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RANDOM OBSERVATIONS

ON THE

SURVEILLANCE ENVIRONMENT

CONTRACT NO.

[redacted]0062

DECEMBER 1970

AMROM KATZ

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PART I - DISCONNECTED NOTES AND IMPRESSIONS: TEN EMERGING THEMES

The thoughts that follow are precisely what the title indicated: random thoughts and impressions derived from and while reading about two feet of classified reports and discussions about SALT, verification and on NRO. I am sure that I have omitted some significant ideas, that I have gone on at excessive length about others, therefore, please, read this as unpolished first draft.

THEME 1: SATELLITES DOMINATE THE INTELLIGENCE REVOLUTION:

The first thing I see is an accelerating increase in the dependence on a single type of information source: Analysis of that data derivable from satellite platforms. The reason for this is quite clear. Satellites have been enormously successful in penetrating the inner (geographical) recesses of the Soviet Union, and have been able to secure evidence and information that is easily translatable into hard data. The "danger" I see is that as success by this type of system increases, interest, activity and money for other systems decrease. The effect is that of a fish trap. We keep

getting further and further in, and our increasing dependence is simultaneously a source of vulnerability, both political and physical. (See Theme 4)

The lead time for technical intelligence is now much too long, and the solution does not lie in exquisite resolution. What we need is something to photograph the guy's mind, or if that is too far fetched, his notebooks, his laboratories, to record his conversation while he is in conference, and so on. As it is, all we can do now is wait for him to finish whatever the hell he is doing, take it outside, while we wait for a clear day, and when he uncovers it, we take a picture of it.

This is too far down stream. What we need are better spies and defectors. Is anyone working on this? Are they working hard? With imagination?

I don't know, but I suspect that this business is in a decline because the overt technical stuff that we folk are in charge of, is more American, fits our style better, and is worthwhile. Besides, we can organize to do satellite reconnaissance, schedule it, predict it. It's an orderly affair. The human side of the house doesn't work like that.

It's ornery, not orderly. Nature is a patsy, and given time, money, luck, brains, nature can be overcome. As it has.

THEME 2: DISCLOSURE - A CONTROLLED TRICKLE OR A BUSTED DAM?

Once the dam of disclosure breaks--I will shortly argue that this was foreseen many years ago--an inevitable flood of data will follow. The drives arguing for disclosure are agency convenience, industrial bragging or desire to take credit, technological advances and the desire to publicize them, etc. etc.* There is only one reason to hold the dike closed, and that is national security. Unfortunately those who are manning the dike--manning the dam--are in a defensive posture, and in this as in many other cases it is extremely difficult to maintain a defensive posture--especially a rigid, old, unchanged posture. You win only by not losing. Hardness of position may be the result of brittleness, not resilience and flexibility. Brittleness yields catastrophic failure. We'd better base the defense on flexibility and resilience (see Part III).

*See Appendix A "The Open Mouth Policy Versus the Open Skies Policy"

Soviet tacit acceptance of satellite reconnaissance may be a lure to get us to stick our head out, with then the possible outcome of having it chopped off by third parties or others. Someone arguing the matter of disclosure might suggest an analogy with atomic weapons. The case is being made around town by some that it would be worth-while to downgrade* the fact of satellite reconnaissance but not the results. One could point to declassifying the fact of the atomic bomb (we declassified it by our bursts over Hiroshima and Nagasaki) but keeping all the details classified. The important point is to recognize not the <u>similarities</u> which exist between the two problems, of acknowledgement and full disclosure, but of the important <u>differences</u>. In the case of the atomic weapons, the fact could <u>not</u> be kept concealed. I can think of no purpose that would have been served by the present possessors of the bomb were the fact to be concealed--the fact that they have atomic weapons. The public fact is an important contribution to both prestige and deterrence. So in general, no purpose would have been served by keeping

*"Downgrade" as used here means taking "the fact of" out of the special security system and putting in "normal" security channels, where its classification would be "secret." Some advocates of downgrading think that "the fact of" should be declassified.

the fact of the bomb quiet. This is where the analogy breaks down. No one can interfere with our bombs; they are not yet an international legal matter. The reverse is true for overflight, invasion of privacy, and espionage. Third party protests of overflight can be more solidly based and more effective than can third party protests of nuclear weapons.

THEME 3: ABROGATION: THE EMPTY THREAT:

An implicit theme running through the documents related to SALT and the verification activities engendered by the preparation for SALT, is that in case of a violation we can respond by abrogating the (not yet drawn) treaty.

I wonder about this. Suppose a violation of the treaty were found. First, all violations are not equally consequential. Is the violation found a threat to stability? Is the violation found a massive potential prelude to surprise attack, or is it a violation that can be argued after the fact of the violation, or what? Clearly, the spectrum of possible responses is wide. I argue simply that abrogation of a treaty is a most consequential act, and that we would not do it easily, especially after the years of hope, work and effort that went

into securing such a treaty. All my background, sense of history, and reading of current affairs suggest that abrogating a treaty is not in the cards.

Abrogation is an almost empty threat. We can't use it. The threshold for abrogation is much too high. This may be understood in terms of the momentum of detente. There is an enormous political pressure to keep a treaty intact, considering the years of work and the vast hopes that have gone into arriving at a treaty. Treaties are not going to be broken lightly, especially by us.* As an interesting example we might consider the history of the moratorium on atmospheric testing atomic weapons broken by Russians approximately Sept 1961 ("broken" is not the right word to use in connection with moratorium because "moratorium" has within it the notion of a temporary and finite pause). Despite the overt breaking of this moratorium by the Soviets (they announced it), the

*A novel, unanticipated and still current example of a non-treaty in which there has been much investment, much momentum, and much reluctance to abrogate is the Aug 1970 cease-fire between Israel, and principally, the UAR. With hard evidence in hand of violations (of the armistice), the US decided not to upset or derail the peace "negotiations." It is a pertinent example of the momentum effect.

large and definitive amount of evidence, and the daily headline announcements, the United States still went through an agonizing internal discussion, with people picketing the White House, and newspaper advertisements by ad hoc groups urging us to keep our side of the moratorium, independent of what the Soviets did. This is the most severe example to me of a non-treaty that was hard to break. It will be almost impossible to abrogate a genuine treaty.

THEME 4: THE FOURIZE EFFECT: RELIGIOUS PRINCIPLE OR FALLACIOUS FOLK BELIEFS?

The FOURIZE ($^{8}I^{4}$) effect has turned into a religious principle: the belief that our reconnaissance satellites are infallible, inviolable, immortal, and invulnerable. The difficulty with discussing these matters with most people is not unique: one cannot logically reason his way around or in or out of religious principles. There is great danger in holding these beliefs, and a rational attack need be mounted. They must be attacked carefully. I have come to believe that these four ideas are a packet of folk beliefs. The trouble is that they seem to be held by people occupying very high positions.

An odd point that emerges throughout is that those people who are closest to the details about a reconnaissance system, don't trust the infallibility of the systems, as much as those higher and further removed from the working details. Why is this? Who is right? I'll bet the former group is right.

THEME 5: GOOD GUYS MAKE LOUSY BAD GUYS

I do notice that the kinds of people who try to temporarily take the position of the Soviets in terms of cheating, violation, and the entire inspection business are essentially straightforward, crew cut, square type, 100 percent Eagle Scout Americans, who have spent most of their adult lives working for this country, its goals, its programs. They are positive advocates. It ill becomes them to take the position of the other guy and be cheaters, deceivers and swindlers.

This observation percolates off the top of almost every document that mentions deception. There is a tremendous need for experiments in this business. Why should we leave to theory or speculation those things that can be definitely

established? Reading a spiral bound report or a study is at best like eating Chinese food: while you are reading or eating it you are satisfied; an hour later you are hungry. We should have been doing experiments in concealment, evasion, camouflage and related matters.* Further, such experiments should be designed and carried out by characters who are adept at it, who find such work congenial; in other words, we need people who like and who can say a lot more about dirty tricks than other and higher placed individuals who don't meet these tests.

I find a conspicuous failure of imagination in all the writings I have read here about the deception business. I hope this perception is not mine alone; if it is, I will have a hard time arguing the point. The very facts of bureaucratic behavior, the high level of the people involved, the gravity and consequences of the subjects under discussion have laid a big square bureaucratic mold on everyone's writing, thought, and modalities. Above all, the importance of the subject, the level of the conferees, their habits of thought, all make for very somber writing and induce failure of imagination.

*See Appendix B - "Hiders and Finders"

Progress in recce/intelligence has been a strong function of the interest, the need, the technical competence, and the dollars available, all of which feed back on each other and are not separate factors. If this subject--reconnaissance and intelligence--is in better shape from the standpoints of analysis, practice, competence, performance and results than is the subject of concealment and deception, the reason is, clearly, that the wrong people are working on one subject and the right people are working on another. The first job is somewhat more American, more positive and fits our style better; we put more dollars into it; it produces results, etc, etc. We have not had a sufficient appreciation of the necessity of R&D in C/D (concealment and deception). It is not too late, but we must get the right kind of people to work on this problem.

THEME 6: CATALYTIC WAR: A NAGGING WORRY

Threading through the SALT discussions is a desire to ensure that a large war between the Soviet Union and the United States is not initiated by a third country. This concern seems to be shared by both the Soviet Union and the United States. I first described the phenomenon and invented

the term catalytic war about 20 years ago. This term has since become popular in arms control literature. At that time Juan Peron (ex-dictator, Argentina) was engaged in what turned out to be an abortive atomic energy program run by someone who was hoaxing him. As I recall, the hoax was perpetrated by an ex-Nazi physicist named Richter. I wondered why Peron would want a nuclear weapon. The only reason I could find for this project would be to start a war between the United States and Russia, using a simple delivery system of a type well known to the Phoenicians several thousand years ago--a ship. The scenario would go like this. Country C would put a bomb in a ship, put the ship in New York Harbor where there are always many hundreds of ships, the bomb would go off, the United States would immediately deduce that the Soviet Union had done it, and we would be at war with the Soviet Union in an instant. The Soviet Union would have to strike back and there would go the ball game. The only possible logic supporting this idea would be a misapprehension on the part of Juan Peron (probably not entirely wrong) that he would come out of this ball game stronger and in a higher position relevant to the two people whom he triggered into

war than he was beforehand. The obvious name for this kind of event is catalytic war. Surely everyone remembers his high school chemistry: a catalyst is a substance that initiates a reaction between A and B while remaining unharmed and unchanged by the reaction even though the substance is in the presence of the reaction the entire time.

My purpose in publishing and speaking years ago about the idea and threat of catalytic war was not to apprise and instruct third parties. They could get this idea without my help. Rather, my purpose was--and remains--to let the superpowers know of this possibility, so that they don't go to war with the wrong party, hastily, automatically, and worse, by third party design.

In turn, knowledge that the big powers understand and are concerned with this possibility, will act as a powerful deterrent on potential catalysts.

In 1962 I found myself at a disarmament conference in Accra, Ghana, debating an able young Soviet expert, one Yuli Voroncov. (It was obvious, and I so reported, that Voroncov could go far. He was recently Charge d'affaires

(of the Soviet Embassy in Washington) in the absence of Ambassador Dobrynin).

One night, at dinner with Voroncov, he told me that the year before (1961) the Soviets had found a hugh cache of German bombs and shells at Kursk which lies between Moscow and Kiev. My astonishment was evident when he told me that it took months to remove them by freight train. He readily confirmed my speculation that he must be talking of thousands of tons of bombs. When I asked him why he was telling me this story, he answered "This is why we must have GCD (general and complete disarmament). One of those bombs, going off by accident, could have set the whole pile off. We would have thought that it was an atomic bomb, set off by the U.S., and we would have to respond, and thus we would have been at war with the U.S." In my reply, I thanked him for the story, which I intended to retell, giving Voroncov full credit, and suggested that he was wrong to think that explosion could be mistaken for that of a nuclear weapon. Further, I said, he hadn't been listening, for during the past week, my arguments were against going to war hurriedly, precisely because of the possibility of accidents, inadvertence, or catalysis. <u>The first bomb has to be free</u>. In addition,

his story proves that large numbers of bombs can be hidden--in this case, at least 17 years, and on foreign territory! To me this proved the infeasibility of GCD. When I finished, Voroncov looked as if he wanted to cut his throat!

The point remains: there is a danger of catalytic war. This danger can be minimized if the big powers understand it, and if all others know that this route to war is understood.

THEME 7: INTRUSION: GET RID OF THE WORD IN INSPECTION/VERIFICATION DISCUSSIONS

The word "intrusion" is commonly and frequently used in the SALT and verification papers. The habit of using "intrusion" in referring to legitimate, authorized, important and necessary inspection activities has been a result of our buying the Soviet usage and meaning of the word. The dictionary reference demonstrates that the word is pejorative, and implies something illegal, something unnatural, something deeply resented, an encroachment, etc.[1]

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1. INTRUDE. To thrust oneself in; come or go in without invitation, permission, or welcome: to thrust or force in, into, on, or upon esp. without permission, welcome, or fitness: the act of wrongfully entering upon, seizing, or taking possession of the property of another: a trespassing or encroachment: an undesirable or unwelcome bringing in or entering: thrusting one's way into a place, group, or activity where one is not welcome or invited.

The words intrusion and intrusive should be excised from all inspection discussions.

THEME 8: AN INTERVENTION GAP: THE OPEN EAR AND THE CLOSED MOUTH.

This observation if unrelated to the NRO business, follows from observation of Soviet conduct for the last couple of years. We have had enormously important public and congressional debates in this country by advocates pro and con, on ABM, on SS-9 (in the latter case only the top of the iceberg surfaced) but at least the bitterness of the discussion, the criticality of the discussion, are obviously evident to anybody who reads the newspapers or the weekly news magazines. Certainly the Soviets have been watching and listening to all this frenetic debate for this entire period and longer. One would think that if we indeed had misinterpreted the SS-9, or misinterpreted Soviet behavior, that the Soviets would have seen fit to intervene in our debate because their interests are closely bound to ours, saying "Look Johnny," or "Look, Mel, that isn't why we are doing this; this is the reason." I have no evidence that such interventions have ever been made. Why?

THEME 9: SOVIET SATELLITE RECCE: OUR GOOD LUCK

By now everyone realizes and understands the very large asymmetry between our requirements for overflight versus the Soviets' requirements for overflight.

But their requirements are genuine, as evidenced by the level of their satellite reconnaissance activity. And in this fact may be some basis for optimism with respect to stability and viability of our own program. I said "some basis." One should not count on this situation remaining stable indefinitely. See Appendix C "Soviet Requirements for Recce Satellite" for an early (1958) analysis.

THEME 10: READING LIST FOR NRO: PROF. R. V. JONES, AN INTELLIGENCE GENIUS

Professor R. V. Jones, Chairman of the Department of Natural Philosophy at the University of Aberdeen, Scotland, is an old and good friend. This would be insufficient cause to have him appear in this paper; however, he was also Sir Winston Churchill's Chief of Scientific Intelligence during World War II. With an extraordinary mind, diligence, wit, sense of humor, and observational ability he did at

least as much as anyone to help win the war. The points that I have been making throughout this paper about habits of thought, oblique perspectives and the difficulties that a square mind has when it confronts an irregular situation are all illustrated by the several papers of Jones that I am listing below.

Jones has written by far the most sensible and insightful things yet written about scientific intelligence. All the papers listed below are now in the NRO files and should be consulted.

If after anyone reads these papers and still wants to know why I've recommended them, let him not come to me, because I will say at that point that the answer should have been obvious.

PROF. R. V. JONES PAPERS

1. Scientific Intelligence, Journal Royal United Services Inst. 92(1947)352.

2. Scientific Intelligence, Research, Vol. 9 (Sept 1956) pp. 347-352.

3. The Theory of Practical Joking--Its Relevance to Physics, Bulletin of the Institute of Physics, pp. 193-201, June 1957.

4. Irony as a Phenomenon in Natural Science and Human Affairs, Chemistry and Industry, 1968, pp. 470-477.

5. Chance Observation and the Alert Mind, Advancement of Science, March 1965.

6. Impotence and Achievement in Physics and Technology, Nature, Vol. 207, No. 4993, pp. 120-125, July 10, 1965).

7. The Glare of the Rocket, Chemistry and Industry, 1965, pp. 530-534.

8. The Natural Philosophy of Flying Saucers, Physics Bulletin, Volume 19, 1968.

9. Emotion, Science, and the Bomber Offensive, The Listener, November 30, 1961.

10. Thicker than Heavy Water, Chemistry and Industry, 1967, pp. 1419-1424.

11. Lord Cherwell's Judgement in World War II, The Oxford Magazine, 9 May 1963.

PART II - CAMOUFLAGE AND DECEPTION: AN EXERCISE IN SELF-DECEPTION.

In preparing the following notes, I have had the benefit of reading both Gen Lew Allen's memo of July 29, 1970 to Bruce Clark commenting on the CIA report SRIR-70-12, and the report itself, which, in part, deals with camouflage and deception.

What follows is similar to my remarks in a briefing given here a month or so ago, which in turn was based on some unclassified work I did for ACDA in 1962.

Most of what follows is essentially unclassified: I have expanded on this theme at length in an unclassified paper given at the Philadelphia Arms Control Conference of last year, which is already set in hard type and will be published. (Of course everything goes very classified if/or when I refer to specific systems in the NRO context.)

I argue that the success of U.S. intelligence to date against the Soviet Union occurred - in large measure - because of a peculiar form of Soviet cooperation. As a consequence of our inability to recognize this fact explicitly,

a miasmic pall of smugness, complacency, and over-confidence has been generated by and has settled over the intelligence community. There are, as a consequence, possible pernicious long term disadvantages to us. Let me develop the argument.

It should be clear to all that in an era of mutual deterrence, both sides must know (approximately) what and how many weapons the other side has. Otherwise, there is no basis for mutual deterrence, and for what I have called (in other contexts) a condition of metastability.

Consider the United States disclosure apparatus. In using this term I do not imply that we operate a fully developed, planned, and orchestrated system of disclosure. Instead, this apparatus is a direct consequence of our national philosophy, democratic behavior, and governmental institutions. In the first place we have the Secretary of Defense annual posture statement. We have Congressional Hearings, the direct consequence of both the two party system, and the constitutional relationship between the executive and legislative branches of government. We have open sources, such as Aviation Week, TV documentaries, informed columnists (such as the brothers Alsop), the

numerous, private, but well informed institutes such as those at Harvard, Columbia, and other institutions. We have a continuous forum at work in this country through organizations such as the Foreign Policy Association, and its magazine Foreign Affairs, the Bulletin of the Atomic Scientists, the American Assembly, the Scientific American, collegiate debates, etc. The foregoing is a necessarily incomplete and partial list. A consequence of this activity is that not only is the United States (and the world) well informed about our posture but is well informed about the Soviet posture as well.

Consider now the Soviet disclosure system; it is easy to talk about. The Soviet system has two components:

a. The parades, flybys and the stuff going by the Moscow dragstrip.* At best, this disclosure subsystem yields qualitative impressions; there are no numbers, no deployments, no magnitudes associated with the sample illustrations. The second component in the Soviet disclosure system is:

*See Appendix D "When the Soviets Disclose Their Missiles" for an early prediction that the Soviets would drag missiles through Red Square.

b. U.S. unilateral intelligence disclosures. It is my assertion that the Soviet depends on U.S. intelligence disclosures for its political muscle, for its military show of strength around the world. This disclosure subsystem is far more credible than any that the Soviets could possibly mount. Their society and government does not let itself make disclosures in credible form, at least in a form as credible as the disclosures by the United States unilateral systems. Where are those disclosed? They are disclosed through the mechanics of the U.S. disclosure system described above. The United States data is accepted by all--even by Soviets in joint discussions such as the Pugwash meetings.

Consider for a moment the obverse. Suppose there had been a gigantic impermeable blanket over the Soviet Union all these years through which no radiation, sight, sound could escape. By this entirely fanciful construction the Soviets would have been able to develop their atomic weapons, their long range aircraft, their electronic apparatus, their missile force, without the United States knowing anything about it. Would this have been good for the Soviet Union? The answer is a resounding NO! It is conceivable that the

United States would have come to a miscalculation as to the weapons owned by the Soviets and would have--and this I assert as a supportable proposition--engaged in an untoward adventure that would have been to nobody's advantage. It was necessary therefore for the world and more especially the United States to know what the Soviets possessed and in what numbers.

Now when I explain this with considerable patience to the intelligence community--as I have many times over the years--they deeply resent all the foregoing. They come back at me with statements such as "What the hell do you mean the Soviets have been showing us their stuff, look at the back breaking work we have gone through, look at the billions we have had to spend, look at the technical brilliance we have had to exert and develop, etc., etc.," ad infinauseam.

In none of the foregoing have I implied or asserted, nor do I believe, that the Soviets have gone out of their way to make it easy for us to find out what we have found out. The intelligence contest occurs at the interface of the problem where we want to find out more than the Soviets want us to know. This is not a trivial contest. The Soviets are unable,

however, to tune our collection systems so that they yield to us what the Soviets want us to know without at the same time obtaining for us much more than the Soviets want us to know. I conclude that the Soviets have had an incentive to disclose and that our job therefore has been relatively easy.

With the foregoing notions as a background let's turn to an examination of the Agency report. One cannot help admire the diligence, understanding, and detailed hard work that illuminates this report throughout. Nevertheless, it is fairly clear as one goes through this excellent report that our prospects for continued successful identification are based on assumptions that particular procedures followed by the Soviets in the past need and will be followed in the future. I argue that these assumptions are not necessarily valid as guides to the future, especially if the Soviets no longer have a necessity to disclose.

The report contains the seeds of many excellent questions. Confidence in our ability to detect the fact of large scale deployment of mobile missiles is asserted to be high. But, the report admits that our ability to locate, identify, and

accurately count such large scale deployment is low and that it (likely) will not increase in the future.

Consider briefly the comments and attitude displayed in this report about the Soviet use of camouflage and deception. This report states that "Soviet attempts at deception of photographic reconnaissance against strategic missiles have been infrequent and for the most part poorly contrived. Several new camouflage and deception efforts employing advanced techniques have been observed in the last few years however." I agree with the report insofar that if the earlier attempts at camouflage represent their best state-of-the-art or are genuine attempts at camouflage, the Soviets flunk the course miserably. But is this not the conclusion they would like us to come to? I'm not sure, but I believe that this is a tenable hypothesis, with a non-negligible probability of being correct.

Further, the entire discussion of camouflage and a listing and discussion of the factors which according to the report "militate against successful camouflage of strategic missile installations," is contaminated by reference to past styles, construction and so on. Now I doubt that anybody

can or would chose to make an argument that the Soviets are constrained to do in the future only what they have done in the past. The issues raised are considerably broader.

I will arbitrarily divide all sorts of camouflage and deception (C/D) methodology into two types: Type A and Type B. Type A, C/D is very technical. It involves encrypting of telemetry, jamming of our receivers, putting out false signals, substituting space shots for MIRV testing, etc. It is very modern, very technological, very elegant--and a match for our skills, aptitudes, techniques, and style. It is what we are counting on the Soviets doing if they do it at all. Camouflage, elegant or otherwise, of standard methods of constructing missile sites would be included in this. It is what we expect and prefer them to do; it is a game we expect to win.

So why should they play this game? Only because we prefer it, we're prepared for it and we're good at it? These are precisely the reasons why they should choose an alternate course and go to Type B, C/D. This we might

define as good clean fun; it would be characterised by attempts to cause us to look in the wrong places, to give us a form of intelligence judo, throw us a bone that we can chew on for awhile such as a poorly camouflaged site, while they are tearing off in another direction, so that we may miss an entire phenomenon. It is perhaps more classic, less technical, very ingenious and a modus operandi which we are completely unprepared to believe in, expect, react to, detect, appreciate, understand, or be good at.

The entire thread of argumentation, example, logic and wit that threads through our verification documents and analyses is geared to Type A. Our people are by temperament, style, preference and mentality, geared--and geared very well indeed--to cope with and perhaps win at Type A C/D. However what about Type B? It is the natural bent of another type of person, (who is not rare, although his appearance has not yet manifested itself in the documents before me) to be good at Type B C/D, to expect the Soviets to be doing this and to worry about it.

Further, and bearing directly and heavily on the point made above, is the fact that it is poor policy to expect

criticism or inspection of an operation by the operators themselves.* The function of a critic is honorable. Long before I learned how to drive, I had no hesitation in criticizing the performance of a drunken driver. It was not incumbent on me to either shut up or do better. This example is not meant to be taken literally; it is the introduction to another topic.

Many years ago, in considering these identical topics before the house, I proposed an exercise called Hiders/ Finders (see Appendix B). The points made in that paper are valid today. We have not yet performed the exercise. The substitution of two-dimensional argumentation for three-dimensional experiments is all too prevalent. It need not be so. There is simply too much riding on the outcome of these judgments to leave to debate and counter-argument subject for which definitive experimental insight can be provided.

The briefing on Hiders and Finders has been given to about a hundred audiences in the past dozen years. I

*For a detailed exposition of Devil's Advocacy see Appendix E "Advocatus Diaboli - etc." It should be obvious that we need full time practioners.

inevitably conclude the briefing by asking the audience their preferences. The overwhelming preference--by at least 95 to 5--is for hiding. Even people in the reconnaissance business prefer hiding to finding. This is not because one is moral, or more decent, or more honorable than the other; the vote is based on the assumption that to the winner goes the spot promotion. I have, therefore, over the years collected many suggestions, some good, some bad, for ways in which the Soviets could hide a missile force.

The most interesting single idea that I have ever had, or encountered for hiding a missile force may be described loosely as follows.

Light manufacturing buildings are the same the world over. They are nondescript, nonidentifiable structures, usually rectangular in shape, with dimensions that may vary from 100 to 250 feet in width and from 150 to 600 feet in length. The art of aerial photo interpretation is insufficient to the task of identifying what is going on inside such a building.

Successful photographic interpretation of the processes going on inside a manufacturing plant depends on peculiar

geometric keys. For example, a good photo interpreter can tell from a very small scale photo at a distance of several feet, that a plant is an aluminum plant, or a sulphur plant, or a petrochemicals installation, etc., etc. But light manufacturing--the game is over; there is no way of telling whether batteries or transistor radiors, or toys, or small machine parts, or what, are being made inside. We are blind at night. We see nothing going on at night in the Soviet Union. We may hear things but we certainly see nothing. It should be assumed that the Soviets know this. The usual answer I get from intelligence analysts when I make this point--as I do very frequently--is that what is being built at night will leave its remains for inspection the next day. As Gershwin said "It ain't necessarily so."

Because we are blind at night, but not during the day, it is desirable to provide some overt normal activity during daytime around the plant so as not to arouse our suspicions.*

*Even though we know--but the Soviets may not know--that there are many areas of the Soviet Union that we cover with our satellites but do not carefully search. We take much more film than we subject to detailed analysis.

Around the outside of the inside of this plant (it is very easy to use up half the area of the plant with a very narrow perimeter), some activity is actually going on, so that we'd see nothing unusual. At night they dig a hole in the center of this plant and put in a soft (i.e , not hard) liner, (doing the excavation at night only), and use a vacuum cleaner to clean up the dirt remains so that no clues can be noticed during daytime. They now put an SS-9 in that soft hole, completing a missile site.

Clearly there is much more to be said about this. I will not say it here. The objections I get to this idea for hiding missiles fall into two categories.

First, I am usually told, "Look Katz, you described how they can store a missile, but an operational missile site requires outlying buildings, cables, block houses, etc., etc." To this I have constructed the following answer, "It will be agreed that a Polaris submarine is a weapon system, without cables, without outlying buildings, without deep trenches, etc." To this the audience is forced to respond "yes," and to indicate agreement. "Now let us take the -

submarine out of the water, and put it on land, supporting it firmly on wooden chocks, and then put a building around it. Is this not what I have proposed above, and do we now get not just one missile but sixteen missiles?" To this the audience reluctantly has to agree. "Now it is pretty stupid to put a submarine on land, so let us throw away all parts of that installation not needed because it's on land instead of swimming in water. In other words let's get rid of the submarine, leaving only the missile tubes." The audience has by now been led down the primrose path and has to agree. To get a missile force the Soviets merely do this 500 times. I picked the number 500 as a number which would satisfy everybody's requirement for a significantly large perturbation in the system.

The second type of objection I usually get has to do with some religious principles based on the binomial theorem. The argument usually takes the form that although it is agreed that perhaps one or two or three or say, ten missiles could be so successfully hidden, ten is a small number and wouldn't make any difference. But they could not get away--it is

asserted--with hiding 500 missiles. To my question "Why not?" the usual answer is that the probability of detection being finite (even though small), that we could not attain 500 successes without at least one or more being detected. The answer to this argument would complicate this paper unnecessarily but it goes roughly as follows. The binomial theorem pertains to homogeneous identical independent events and ignores the synergism that develops when you do many things successfully and simultaneously. By elementary analysis, using the binomial theorem a nuclear weapon should have been loosed accidentally by now (remember the famous prediction of C. P. Snow made about ten years ago to the effect that by 1970, a bomb would surely go off accidentally).

Besides, and even more important, what would happen were a defector to tell us, or an agent to find out, that indeed in a building located in some town in the Soviet Union there actually is a missile Are we prepared to follow up? Do we have authority to follow up? Won't we have waived onsite inspection? How could we use this information? The answer, in short, is that we couldn't use it. And even if, <u>in extremis</u>,

we had hard proof, I argue that we would be loathe to use it, not only for the arguments previously cited involving our reluctance to abrogate, but because of our reluctance to display hard evidence.

But more basic to our understanding of this phenomenon is the fact that we have not thought about it, do not like to think about it, and do not find it congenial. We are late learners. Hopefully not too late.

At this point I must say something that under ordinary circumstances would not require saying. In questioning the CIA report, and the national attitudes about the possibilities and assumed high probabilities of our penetrating Soviet camouflage and deception, I am not arguing that we are fools, that the Soviets have done or are going to do dirty things to us. I am not arguing that the Soviets are out to do us in by massive surprise attack or that they are devils and ten feet tall. They have their bureaucratic problems just as we do. They are human beings just as we are and their violinists and ballet dancers are terrific. Many of the Russians I have met in conferences are thoroughly likeable

human beings. What then is the reason for my conjuring up this malevolent exericse and why am I casting doubt on the agency's reports and the national attitudes toward deception? Only because it is necessary to examine assumptions, especially when the assumptions are the basis and very foundations of international treaties, obligations and attitudes. Elsewhere I have observed that the unique by-product of the 1963 test ban treaty was not more work on arms control, but rather a state of induced euphoria, because the treaty had been so over-sold that everyone thought the "big problem" had been solved and so went back to his knitting.

Unfortunately, it may now be inopportune or too late for the United States to engage in a Hiders/Finders exercise. A spirit of cooperation, friendliness, and instant euphoria has been introduced by the fact of SALT talks, and by the seeming progress towards some limitations on arms. It would be regarded as an unfriendly act by considerable numbers of people in the United States, and certainly by our bargaining partner--the Soviet Union--were we now to initiate studies of deception technology. Nevertheless, I urge that we put

our big toe in the water and test the temperature. Hiders and Finders needs to be done. I point out only that the climate is not now as good as it was some time ago.

PART III - PROBLEMS OF DEFENSE: THE THREADBARE STATUS QUO

Those who argue for downgrading--or even, at the limit, declassifying--the fact of satellite reconnaissance are a continuously changing, fresh, aggressive, logical, tough, multiheaded group who attack with new arguments, new positions, and momentum on their side.

Those who defend are playing king of the hill. They maintain a static defense, they can point to the age old tablets of stone, on which are graven the 18 points, to authoritative vetoes and all this in the face of attack, not be enemies, but by fellow Americans. It is a small wonder that those on the attack in this game, look with despair, as they would on a set of old fogies with nothing but title and sovereignty on their side.

Surely we must be able to mount a more imaginative, novel, fresh, logical, set of defenses. Do these exist? I'm not sure. But we'd better examine the problem anew.

It seems valid to point out that the very fact that the position of the defenders is always under attack or, certainly

under frequent attack, may be due to the unsoundness or weakness of the defensive position. If the position is not unsound, why is it under attack? After all, the opponents--the offensive--are also loyal Americans. Because everyone in this game shares the identical lofty, national goals, it must be misinterpretation by one side or the other of the validity of objections, the defense positions or the weighting thereof. Why can't we get these attackers to defect to the defensive position?

The arguments for downgrading the "fact of" seems to rest on one or more of the following set of allegations, (that I state them doesn't necessarily connote my agreement with them):

1. There is an enormous administrative overburden associated with running the security system for this specialized activity.

2. Many people who could benefit from the information are denied access. Much of this denial is based on caprice or quotas. The issuance or denial of clearance becomes a political act and is useful in interagency infighting, etc, etc. Further, keeping "the fact of" at such

high levels of security prevents otherwise highly placed officials who are not cleared from protecting "the fact of." Thus a highly placed official, not fully cleared, may make statements, which were he knowledgeable, he wouldn't make.

3. After all, everybody knows that informed journalists speculate and write with seeming authority about satellite reconnaissance, the Soviets seem to know all about it,* and references to satellite reconnaissance are increasingly common in the daily press. There must be at least three or four open references per week. So who are we kidding?

4. What may have been a good idea at one time has outlived its usefulness. Just because we did something in the past doesn't mean that we need to continue it for the indefinite future. (Notice that this argument is exactly the one I've used before about the Soviet Union in talking about Soviet hiding of missiles.)

*In April 1964, Walt Rostow asked me to write a report on what the Soviets know about our satellite recce activities. This report is titled "The Soviets and U.S. Satellite Reconnaissance," is available in SAFSS, and is numbered [redacted]3898-64-TKH.

5. The world seems to be accepting the notion that NASA is going to do fairly detailed earth observation from its ERTS satellites,* and to quote many NASA officials, "nobody has objected." Besides isn't our long range policy that of legitimizing observation from space and wouldn't downgrading of "the fact of" and perhaps eventual publication and public acknowledgement help towards this end?

6. Haven't the Soviets already indicated tacit acceptance of satellite reconnaissance?

We may answer these arguments as follows. Let's take it from the bottom up. It seems to be true that tacit acceptance of satellite reconnaissance is indeed the case. But "tacit acceptance" leaves me for one, quite chilled. Tacit acceptance is very much like deterrence. We're never sure that it is actually going on; we know only when it is past. The original meaning of tacit was "to pass over in silence." Another meaning was "to choke." Tacit acceptance is "implied or indicated without being actually expressed." It might well turn out that what we think is tacit acceptance by the Soviets includes non-publicizing of "the fact of."

*In fact, the resolution will be terrible (about 500-700 feet), but the advertising claims are what the world hears.

So, where we think that tacit acceptance is the first step enroute to wide publication and open acknowledgement, it might be the reverse. It might be that tacit acceptance is as far as the Soviets dare go. And were we to continue on this road to disclosure it might embarrass them domestically or internationally and might force them to withdraw all recognition. We have here a classic example of the delicate balance of disclosure.

By far the more profound argument for keeping things as they are is not the classic argument of maintaining the status quo, but rather that of irreversibility: I have elsewhere called this the Humpty Dumpty effect.* After disclosure, if we get an unfavorable reaction, or if we reevaluate our position and find that it has deteriorated, we can no longer withdraw our statement and say "pardon us, we are sorry we said that." It is a hedge against an uncertain future and neither the opponents nor the proponents of downgrading or declassification can produce guaranteed certified scenarios about the future.

*Remember: "All the king's horses and all the king's men, could not put Humpty Dumpty together again."

It seems to me to be a true condition that the opponents are arguing from an impure interest. Their interest is not necessarily that of enhancing, strengthening, or preserving satellite reconnaissance as an invaluable and non-duplicable input to the national intelligence process but rather that of securing some particular bureaucratic or administrative convenience of their own without harming satellite reconnaissance.

Certainly we ought to be able to generate scenarios illustrating various disclosure systems, to see what might happen. Perhaps it is a worthy subject for a formal game.

The difficulty and improbability of arriving at meaningful conclusions about national policy through occasional conversation should rule out this approach to preparing systematic, well reasonsed, defense arguments. Were we to game this problem intensively for, let's say, a day or two (with imaginative players on both sides) it should be expected that new insights might be provided, new ideas emerge, and although they may not be guarantees of the future any more than any other derived scenario is, they will help to illuminate our objectives and strengthen our defense. The problem we are here considering

is far too important to be left to occasional snatches of thought and writing.

I now turn to an examination of argument number five--that we would help to legitimize the notion of free and open observation from space by declassifying, by downgrading, etc., etc. I have discussed some of these matters in unclassified publications at considerable length. I have argued that nobody objects in advance, and that it is only after the event occurs that objections are made; at that point we are put in an irretrievable position. Further, despite the allegations of NASA that nobody has objected to their plans or to their released photos, there have been some minor waves of objection to NASA's photography. There will be more objections in the future if NASA publishes pictures of Egypt, showing its airfields, or of Israel, showing its airfields. There are many adjacent pairs of countries at either the confrontation or active hostility stage. It is not necessary to lengthen this memo unnecessarily by listing such pairs of countries. Allegations five and six are closely related.

My previous argument is that step one--tacit acceptance--may be the last station on the road, not the first.

Allegation number four that old defenses based on old arguments have outlived their usefulness is a telling and low blow. It must be dealt with. I must now divert this running account of arguments and counter-arguments with an observation about the NRO itself. As long and as many years as I have been associated with satellite reconnaissance, and as many times that I have visited these offices, I am still fairly aghast at what I now find to be the case: <u>The NRO is woefully thin</u>. What do I mean? Let's imagine that the State Department wishes to play the role of attacker of the security system of which the NRO is the defender. To the State Department the finest legal counsel, the finest international minds, are readily available. Further many of the people in the State Department (or in other agencies) have been full-time, on the job, and involved with satellite reconnaissance for many years. <u>That doesn't mean they are old hacks; it really means they are experienced in-fighters</u>. Now what resources does the NRO have? They have a policy shop manned by some front line troops who are not experts

in international law and legalistic debating, in Soviet behavior, or in any of the many other facets of the arguments that are being made.

The image that I had somehow constructed of the NRO is that because of its exalted position on the organization charts, it therefore had resources to match and could draw on any of the resources of the DOD or even reach out of DOD. That would make for a fair fight. As it stands, the contest is unfair. Where is the NRO's advisory staff in these or related matters? It does not exist. This is something that can be fixed and ought to be fixed. It should be remembered that in these notes I am not criticizing the NRO for failing to be something that they cannot be and are not. If there is criticism at all, it is directed at the absence of a support force which could be easily operated, maintained and usefully focused onto NRO operations.*

It may be--this only is a conjecture--that many of the people objecting to the security system, to the classification of the "fact of" have not been made privy to the deliberations, to the logic, to the historic background of

*This is one of a number of ideas that I have not had time to develop during this assignment.

this decision. I don't know. But if this is true it can be fixed. It will take work, but you can't get a free ride.

ACDA, for example, would very much like to downgrade "the fact of," but it might well be that this isolated act is counterproductive to the conclusion of a successful SALT agreement. Perhaps this relationship has not occurred to them. In any event, much more conversation is needed with the attackers to thoroughly understand their motives and their argumentation, which should not be dismissed out of hand. A relevant example is that furnished by consideration of our peace mongering groups in this country, who simultaneously want the nonproliferation treaty signed by everyone and at the same time want us to withdraw from the world. What may not be apparent to such groups is that as we withdraw from the Western Pacific the necessity or urge for Japan to develop a nuclear weapon of her own becomes overwhelming. So here we have conflicting goals, or conflicting effects enroute to a presumed solitary goal. There are similar cross effects in the business we are here considering. It requires more work to flush them out, illuminate them, and present them appropriately.

The basic argument that must be dusted off, polished up, put on a new pedestal, and given a new face, is that no action can be taken which jeopardizes, or threatens to jeopardize, the continuity and effectiveness of satellite reconnaissance. Every proposal must be judged against this single criterion. I don't know that this has always happened.

The argument that there have been many publications, everybody seems to know that journalists continuously publish, etc., etc., still is not equal to official admission or full publication. The argument given in number two above that many people who could benefit from our information are denied access, is an argument whose validity I am incapable of judging. I know that it is often asserted, but the argument has to be examined on a case by case basis. I cannot do this now, nor am I able to comment as to the validity of allegation number one relating to the "enormous administrative overburden."

APPENDIX A

THE OPEN MOUTH POLICY VERSUS THE OPEN SKIES POLICY

by Amrom H. Katz

May 1, 1959

(an internal RAND document)

For some years now I have been watching various projects, ideas, facts and data move directly from the top secret and secret levels into unclassified newspapers, Congressional hearings, and other open sources, with nary a pause or a wait at any intermediate level. The projects aren't declassified, but remain in a schizoid suspension.

Although a catalogue of the ways and systems which the Soviet Union must be using to get important information about us, our works, our activities, and our plans would truly be an impressively long list, I choose to make some comments only on that material which we give to them gratis, openly, and in large volume.

The lesson which I have drawn from observations like those which follow below is an extremely simple one: we cannot keep most things secret; I will not go so far as to claim that we

keep no secrets, but I feel stongly that if anyone here at RAND attempts to devise a system, an operational concept, or a procedure in which secrecy about the procedure, the equipment, its location, is an important (but not crucial) part of his strategy, he ought to plainly and simply give it up. The benefits of secrecy cannot be counted on to remain plugged in direct series with the rest of the system. The possible exceptions may lie among those operations which completely fail if secrecy is lost.

It was not very long ago when a coupling of WDD with the Ramo-Wooldridge organization in correspondence required that the correspondence be classified, when even a sketch of the Atlas was classified, when pictures which I have in my office showing the Atlas being dragged across the country were marked confidential; when the words 'reconnaissance satellite' were themselves classified. The half-life of secrets of this type seems to be somewhat less than a year.

The project I have the most information on, as far as history of releases, news leaks, etc. are concerned is the 117L recce satellite. Under date of November 26, 1956 I wrote a memorandum, number M-5607, to Joe Goldsen. In it I

discussed some brief history of public releases on recce satellites up to that time (actually, there has been so much released on this in the last couple of years that I have stopped collecting clippings--I collected them when they were rare, but despite the fact that I have several filing cases, I haven't any room for any more.)

In that memo to Joe, I recounted the fact that some little while before this that Fairchild Camera Instrument Corporation sent me an unclassified teletype requesting visit approval to come in and discuss photo reconnaissance from satellites. Dick Best and I caught this security violation simultaneously, and despite the fact that the Fairchild people are good friends, we thought they should have the word, and called them on the security matter. Their response was to ship us a clipping from the Los Angeles Times dated February 6, 1956 in which a story from Washington under date of February 4 describes a statement by (the then Air Secretary) Donald Quarles on the possibility of launching a 'reconnaissance satellite' and the fact that the Air Force has long range research interests in this project. The questioning of Quarles by reporters, which brought out the material on the satellite, followed a column by

the Alsops which was headlined 'Big Brother.' This appeared in their New York Herald Tribune column on February 3, 1956. The Alsops had a column on the recce satellite under date of August 15, 1950 in the Washington Post, and Time Magazine carried articles January 10, 1949 and February 28, 1949. Sure enough, by April 1958, Lockheed saw fit to publish a full page classified ad trying to hire engineers to work on what is described in extremely large type as the U.S. Air Force Reconnaissance Satellite. (See this ad on my bulletin board. It should have read Wanted: 5000 Engineers 5000)

Now in this discussion, I am not necessarily advocating that all this material should have been kept secret. I am only illuminating the fact that with an obvious and stated intent and some matching action by the Air Force to classify this project even higher than secret, it has come pretty well unglued in the public press.

If we try to establish a line-up of reasons for keeping anything secret, we have only one: presumed national good as reflected in secrecy. But now let's look at the big hitters on the other side. The forces which make for disclosure have been operative now for a number of years, and if I read the tea leaves

correctly, will continue to be so operative. First, we have international rivalry, and the fact that a weapon is no good as a deterrent if the other fellow knows nothing about it. Of course, the reader will notice I used the word 'weapon' in the preceeding sentence whereas the previous discussion was on R and D projects. However, I have noticed that despite increasing experience, knowledge, and power, our military leaders as well as many of our civilian leaders completely fail to distinguish between ideas, conjectures, R and D projects, prototype weapons and weapons in force. These words go around in one big intellectual mish-mash and are used interchangeably. The net result is that it becomes necessary to add a new tense to the R and D language. Hitherto we have been able to describe project status by use of either <u>past tense</u>, <u>present tense</u> or <u>future tense</u>. To this set we must now add <u>pretense</u>.

Perhaps an even more profound reason for disclosure by high military figures of projects and ideas has to do with inter-service rivalry. In my view, it is likely that most of the time the major enemy of the Air Force is not the Russians (they are a potential enemy) but rather the Army, the Navy and the civilian economy who are real and here. The terrific

competition for lines in the press, for dollars, and activity, undoubtedly force, or at least put pressure on, top officials to take aside a key reporter and plant a leak.

Commercial reasons are extremely powerful. It was obvious to me long before Lockheed published these ads that they would have to publish them to attract engineers, to promote stock, to keep the people they have, etc.

In fact, Gene Root, head of the Lockheed Missiles Systems Division, said this in almost exactly the same words in his Congressional testimony before the Committee on Armed Services of the United States Senate on January 15, 1958 (for those readers who are pack rats, like the writer, this is the hearing entitled 'Inquiry into Satellite and Missile Programs' Part 2, pages 1853-1857.) I quote here from Root's testimony:

> '...and we would like to indicate Lockheed's role in the Air Force Satellite program in the same manner as others publicize their roles in the ICBM and IRBM programs, and we have such a program underway.'

I now quote again from the referenced memo to Goldsen of November 26, 1956:

> '...now for the project itself. The 117L people at WDD are tightening security on the project and are attempting to raise its classification. My own view is that this will be difficult and will fall afoul of

good old American business practices. What I mean is that as soon as Lockheed gets sizeable funds, they will want to advertise (you know these beautiful, institutional advertisements which are becoming a Madison Avenue art form).

The pressure to advertise will come about because they will want to hire people, keep people, promote stock, etc. Further, everybody else advertises. From a condition a year or so ago, when the magic initials WDD couldn't be coupled with RW in an unclassified context, we went to the era when scarcely a month passes without the appearance of an article describing (or decrying) the organization of WDD and RW. So, I conclude the satellite will be disclosed, advertised, bragged about, discussed and analyzed--all before we build one, let alone launch it and get pictures out of it.'

A striking illustration of the argument advanced in this note is to be found in a remarkable double page spread in Aviation Week (November 10, 1958), where Aviation Week itself advertises RECONNAISSANCE SATELLITES in large headline type. The message is:

'RECONNAISSANCE SATELLITES...Swinging over every spot on Earth, the snooper satellites of tomorrow will look down with photographic, TV, infrared and radar eyes. As they flash over the U.S., they will transmit data collected during their sweep around the globe--or film from optical cameras will be ejected for recovery.

They were first described in an exclusive AVIATION WEEK article October 14, 1957. Latest technical developments were reported in the June 16 and 23, 1958 issues of AVIATION WEEK. These reconnaissance systems are nearer than you think. The satellites are in the development stage and will use missiles for launching which are already in existence.

Even now, they affect hundreds of policy decisions and procurement awards.

Space Technology developments--the markets of tomorrow--are shaped by today's decisions in the Aviation industry. That's why your message, your advertisements--your product, your company, your facility--belong in AVIATION WEEK. It's the one publication qualified to speak to these decision makers.

. . . . .

Sell Today the Market of Tomorrow: SPACE TECHNOLOGY'

An interesting example of the tendencey of military people to do their bragging before they have accomplished what they are bragging about is furnished by consideration of the testimony of a very sober citizen, then Major General Bernard Schriever, who, back in January, 1958, in the same hearings which Root appeared, talked about the recoverable photographic satellite, said that the Air Force intended to use a THOR-based system to do this, and promised the assembled senators that this system would be operational in early 1959. Another interesting aspect about this unnecessary testimony (which the reader will note did not discuss the theory of recoverability, but the fact of the existence of a program to which the Air Force was giving high priority) is that this testimony was released unilaterally by the Air Force, which release got the Senate more or less teed off at the Air Force. A new

disease seems to be abroad in the land: oralgitis. It is derived from oral and G.I.'s, the latter being a common travelling man's affliction.

It is quite clear that testimony, releases, newspaper publicity, are designed not only to inform the public and the Congress, but are designed to show one service's superiority in planning over another service's, are designed to nail down funds, to secure approval for larger programs, and for other purposes, the listing of which could be extended almost indefinitely by any of the readers of this note. Again, I am not saying this is bad, just that it exists, and we'd better not ignore it.

Does this necessarily mean that no operations can be conducted secretly? Of course not. It simply means that operations and projects in which secrecy itself is not an integral part of the project or an integral purpose of the project, are likely to have secrecy removed. It may or may not be true that the success of the recce satellite project depends on secrecy. It is, at best, arguable, and one could construct an argument that it should be done openly as soon as possible and that the pictures should be published. Again, this is arguable, but I could scheme up other projects in

which it would be obvious a priori that failure would result were secrecy violated or lost.

The careful reader who also attends selected briefings around RAND (especially those who attended a recent one on security) will well realize that we do a lot of talking other than to newspapers and Congressmen. I suggest that all of the foregoing be kept in mind when any of us around here attempt to recommend the hiding of bases, the hiding of missiles, and the building of fully secret installations.

We give away so much information that except for some very special and important problems (discussed elsewhere) the Soviets have little need for participation in an 'open skies' operation over the U.S.

We need 'open skies' over there because among other reasons, the Soviets seem to have found either a preventive or a cure for oralgitis.

APPENDIX B

Events and Comments

Hiders and Finders

AMROM H. KATZ

MANY DISARMAMENT and arms control proposals have been made; many more will be made. Some form of inspection has been part of those past proposals; some form of inspection will probably be advanced as an integral and essential part of any new proposal.

Of all the kinds of inspection technology which have ever been proposed or even discussed—inspection by aerial reconnaissance, ground inspection, factory or production inspection, "psychological" inspection, seismic inspection, budgetary inspection—the one technique that we have had the most experience with and that we know far and away the most about is aerial reconnaissance.

But the resemblance between wartime reconnaissance and the special kind of peacetime reconnaissance embodied in an inspection agreement is, in many respects, superficial. It is certainly true that all of our experience with wartime reconnaissance—problems of camouflage, problems of daily surveillance of front-line areas, problems of photo interpretation, and the expeditious handling of large quantities of data—have some carryover value for the novel tasks of peacetime surveillance of huge areas, the monitoring of activities, and many of the numerous other activities (many of which are not yet understood) which are to be subsumed under any inspection agreement—but not enough. The wartime experience of the early forties is as far distant from today's problems as the discussions of World War I reconnaissance were in those same early forties!

Any opinions expressed in this paper are the author's and should not be interpreted as reflecting the views of the Rand Corporation or the official opinion or policy of any of its governmental or private research sponsors.

December 1961

Given the premises—that any general arms control agreement will involve inspection, that the most prominent and well understood inspection technique is aerial reconnaissance, and that even for this technique we can not answer questions about proposed applications with confidence—then it is clear that we have a great deal of homework to do. What is true about aerial reconnaissance is true about the other techniques about which we know much less.

Hiding Preferred

Conversations about the hiding-finding problem with groups of people at the Rand Corporation, in the U.S. Air Force, and elsewhere, have turned up an overwhelming preference for hiding over finding. There seems to be an *a priori* assessment that hiding is easier than finding. A convenient way of integrating and synthesizing opinion about the relative difficulty of hiding things from an inspector and finding them has been furnished by use of the following device. I invariably ask whether one would rather be a hider or a finder. It usually appears quite obvious to those who have given these matters thought that hiding missiles, or bombs, or warheads, to take a class of interesting examples, permits one more options than finding them, and people seem to want to play a winning game.

I propose that studies be undertaken in hiding and finding technology which could and should yield an *activity* by sizable military forces. I use *activity* here in contradistinction to study, library research, or game. Study and library research use paper and produce more paper. The word *game* has gradually come to mean an exercise played in a basement on an electronic computer. *Activity* here means that sizable groups engage in actual, not simulated, operations, with real equipment—shovels and cameras, as well as missiles and aircraft. I propose to start with aerial reconnaissance, hoping that the study and experimental techniques will yield insight and subsequently permit or stimulate adaptation of these notions to other forms and their inclusion in inspection technology. The kind of activity proposed may be illustrated by an example.

Setting aside say, a representative quarter million square miles of the U.S. for large-scale inspection maneuvers, we would deploy two teams, A and B, whose aims would be opposite. Team A would have the job, for example, of building a missile site secretly, over a specified time period. Team B, insulated from Team A, and limited to certain techniques and levels of efforts, would have the job of finding and monitoring the activities of Team A. Mobile missile systems furnish another useful example of important inspectable systems about which we know little, and could profitably be used in this type of exercise. The utility of camouflage could be explored through this technique. This is only an example and not even a complete description of this test.

The proposed study would include the design of the problems to be given Team A, and the allocation of effort allowable to Team B. I have deliberately emphasized the most dramatic aspect of inspection—*finding*. Other aspects of inspection can be tested and developed within the proposed framework—checking given data, monitoring, reporting, discovering evasion, and establishing good communications networks. All of these activities require cycling time studies and considerable understanding of the phenomena under observation.

Inspection Intervals

The notion of *cycling time*, as used above, means that the time between successive observations depends on the phenomenon being observed. If one were watching the progress of a glacier, infrequent observations at intervals of several years might well suffice. A period as long as this would be inapplicable to the problem of monitoring or detecting the construction and hiding of a missile site. The phenomenon could come and go between ob-

servations. Hence the requirement to match the observation cycle to the cycle of the phenomenon under observation. One does not need slow motion photography to study the growth of a plant; in fact quite the opposite is needed—time lapse, or speeded-up photography is used. Observing the flight of a bullet or the explosion of a bomb requires that action be slowed down. In both cases, the interval between successive observations matches and is tuned to the pace of the phenomenon.

Seven Benefits

It is impossible to predict results, but even at this stage, seven good reasons for conducting such operations emerge:

1. We should find out what we can do and cannot do, so as to not oversell proposed inspection systems.

2. We should find out what we cannot do and be prepared not to do it.

3. We could use this kind of activity to test control systems proposed by others.

4. We could use operating teams of hiders and finders to probe agreed upon and operating systems during actual operation—to discover whether switches are on, inspectors are awake, etc. This activity could help develop further technical capabilities.

5. We could use results obtained under these tests to perfect inspection systems, to tighten controls, and to reset tolerances and thresholds of either proposals or systems. We might find out that we could, reliably, detect or monitor activities of a certain kind which a current proposal or ongoing system either did not envision or was incapable of doing. Thus new standards calling for inspection of new activities might be incorporated into treaties and systems, or into proposals. This could lead to the gradual elimination of the uncontrollable, the undetectable, and to the successive broadening of control machinery. Confidence in the control and inspection functions would probably increase as the fraction of uncontrollable uninspectable activities decreased.

6. This activity is an ideal vehicle in which to pursue research and development in inspection technology of all kinds.

7. We need to know all this for unilateral activities—both hiding and finding. This last point is important. It should not be thought that the USSR need always take on the role of hiders and the U.S. always take on the role of finders. We may well discover an interest in and requirement for hiding things of ours. This operation could serve to test our ability to hide in the presence of various kinds of "finding" efforts. Although I want to *start* with aerial reconnaissance, there is no reason why this scheme must be limited to aerial reconnaissance. In the event of failure of arms control or disarmament negotiations, there are things we must be prepared to do unilaterally, just as now for example, in the absence of arms control there are unilateral information requirements and activities.

It may be argued that learning how to cheat, evade, hide, frustrate inspectors, is an unwholesome activity. This is nonsense. The U.S. scientists who worked hard and imaginatively to discover ways of concealing underground nuclear explosions did an important job. What is overwhelmingly wrong is that there has not been a sufficient (and successful) research and development effort on the other side of the problem—detection.

Smart-Proof, Not Fool-Proof

We do not need a system which works well against a careless, uninformed, unimaginative opponent, but one which works well against an opponent who is smart, careful, and imaginative. The large scale utilization of hiders and finders has value independent of any inspection agreement. This stems from the fact that the differences between inspection and airborne reconnaissance lie not so much in techniques, purposes, methods, and results as they do in the simple distinction that reconnaissance is usually a unilateral activity and that inspection, as we usually think of it, is something that proceeds as the result of an agreement. If this is true, then all of the exercises that I am proposing here would have a direct value and immediate application for whatever kind of unilateral efforts are required in the event of failure to reach agreement.

What would it take to start this activity? The hiders could well be an appropriate U.S. Army group, including as a sizable portion, the Army engineers. The finders could be drawn from a reconnaissance wing of the Tactical Air Command. There are relatively few problems of security of one-team vis-a-vis the other, because there already exists a good measure of security among the several services. Each military service tends to guard its special secrets from the other services, and there should be no problem in making motivations and competition real. Clearly such an effort requires extensive planning, including design of observer, security, and evaluation teams.

Doing, Not Talking

The utilization and exploitation of the results obtained in early tests to design further tests (or proposals for international agreements) is an example of feedback; the notion that we really do not know now all that we will learn is another reason for making the design of future tests dependent on results obtained from earlier tests. Although studies on paper are necessary to get this activity started, I would anticipate that the major insights will be gained not from two-dimensional paper studies, but from three-dimensional activity—*doing*, not talking.

This would be a new approach to the problem for us, because we are not now doing this and we ought to. It would certainly demonstrate, to us and to the rest of the world, that we take these problems seriously. We should learn to better employ those techniques and technologies with which we have some experience, as well as learn the rudiments of novel inspection techniques. Novel problems may be attacked by adapting old techniques, or may require new techniques. We must find out.

What if we start to practice hiding and finding on a U.S. only basis? Let me suppose further that we find it useful. It is extensible to a joint NATO activity, and eventually to joint NATO-Warsaw Pact tests and exercises. But it is premature to propose this idea at the highest level before we have tried and understood it at the lowest level of political-technical complication—an internal U.S. operation. We must show the Soviet Union why she should be just as interested in inspection and evasion as we are. Understanding this as a proposition of mutual interest is a necessary precondition to success at possibly more formal and higher level negotiations.

APPENDIX C

SOVIET REQUIREMENTS FOR A RECONNAISSANCE SATELLITE

by Amrom Katz

January 23, 1958

(an internal RAND document)

For years many of us have been pointing out vast differences between the U.S. and the S.U.'s intelligence stockpile. The free and easy, (in fact, advertised) sources of information in this country on maps, charts, aerial photographs, etc. have made for a tremendous discrepancy between what we know about the Soviet Union and what the Soviet Union knows about us. For this kind of reason, many of us have heretofore either doubted or depreciated any Soviet Union requirements for long-range reconnaissance.

Some time ago we began to have some preliminary doubts about the infallibility and neatness of our position on this matter. In D-4374 (Why Be Interested in Soviet Union Reconnaissance Capability? - 20 June 1957), we considered Soviet requirements for long-range reconnaissance, and discussed

the kinds of intelligence information we could produce if we had really good information about the Soviet Union's reconnaissance capability.

It is not necessarily clear, and, in fact, is quite likely untrue, that the Soviets have as much information about the rest of the world as they have about the United States--maps, charts, distances, aiming points, target data, etc. Certainly for support of possible actions in peripheral areas, that is, areas peripheral to the Soviet Union and the United States, (those areas commonly thrown in the Potential Limited War Arena), it is likely that neither we or the Soviets possess enough of the kind of information that would prove needed and useful in the event of war.* In these notes, which are intended to be suggestive only, we intend to list a few uses to which the Soviets might put a reconnaissance satellite. One such obvious use is to do bomb damage assessment (BDA). Despite all of the cute ways of doing what is commonly called IBDA** the writer has had a nagging suspicion that military commanders,

*Clearly and currently (1970), the Soviets have a demonstrated interest in China, the East European "satellite" countries and the Middle East, supporting the point made above.

** The "I" in IBDA conventionally means "indirect." Various and less charitable interpretations include "indecisive," "illegitimate," etc.

political leaders, and the public, all of whom have to be satisfied about the legitimacy of the BDA, will not be satisfied with a seismic trace, a radar photograph, or a bhangmeter curve. These varied people will want to see photographs, taken at the same wavelengths to which the eye ordinarily responds. The recce satellite is a technological match for the ICBM, and furnishes a complimentary facility.

In addition to the problem noted above there is the problem of watching and communicating with ships at sea - surface and underwater, Soviet Union and others. The slow speed and large size of ships, their high contrast against the sea, where there are no targets of competing interest, make their observation from satellites relatively simple and easy. It should be clear that the Soviet Union has a considerable interest in the disposition of both our merchant and military vessels; possessing a large submarine fleet of its own, the Soviet Union has a considerable interest in what goes on in that 75 per cent of the earth covered with water.

We have rather quickly and almost casually developed at least four reasons, therefore, why the Soviet Union might want a satellite and could use such a recce satellite:

1. Bomb damage assessment and registration firing.

2. The covering for reconnaissance purposes, presently unmapped areas of the world.

3. Communication link with ships at sea of its own, and,

4. A monitoring of shipping not belonging to the Soviet Union.

It should be noted that shortly after these few notes were hastily assembled on the back of a large envelope and discussed with Bob Buchheim he handed me a copy of a speech by Rear Admiral J. E. Clark, USN, given to the Armed Forces Policy Council on 5 November 1957. This speech 'The Navy View of Space Vehicles' lists a number of U.S. uses of military satellites and among other things also points out that the Soviet Union would have legitimate requirements for a recce satellite. Talking about the Russians, Admiral Clark says, '...their submarine force is an acute threat to the west as it is. The advent of reconnaissance satellites makes this threat considerably larger. Reconnaissance satellites will maintain surveillance of the seas for the Russians, something they have never been able to do before. Although specific

ship identification is improbable,* they could spot individual ships and convoys with such surveillance. With knowledge of their probable destination, they could vector intercepting submarines and possibly gain enough data on probable convoy cruise and speed to make them profitable missile targets ....'
Admiral Clark also points out the possibility of use of the satellite to relay signals from an anchored line of sonobuoys and develops a reasonable case for the Navy interest in reconnaissance satellites. Clearly, all of these arguments are symmetrical and useful for the Russian use of such a satellite.

In conclusion, it appears that we had better get rid of some of the partial dogmas we have held with respect to what intelligence the Russians have and need. While it is clear we are giving out vast amounts of data about the continental United States, it should now be clear that the satisfaction of the Soviet interests in other than the continental United States - other countries, peripheral areas and the vast ocean expanses - will require new, novel, and high speed ways of search and surveillance. The recce satellite is a natural.

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*Only for early primitive satellites, I suspect.

Apart from this line of argument, it is clear that the Soviets are much better than we are in putting satellites in orbit. Taking pictures from satellite platforms is an interesting task, with good propaganda payoffs. They'll probably do this anyway. Maybe they'll have a recce satellite before we do.

APPENDIX D

WHEN THE SOVIETS DISCLOSE THEIR MISSILES

by Amrom H. Katz

May 29, 1957

(an internal RAND document)

It seems clear that were either we or the Soviets to possess a truly secret weapon, knowledge of which would be kept from the other, such a weapon would play a negligible role as a deterrent. Hence, if we or the Soviets expect our weapons to play a part in formulation and maintenance of a deterrent posture both of us had better let the other fellow know what we have. We have little doubt that such missiles as the United States has and will develop will continue to be prominently publicized through conventional unclassified and declassified media. It is the Soviet missiles that concern us in this paper.

The mechanics of disclosure by the Soviets of their aircraft and weapons are fairly well understood. We seem to be able to pick up weapons tests with good reliability and precision. Our main knowledge of Soviet aircraft is picked up at the several air shows in and around Moscow by photographic methods and other

methods. Based on the argument latent in the first paragraph it seems clear that the Soviets will eventually disclose their missiles. This disclosure cannot be done in the same way as the disclosure of aircraft--by flying them over Moscow in full view of foreign correspondents and assorted military brass from around the world. How then will they disclose their missiles?

We can readily imagine several methods. Listing of just a few of these should suffice for this first discussion. First, they can have an equivalent of armed forces days with visits to a missile base or to a static exhibit in the Moscow area. Second, they might choose to show pictures in military or other magazines accessible to the West. Third, they might choose to show to the Russian populace and such foreigners as have access to their movies (or TV), motion pictures of actual firings. Fourth, they might actually stage a parade in which these missiles are dragged by by the numbers on the ground. Fifth, they might invite Western observers to an actual test firing.

Each of these methods (and the list could be expanded considerably) affords different and unique opportunities for Western observers to make observations of interest and value

to the intelligence community. It can be expected that such opportunities for Western observers to make observations will be limited with respect to time, space, and convenience. Consequently, these fleeting opportunities must be capitalized upon. Observations should be the best and most useful type that can be made under these limitations.

In preparation for General Twining's visit last year to an air show at Moscow the Engineering Division at RAND hastily put together "notes for visiting tourists who might see missiles." This was an informal effort and has not yet been fully documented. It was thought at that time that General Twining and his staff might be shown some missiles and on the assumption that opportunity for such observations would be limited, we tried to put together some notes which would be helpful for missile observers.

We now suggest that it would probably be in order to put together a practical handbook for missile observers. This would be more careful, thorough, and usable a handbook than was the first cut at this job. We would expect such a handbook to contain key observations to be made using all the sensors available to the ordinary tourist (including photography, if permitted): his eyes, his ears, his nose and his judgment.

There is a whole bag full of trick photographic techniques using an ordinary simple-minded camera which could be used by observers if they were made aware of these tricks. We expect to demonstrate some of these photographic techniques by actually trying them out and doing some of the laboratory work involved in the next several months. These include using a one-eyed camera for precision ranging, for stereoscopic viewing and measurement, and similar techniques. The general utility of such a missile observers' handbood will be explored further in some forthcoming conversations with ATIC at which time we will prepare a more detailed outline and proposal.

APPENDIX E

ADVOCATUS DIABOLI - The Promoter of the Faith

(Adapted from an internal RAND document
of
April 30, 1969 by Amrom H. Katz)

Popularity, it turns out, is seldom the lot of a devil's advocate, nor is his work either admired or blessed. Despite this foregoing, but rather, because of it, his function and his work may be useful, yea, even critical. At least so I argue.

My pretensions as a Catholic (with capital C) theologian are hardly larger than my non-existent qualifications. Yet, even I know--as all of you must--that the paradox in the title of this document is seeming only.*

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*The following is quoted from the 1967 Encyclopedia Americana:

ADVOCATUS DIABOLI, is a name popularly but incorrectly given to the promoter of the faith (promotor fidei), one of the most important officials in the Roman Catholic Church's process of beatification and canonization. The term is Latin for devil's advocate. It is the duty of the promoter of the faith, an officia. of the Sacred Congregation of Rites in Rome, to examine and criticize evidence submitted by the postulator of the cause (postulator causae) in behalf of a candidate for beatification or canonization. Hence, he must advance difficulties with regard to the candidate's practice in a heroic degree of the theological virtues of faith, hope, and charity, and the cardinal virtues of prudence, justice, temperance, and fortitude, and also (Cont.)

My attention was drawn to the idea of this document by retrospective observation of some of my own suggestions, including the sad fact that they remain unadopted orphans.

I find that four of the better ideas that I have had over the last few years, while completely dissimilar, have the thread of devil's advocacy in common. It's true that one thread does not a garment make. But it may be useful to review the several cases and perhaps encourage others to think about this general idea and its wider applicability.

Let us review these separate ideas. The first was described in my paper Hiders and Finders (P-2432, December 10, 1961), also, Bulletin of the Atomic Scientists, Vol. XVII, No. 10, December 1961). Here I proposed realistic inspection tests. As an example (not necessarily the only or even the

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(Cont.) with regard to the miracles attributed to the candidate during his life or after death. The task of promoter of the faith is very important, since he must see that unquestionable evidence is presented on these points. It is under no condition a part of his duties to use illicit means to delay or prevent beatification or canonization, as the term "devil's advocate" might suggest.

* * * * * * *

In popular use, the term "devil's advocate" is applied to one who pleads an opposite or unworthy point of view for the sake of initiating or stimulating argument.

best), I described a proposal that would pit two natural opponents against each other, one doing the hiding of the missiles, the other the finding. The two most natural opponents for this case are obviously the U.S. Army and the USAF. The devil's advocacy in this example would not be literary but three-dimensional. The activity would be played with the serious intent of defeating the opponent. The exercise would be experimental, using shovels, cameras, and ingenuity instead of words. The paper is quite short. Read it yourself. This first example came from brooding about the problems of disarmament, inspection, and all that, and the desire to make inspection not fool-proof, but smart-proof.

I have been singularly unsuccessful in selling the original idea of Hiders and Finders. Occasionally, people at the Arms Control and Disarmament Agency (ACDA) used to claim that their inspection exercises, then nicknamed Cloud Gap, were a response to what I was talking about. This is not so.

On the other hand, John Sherlock, who wrote The Ordeal of Major Grigby and Instant Saint, freely confessed to borrowing my title for a book which he co-authored with Eugene Burdick.*

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*Hiders and Finders, by Eugene Burdick and John Sherlock, New American Library, 1967.

This is better than not confessing, but it has not yet resulted in my getting a complimentary copy, and I'm not about to buy a book with my title on it!

The next example came from an activity quite remote from disarmament--Vietnam. This idea came on a trip that Bill Graham and I took to Vietnam and S. E. Asia in the Spring of 1966. In briefings and lectures, at RAND and elsewhere, I describe the dilemma resulting from our self-impalement on our own statistics, statistics that were simultaneously self-serving and delusionary, because the other guy didn't necessarily keep score the same way as we did. We came up with the idea of the Red Team--the simulation of Ho Chi Minh and his general staff--as a vital and missing ingredient in our war structure. You can read it in the original; there's no point in repeating it here.

The third idea is described in D(L)-17534, Predicting Pueblos: Preliminary Notes on Construction of a Logical Sieve, July 30, 1968.

In this third idea, the proposal was advanced that we try to anticipate "Pueblos" (defined broadly) by systematic and continuing examination of situations, potential incidents,

and mischief-multiplying events through the eyes, mind, style and set of an opponent.

Common to all these proposals is the famous Clausewitz caution, which, paraphrased, suggests that fascination with one's own plans should neither obscure nor vitiate the necessity of taking the enemy's plans into account. This idea can be put into stronger form: "Fascination and preoccupation with one's own plans will result in ignoring the opponent's plans."

Thinking like the opponent, and devising countermeasures to one's own gadgets and plans, is not new. But it is never a full-time job; when done at all, it is done best against an opponent who thinks like we do and is as technologically gung-ho as we are.

Unfortunately, not everyone (or better yet, hardly anyone) thinks like we do, and this is where the rub arises. Adapting oneself to playing an unfamiliar and uncongenial role takes large chunks of time, and few who attempt to play the other guy intend it to be a full time job.

Phil Farley, (Deputy Assistant Secretary of State for Politic-Military Affairs) in discussing my suggestion for predicting and anticipating Pueblos, said, in part:

> ....I agree with your point about the indispensability of devil's advocates and the need to legitimize and even institutionalize them. The one handicap I want to mention grows out of my experience with acting as or observing devil's advocates--who are by no means non-existent in the present scheme of things. What one runs into is that, if he successfully wins an argument and an exercise or other event is not held, it is difficult if not impossible to prove that this was wise. Nothing happens. The proponents of the exercise or event argue nothing would have happened anyway and point to rather similar events which go ahead without incident. The devil's advocate can thus be proven right only when he loses an argument and is later vindicated--which fortunately rarely happens--and not when he wins the argument and an event is cancelled....

What about the depressing (or worse yet, inhibiting) effects of Phil Farley's remarks? Alas, my own experiences with bureaucrats does not yield data that could weaken his point. Granting that he's probably right, I still argue that we've got to keep trying. The Pueblo incident cost us plenty so far--and I suspect we're not through paying, in various currencies.

The fourth related idea came from interdiction problems in Vietnam. It is described in D-17533, "Covering our Bets on Interdiction (Some Old Notes)", 30 July 1968.

In this D, I suggested that preoccupation with infiltration of men and supplies into SVN via the Ho Chi Minh trail may make it easy to overlook other ways for North Vietnam to send

stuff into South Vietnam. I proposed hiring some Filipino smugglers (reputedly among the world's best) to show us, experimentally, how they'd beat the U.S. Navy's coastal surveillance schemes. Also, to test whether VC/NVN supplies could be shipped into Saigon on ships normally full of stuff for us and our allies. I suggested having Harry Bridges, Joe Curran, and maybe Jimmie Hoffa as consultants. These few sentences are meant to do no more than tease the reader into getting the referenced D-, and are not a complete description of the idea.

All these suggestions reject amateur, part-time, dilatory attempts to play devil's advocate. Each exercise requires full-time advocacy. It's not like playing a game, war--or other, in the basement, where at 5:30 you join the opponents over cocktails.

In one of his papers, Jim Schlesinger writes* (in a section entitled "The Response of Rivals: Perception and Counter Response"):

> The existence of major rivals increases planning difficulties--particularly on the international scene.

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*James R. Schlesinger, "Organizational Structures and Planning" in Issues in Defense Economics, Columbia University Press, 1967, pp. 195-216.

> An organization's perception of the nature of its rival is based on an oversimplified and partially distorted interpretation of the rival's earlier behavior. Organizational momentum and insensitivity make difficult the recognition of gradual alteration in the rival's conduct which makes the predominant perception increasingly obsolescent. Only shocks bring major changes in the prevailing perception, which therefore is adjusted only erratically and with lags. Furthermore, the conduct of the rival is influenced by a utility function hard for outsiders to comprehend, and this conduct is determined by a bureaucracy, no less cumbersome than our own, which persistently twists behavior in directions that we--as "objective" outsiders--regard as irrational. Since we have little appreciation of the crosscurrents and pressures within the extensive bureaucracy of the opponent, we are periodically subjected to surprises. Nonetheless, when it is ultimately perceived that the previously prevailing image of the rival's behavior has been embarrassingly inaccurate, this image can be drastically revised in official circles with astonishingly little questioning. A specialist's services facilitate the process. There are tribal soothsayers who concoct a new rationalization of the rival's behavior which explains (away) all of his unanticipated actions. Off with the old, on with the new, and brush aside any lingering doubts.
>
> The planning function must take into account the unanticipated behavior and responses of the rival and our own lagging perception of the reactions to them....

Here Jim is saying that not only is taking into account one's rivals necessary, but that it is difficult to comprehend, given the pulsations, momenta and inertias of the rival's bureaucracy.

If, in a wide variety of circumstances, problems, and activities, there seems to be a use and value for devil's

advocacy, I am willing to take the generalist's leap. (When I say that there seems to be use and value in this notion, my assessment is not based on a successful trial of my several ideas. They haven't been tried. But I know they're good*.)

I suggest that in every situation where man is the opponent there's a useful role to be played by an essentially full-time devil's advocacy. In restricting this to those situations where the opponent is man, I once again reminded of the awkward situation I encountered in the fall of 1964 in Saigon. I found myself reading the NEW YORK TIMES account of the first successful Ranger shot (that impacted the moon and sent TV pictures back home) while on the same day, reconnaissance in South Vietnam was producing nothing. The point was brought home to me with considerable force.

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*Just as I was writing these lines, the news came in that N.Korea shot down an EC-121 over the Sea of Japan, giving Presiden Nixon a problem akin to the Pueblo. Could this event have been strained out in the sieve I proposed? I guess it could have been flagged as a potential incident, not knowing, but suspecting, that N. Korea wasn't discouraged from further adventures by the U.S. reaction to her seizure of the Pueblo. Considering that ships seem to enjoy a higher status than do aircraft, (a dozen or two of our recce aircraft have been shot down in the last fifteen years or so), the North Koreans could well have calculated that knocking off one of our aircraft would arouse even less anger than did capturing the Pueblo, while causing the U.S. considerable loss of face and prestige.

The U.S. is superbly organized and competent to do massive expensive, and drawn out tasks--when the opponent is nature. We know how to do these. All they require is lots of money and time and some luck. But nature is essentially orderly. It doesn't peek over our shoulder and devise counter-measures, or listen to or look at our plans. The moon is predictable. The Viet Cong aren't. What the moon does is independent of what we do. What the Viet Cong do is not.

I do wish to belabor this point further. I do think that by now it is more widely appreciated than it was a few years ago.

There is a hierarchy of organizational structure within the Air Force. At one time I worked in the lowest such element on the organizational chart--the Air Force's Aerial Reconnaissance Laboratory at Wright Field. We were busy happily spending money developing cameras, lenses, films and associated equipment. Surely, in what was at one time a 300 man organization, we could have found space and use for two or three devil's advocates. I am not suggesting that the average electrical engineer or physicist could have been assigned this task. But if we had had a job description for GS-14 Devil's Advocate I think we could have found one or two--and they could have played a useful role.

Could a devil's advocate find a role in a technical laboratory? I can't prove it, nor do I intend to construct a list of retrospectively derived examples. But I feel it could have been an important function. Payoffs could have been felt in design philosophy, attention to neglected problems and in better awareness that there is an interaction between performance of reconnaissance systems and what the enemy does. Our reconnaissance experience in South Vietnam demonstrates lots of things, in particular the earlier need for a devil's advocate.

A clear distinction could be drawn between two broad types of activities conducted by the Aerial Reconnaissance Laboratory. Somewhat incompletely, but not incorrectly, one could say that reconnaissance developments were aimed at men's activities, while mapping developments were aimed at terrain. I know full well that most interesting terrain is marred by man's activities, but this doesn't blunt the point. One could--and has to--believe that an enemy may try to make reconnaissance more difficult, and I don't mean just by shooting down recce aircraft, but by deception, camouflage, etc. It is difficult to see him doing the same for the mappers.

I have just taken care of the argument for the utility of the devil's advocate at the lowest echelon of the government;

Bill Stewart (in his paper referred to earlier,) suggested the need for such a function at the highest levels of the government. It is left as a student exercise to argue the point for all intermediate levels, and to propose examples.