'm a civilian. By training, I'm an engineer; by current vocation, I'm a Soviet watcher. I have been involved in a number of negotiations with the Soviets in

FIGURE 2



This Defense Department picture shows the model of the giant Soviet ABM and early warning radar which is under construction at Krasnoyarsk and is a clear and significant military violation of the 1972 ABM Treaty. The Washington monument is shown for comparison in the background of the DoD model.

Geneva, have spent many years viewing and analyzing this radar, among others. The Soviet Union has a very serious ABM program. They have committed themselves, years ago, to that serious ABM development and, as a matter of fact, to deployment as well. And we see that in many, many, aspects of that ABM program. The one that we're discussing today . . . is the area of large radars—large phased array radars as they are sometimes called—LPARs—in particular, the Krasnoyarsk radar.

It is a very large radar. This, in fact, is a very small-scale model of it. It is a very large radar. It's the world's largest. It is a very powerful radar. It's the world's most powerful radar. It's designed in a relatively straightforward way yet it utilizes modern technology. And it utilizes it in, as far as we can determine, a very meaningful way—a very useful application of modern technology. As you know, there are nine of these kinds of radars around the country and we'll look at that in just a moment.

. . . I wanted to remind you that we've been talking about this radar and its location and its capabilities for about six or seven years. And, in fact, I chose a very early sketch that we made and presented in *Soviet Military Power* several years ago of this radar to illustrate that. And while the fine details that you see in the model here are not present in the sketch that we had in *Soviet Military Power*, I think you can see that the approach was to give you a good view of what the Soviets were doing there.

Now, I said that the radar was very, very large. If the radar is large and there are many, many antenna elements in the face of the array, then it can form a very narrow beam. If it's a phased-array radar, as these are, it can generate many, many of those narrow beams. And what that all means is that it can track large numbers of objects very accurately. The data from that radar can be used for any number of purposes to include early warning, attack assessment, battle management, and other kinds of ABM-related functions. . . .

This is the photograph that we all saw in the *New York Times* [see Fig. 3] and I think, as you can see there, you have a very close depiction, if you will, of what we showed you back over the years, and in fact, if you look at that and the model, you'll see that they are virtually identical. The model was made based on national technical means information that we had before. What we saw by virtue of the visitors' photograph here, in fact, confirms what we had known earlier about this radar. It confirmed its existence certainly, its location, its orientation, the direction it was pointed and the angle of the face—all of those are important in assessing its compliance with the treaty and also assessing its capability for ABM-related purposes.

We can look and see that it has a large number of elements on its antenna face. It's a phased-array with the ramifications that I just mentioned. We can see that it's a very large radar. In fact, this radar—the receiver for this radar is about a football field in length and a football field in height. If you

FIGURE 3



This is the front page of the New York Times from Sept. 9, 1987 which was referenced as one of the pictures taken of Krasnoyarsk during the tour of U.S. Congressmen. This picture shows that the Defense Department was truthful in their previous reporting on Krasnoyarsk.

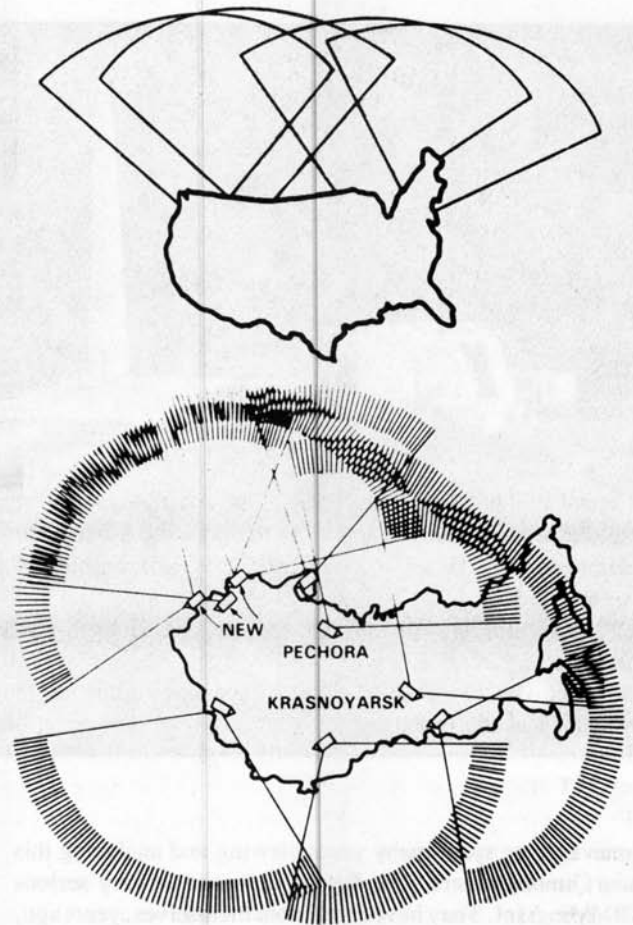
were to lay this down, two or four teams could play football simultaneously on the face of that radar. So we see that all of the characteristics that we had assessed before are, in fact, borne out from what we observed from this photograph. . . .

Now we mentioned its location and its orientation. You can see here that in conjunction with the rest of this large network, this new network of phased-array radars, Krasnoyarsk completes the coverage in the northeast [see Fig. 4]. In fact, while it's been suggested by some that this radar is not for ballistic missile detection and track, as are the rest of them, and in fact, as the Soviets have indicated, the rest of them are. You can see that, should they have left out this coverage, they would, in fact, have left themselves very vulnerable to an attack from the northeast. So, in essence, they—by saying that this is not a ballistic missile detection tracking radar, they're actually advertising what would be a very foolish kind of approach [see Fig. 5]. So we doubt very much just from that standpoint that their claim about space track could be true. . . .

We have commented over the years that this radar at Krasnoyarsk is identical to, or virtually identical to the radars at the other facilities. And again, these are sketches from recent copies of *Soviet Military Power*, where the Krasnoyarsk radar is at the top in a little more detail than I showed you before. And the Pechora radar, which is the one located here, is at the bottom. And you can see that they are virtually identical. Now I think you can see from the model here and from the photographs that the congressman took, that we have been truthful and honest with you over the years in our depiction of these systems.

The significance of the network of radar is that, well, you can view it in a number of ways. First of all, it duplicates to

FIGURE 4

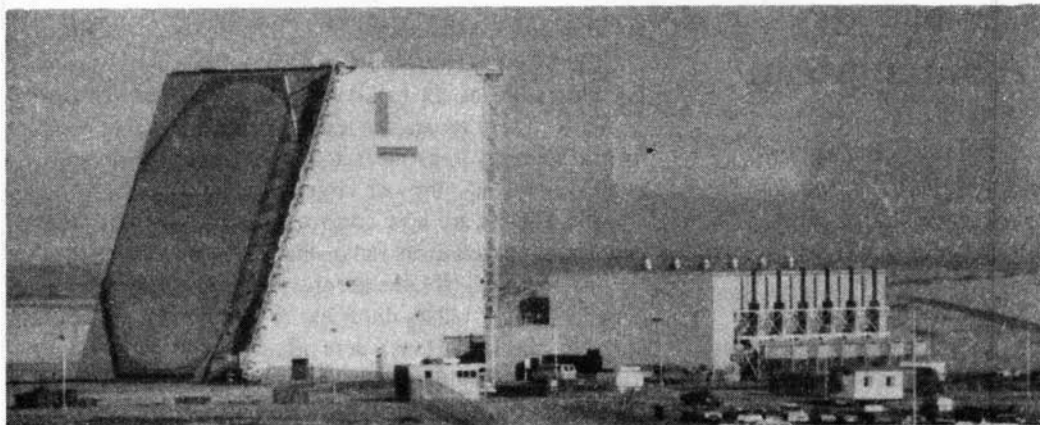


This DoD diagram shows the coverage of the United States by phased-array early warning radars (PAR) versus that of the Soviet Union. Note that Krasnoyarsk fills in the gap in the northeast of the U.S.S.R. and is located 4,000 kilometers from the border which it faces, in violation of the 1972 ABM Treaty. The diagram also shows the overlap between Soviet large phased-array radars (LPARs) which permits more accurate tracking, targeting, and handover to short range antiballistic-missile defense (ABM) systems of incoming missiles.

a large extent an earlier early warning, in fact continued, existing early warning system that is deployed. They're the ones that we typically call Hen House. It duplicates that with a capability much more sophisticated than the older early warning radar network, and therefore gives us pause when we consider what the Soviets might be involved in in deploying this network. It is a contiguous network, as you can see, including the Krasnoyarsk radar, which means that they have good coverage against attacks coming in through any portion of the western and central U.S.S.R. The coverage that they provide by virtue of the size phased-array nature of the radar, is much, much better than you need for early warning, thus giving rise to some of our concerns [see Fig. 6]. . . .

There is the size of the radar compared with the U.S.

FIGURE 5



U.S. Air Force Photo

This U.S. Air Force photograph gives an overall view of the antenna and its power plant at the PAVE PAWS early warning radar located in Beale, California.

Capitol Building [see Fig. 7]. . . . Early-warning radars need not be so large and so capable as the ones the Soviets have deployed here. This will certainly provide early warning, but we're concerned that it might do very much more.

Question: Are you saying their LPARs are more capable than ours?

Mr. McCrery: This LPAR is capable of doing—when you look at the broad range of attributes of the radar, the long-range detection capability, the target-handling capability and what have you and the aggregate of all of those—yes. In the aggregate, this particular radar is much more capable than U.S. early-warning radars. . . .

Question: . . . What things is it better at in particular?

Mr. McCrery: Well, it'd probably take us a while to go into it. The long-range. Let me give you an example, though. The long-range detection capability of this radar is better than, I think, than anything that we have deployed.

Question: That's an early-warning function.

Mr. McCrery: Well, it's both. If you detect it far away and track it for a very long time, then what you have is a capability to predict ahead and hand over, use that data for handover to an ABM system. . . .

If you look on the viewgraph [see Fig. 8], what I'd like to point out is that, had they deployed on the periphery of the country, it would have provided early warning very nicely. In fact, you can see a depiction of a ballistic missile passing through the blue fan. The problem is that, after it goes out of the beam, the computer has to take over and extrapolate the trajectory. In doing so, errors are introduced. The longer time, the longer distance, the more the errors. And, in fact, when we look back in the western and central portion of the country, the portion that they may wish to defend . . . the handover would be inadequate, because the errors would have grown too much.

However, if they move it back the 4,000 kilometers that they have moved it back from the periphery, back to the Krasnoyarsk location, and go through the same calculation, you can see the depiction in red that indicates that the hand-

over requirements fit like the proverbial hand in the glove. And so what we're looking at here very well may be the explanation of why they chose to violate the treaty. They obviously didn't do it for political reasons. They've take some political heat over that. But—and so they must have done it for some kind of military reasons, and we think that this very well may explain the military reason and justification for their having done what they did, i.e., violate the treaty.

Question: In terms of national ABM defense?

Mr. McCrery: Well, the decision about that is almost left to the reader, isn't it? We don't see the national defense being deployed; however, we do see some other attributes of their ABM program, if you will, a rapidly deployable ABM system and surface-to-air missiles, ostensibly air defense systems, that have some ABM capability. We see both of

FIGURE 6



This DoD diagram compares the scale of the U.S. PAVE PAWS early warning radar located in Alaska with the scale of the existing Soviet ABM radar at Pechora and the new Krasnoyarsk ABM radar. Note that the Pechora measures 56 meters across its face, while the Krasnoyarsk measures 83 meters and the U.S. PAVE PAWS 34 meters.

The Soviets' ABM system

Lieutenant General James A. Abrahamson reported the following to Congress last spring, with regard to the Soviet efforts on construction of large phased-array ABM radars. (The text is taken from Defense 87, July/August 1987, page 39.)

... The Soviet emphasis on research into defenses against ballistic missiles was articulated by then Minister of Defense Grechko shortly after the signing of the ABM Treaty in 1972. He told the Soviet Presidium that the treaty "places no limitations whatsoever on the conducting of research and experimental work directed toward solving the problem of defending the country from nuclear missile strikes."

The Soviets maintain the world's only operational ABM system; it defends Moscow. In 1980, they began to upgrade and expand that system. When completed, the modernized Moscow ABM system will be a two-layer defense composed of silo-based, modified, long-range Galosh interceptors; silo-based, high-acceleration Gazelle interceptors designed to engage targets within the atmosphere; and a new, large radar at Pushkino designed to control ABM engagements. The modernized system will have the 100 ABM launchers permitted by the ABM Treaty and could become fully operational by the late 1980s.

The Soviet system for detecting and tracking ballistic-missile attacks uses launch-detection satellites, over-the-

horizon radars, and a series of large phased-array radars.

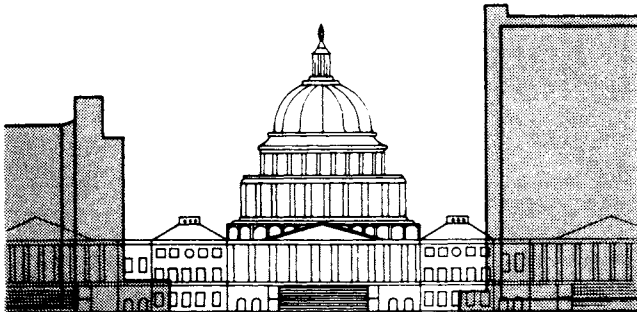
The 11 large Hen House ballistic missile early-warning radars are at six locations on the periphery of the U.S.S.R. These radars can tell the size of an attack, confirm a warning from the satellite and over-the-horizon radar systems, and provide target-tracking data.

The Soviets are now constructing a network of nine new large, phased-array radars that can track more ballistic missiles with greater accuracy than the Hen House network. These radars duplicate or supplement the coverage by the Hen House network, but with greatly enhanced capability. However, one of these radars, under construction near Krasnoyarsk, closes the gap in Soviet radar coverage against ballistic missile attack. Because it is located well within the Soviet border and "looks out" across some 4,000 kilometers of Soviet territory, this radar is in direct violation of the ABM Treaty, which permits large, phased-array radars for ballistic missile early warning like that at Krasnoyarsk, only if they are located on the periphery and oriented outward.

This growing Soviet network of large, phased-array radars for ballistic missile detection and tracking is of particular concern when linked with other Soviet ABM efforts. Such radars might allow the Soviet Union to move rapidly to construct a nationwide ABM defense. The Soviets are developing ABM components that apparently are designed to allow them to construct ABM sites in a matter of months instead of years. This would allow the Soviets to undertake rapid ABM deployments to strengthen the defenses of Moscow and defend key targets in the western U.S.S.R. and east of the Urals.

those in development, and in fact, when we assess the capabilities of this radar and the requirements of those rapidly deployable ABM systems and air defense systems, we see

FIGURE 7



This DoD diagram compares the scale of the operating Soviet Radar at Pechora and the new ABM radar under construction at Krasnoyarsk with the scale of the U.S. Capitol.

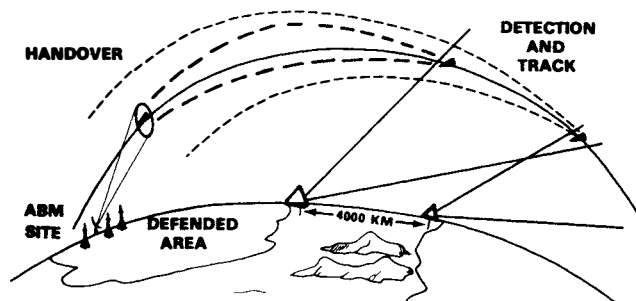
quite a natural compatibility between the two. So one is left with the question, why are they deploying this network of radars? And the possible answer is that they are preparing for a widespread, nationwide territorial-type defense. . . .

... These are for each of the large phased-array radars. And when you look at all of them together . . . you can see you have multiple redundant coverage. . . . You can see that the multiple redundant coverage covers the most important portions of the Soviet Union, the western and central portions. They are both the most militarily significant and the most economically significant. . . .

When we look at their capabilities against submarine-launched ballistic missiles, we find the same kind of phenomenon exists. . . .

... The significance is that if it were just an early warning radar and intended only for early warning, you would not expect to see handover capability over such a wide range. In fact, if it were purely early warning, you might not see handover capability anywhere. . . .

FIGURE 8



This DoD diagram shows the missile defense implications of the Krasnoyarsk radar. Located 4,000 kilometers from the border, the Krasnoyarsk facility provides the highest degree of coverage of incoming missiles in order to hand them over to ABM defenses, which are shown to the left of Krasnoyarsk in the western and central parts of the Soviet Union.

Question: How long do you estimate this facility would take for completion?

Mr. McCrery: We estimate about two more years . . . and with regard to that, let me make a comment about . . . speculation about the possibility of cutting a deal with the Soviets to stop construction of this right now, and to continue to verify that construction has . . . ceased. It takes a long time to build these radars. In fact, that's one of the points that we have made. We have used the term "long lead-time item" for a future widespread ABM system. They have come far enough with the Krasnoyarsk radar that in a militarily meaningfully short time, they could complete it, even if they stopped now, even if they put it in limbo now. And as such, one might question whether or not ceasing construction now would be meaningful in any way to the United States. . . .

Question: Are those trackers or interceptors?

Mr. McCrery: These are the ABM sites themselves which would consist of an ABM radar—a tracking radar, which would be provided data by the type of radar that we're talking about here and then interceptor missiles. So the network, as we see it now, of nine large phased-array radars is projected to be completed sometime in the early '90s, and so conceivably deployment of the engagement systems, the ABM sites, if you will, could begin at that time or even before that time. . . . It's very difficult to hide a large number of things. We hope that while our ability to watch the Soviets is not perfect, we hope that it's good enough to detect that kind of thing. But you have to ask the question: Can you detect in a short enough time that you could turn around and do something about it? Detection and identification is not enough. And there—when you are looking at the rapidly deployable ABM system or the use of surface-to-air missiles—air defense systems in an ABM role, then you get very nervous. And in fact, that's the situation that we're in now. We're in a very nervous environment as we look at the broad range of

Pentagon on Krasnoyarsk

The Defense Department publication *Soviet Military Power 1987* has the following to say about the Krasnoyarsk ABM radar.

The Krasnoyarsk radar, essentially identical to the other large phased-array radars that the Soviets have acknowledged to be for ballistic missile detection and tracking, violates the 1972 ABM Treaty. The radar is not located on the periphery of the U.S.S.R. and pointed outward, as required for early warning radars. It is some 750 kilometers from the nearest border—Mongolia—and it is oriented not toward that border, but across approximately 4,000 kilometers of Soviet territory to the northeast.

The Soviet Union claims that the Krasnoyarsk radar is designed for space tracking rather than for ballistic missile early warning, and therefore does not violate the ABM Treaty. Its design and orientation make clear that this radar is intended for ballistic missile detection and target tracking in the LPAR [large phased-array radar] network.

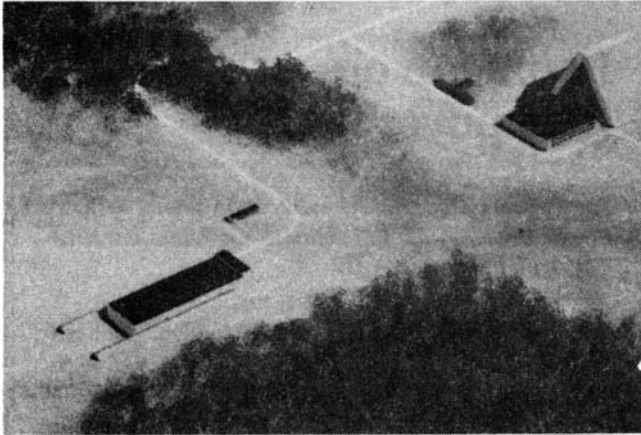
The growing network of large phased-array radars, of which the Krasnoyarsk radar is a part, is of particular concern when linked with other Soviet ABM efforts. These radars take years to construct and their existence could allow the Soviet Union to move quickly to deploy a nationwide ABM defense. The degree of redundancy being built into their LPAR network is not necessary for early warning. It is highly desirable, however, for ballistic missile defense.

During the 1970s, the Soviets developed components that could be integrated into an ABM system that would allow them to construct individual ABM sites in months rather than the years required for more traditional ABM systems. The development and testing of the components represent a potential violation of the ABM Treaty's prohibition against the development of a mobile, land-based ABM system or components. By using such components along with the LPARs, the Soviets could strengthen the defenses of Moscow and defend targets in the western U.S.S.R. and east of the Urals.

ABM related and potentially ABM related activities that are going on.

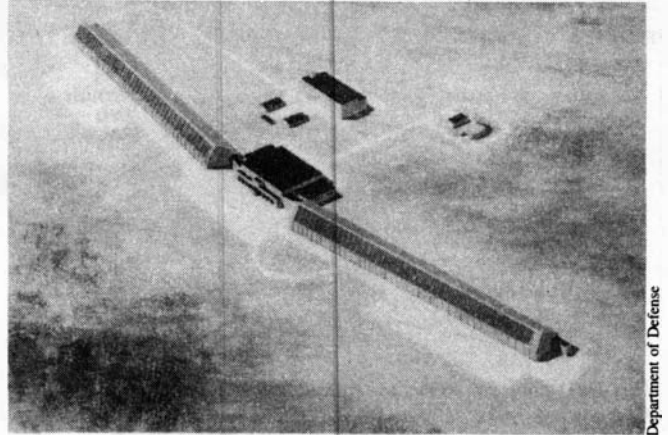
Question: About its data management functions: Is that the conclusion of the intelligence-community-wide estimate

FIGURE 9



The older Soviet Doghouse phased-array radar (artist's conception).

FIGURE 10



The older Soviet Henhouse phased-array early warning radar (artist's conception).

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or is that just CIA or is that just you?

Mr. McCrery: I don't think you'd find any argument in the intelligence community about the capability of the radar to provide data accurate enough for handover, direct ABM support, battle management, whatever you want to call it. . . .

The estimate of what it's for is probably a little more open than that. And again, as Mr. Gaffney said, what we're presenting to you is the evidence as we see it. We're not trying to sell you something, but to give you the facts as best we can. And what we see is rapidly deployable ABM systems under development; air defense systems with some ABM capability; early warning network that's already in place that's been for 17 or 18 years—quite adequate for early warning; and then we see this thing—this network of Krasnoyarsk-type radars [see Figs. 9, 10, and 11] coming along with a capability that is consistent with the requirements of the engagement system—the ABM systems that we see under development that need not be there for early warning purposes, although it will certainly do early warning, and will certainly be used for that in addition to the other early warning. . . .

Question: What do you think was the Soviet motivation in inviting this delegation there? . . .

Mr. McCrery: . . . From a Soviet standpoint, this was nothing but a win, because here they can appear forthcoming without telling us anything. . . . They can bring people into a radar that is just in the mid-phase of construction, late mid-phase construction. The detailed components, that from the Soviet standpoint the Americans would like to see, aren't in there, yet. Not much more is visible from the inside than the Americans probably know already from the outside. And so the downside risk is very small, and the upside political potential is moderate at least, maybe even great, because of the press. . . .

Mr. Gaffney: . . . There have been *démarches* at every level in every forum . . . at every level we have impressed upon the Soviets our concern about this. . . .

Unfortunately, the Soviets have not, in any of these forums, in any of these discussions, in response either to congressional letters, congressional resolutions, presidential initiatives, *démarches*, what have you, expressed any willingness to do the one thing that will alleviate the problem . . . dismantle them. . . .

Question: . . . Why don't you ask them to tear down all the LPARs?

Sec. Gaffney: Well, it's a good question. . . . We can't even get . . . popular support to have them tear down the one thing that is clearly a violation . . . if you will join us, members of the Fourth Estate, in an effort to really rectify the larger problem, who knows what's possible? But one step at a time. . . .

Question: How about the frequency? . . . less than 200 . . . 180 . . .

Mr. McCrery: 180. Yes, that's even better.

Question: For battle management?

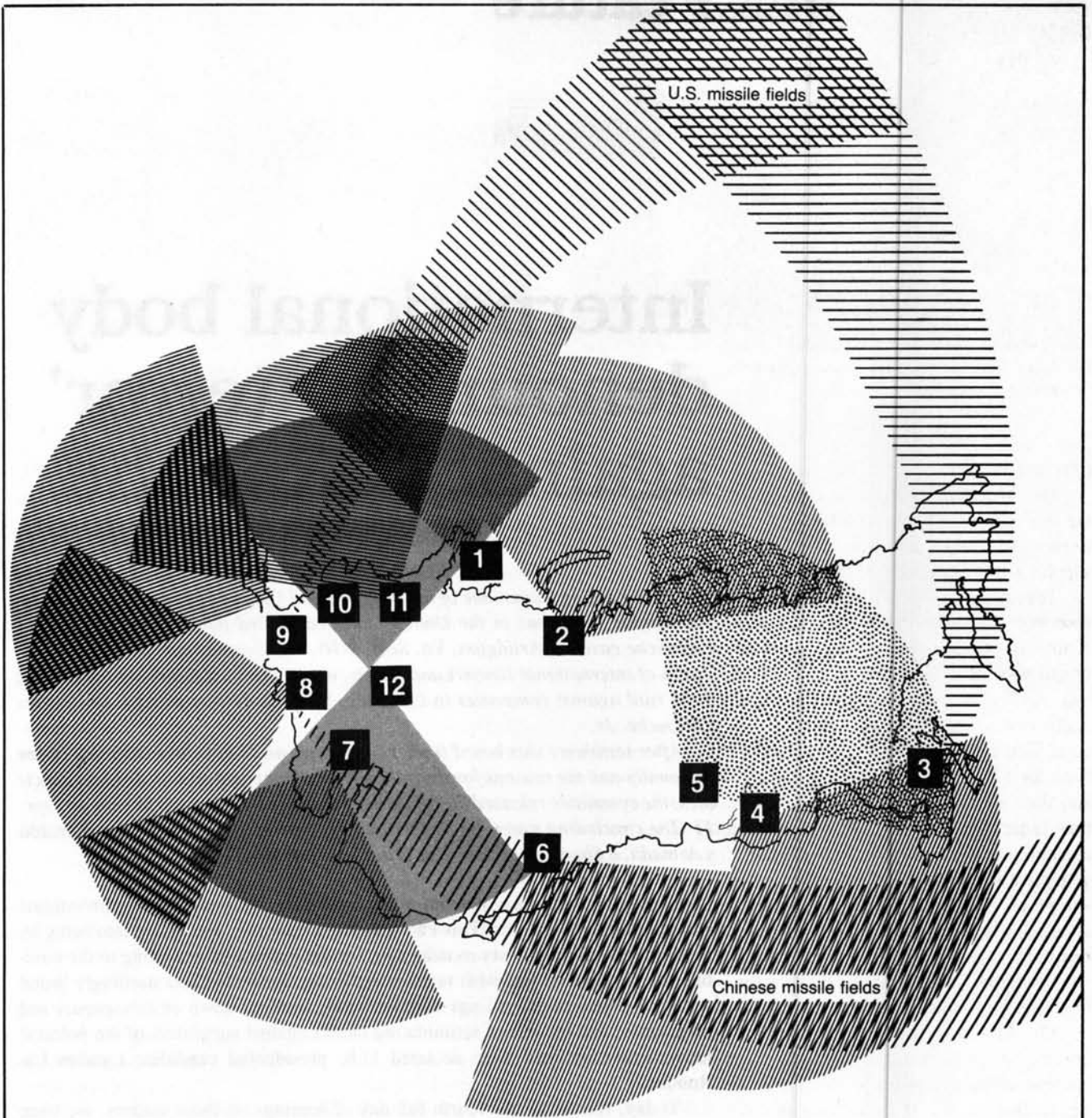
Mr. McCrery: For—



Question: Early warning?



Mr. McCrery: No. For both. . . . But they chose a size and a frequency—if your numbers are correct—the size and frequency that's very compatible for providing data suitable for early warning, providing suitable data for attack assessment, providing data suitable for battle management or direct handover—put those together. . . .

Mr. Gaffney: Let me leave you with one thought if I can. . . . In addition to the closed society with which we are forced to deal with the Soviets as our adversary, we should remember there's another tradition in the Soviet Union, indeed going back to the time of the Tsars, and that is the phenomena of showing people what you want them to see. And this, perhaps, reached a high water mark in the time Catherine the Great and the Potemkin Village, but I think we ought to be cautious in judging on the basis of very limited data base what may well be the Potemkin radar. . . .

FIGURE 11



*Over-the-horizon backscatter radars 
 DOG HOUSE/CAT HOUSE radars 

New large phased-array radars 
 Krasnoyarsk radar 

- | | | | |
|---------------------------|----------------|----------------|-------------------|
| 1. Murmansk | 4. Mischelevka | 7. Lyaki | * 10. Baranovichi |
| 2. Pechora | 5. Krasnoyarsk | * 8. Nikolayen | 11. Skrunda |
| * 3. Komsomol'sk-na-Amure | 6. Sary Shagan | 9. Mukachevo | 12. Moscow |

The discovery by spy satellite of the new large phased array radars, confirmed by recent intelligence as being located at Baranovichi (10), Mukachevo (9), and Skrunda (11), strongly suggests the construction of a "triple-tiered" radar system to cover western approaches to Russia such as would be required only for a nationwide missile-defense system.