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CUBA AND PEARL HARBOR: HINDSIGHT AND FORESIGHT

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PREFACE

This Memorandum is the first of a planned series on Castro's Cuba undertaken by The RAND Corporation, and prepared by Mrs. Wohlstetter, for the office of the Assistant Secretary of Defense (International Security Affairs). It is based entirely on open sources -- American, Soviet, and Cuban.

Mrs. Wohlstetter's research on Cuba began some four years ago, and she has since spent several months with the Carnegie Endowment for International Peace working in that field. She is the author of Pearl Harbor: Warning and Decision, Stanford University Press, 1962. As a RAND staff member, she is continuing her studies of the "surprise" aspects of the Cuban crisis.

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SUMMARY

Before both the Pearl Harbor attack and the Cuban missile crisis, intelligence had provided the American government with lots of information on the approaching crises. But in both cases, regardless of what the Monday morning quarterbacks have to say, the data were ambiguous and incomplete. There was never a single, definitive signal that said, "Get ready, get set, go!" but rather a number of signals which, when put together, tended to crystallize suspicion. The true signals were always embedded in the noise or irrelevance of false ones. Some of this noise was created deliberately by our adversaries, some arose by chance, and some we made ourselves. In addition, our adversary was interested in suppressing the signs of his intent and did what he could to keep his movements quiet. In both cases the element of time also played against us. There were delays between the time information came in, was checked for accuracy, evaluated for its meaning, and made the basis for appropriate action. Many of these delays were only prudent, given the ambiguities and risks of response.

The interpretation of data depends on many things, including our estimate of the adversary and of his willingness to take risks. This depends on what our opponent thinks the risks are, which in turn depends on his interpretation of us. We underestimated the risks that the Japanese were willing to take in 1941, and the risks that Khrushchev was willing to take in the summer and fall of 1962. Both the Japanese and the Russians, for their part, underestimated our ultimate willingness to respond.

It is important to recognize that the difficulties facing intelligence collection and interpretation are intrinsic, and that the problem of warning is inseparable from the problem of decision. We cannot guarantee foresight, but we can improve the chance of acting on signals in time and in a manner calculated to moderate or avert a disaster. We can do this by a more thorough and sophisticated analysis of observations, by making more explicit and flexible the framework of assumptions into which we must fit new observations, and by refining, and making more selective, the range of responses we prepare so that our response may fit the ambiguities of our information and minimize the risks both of error and inaction. The reduction of ambiguity in our information and our uses of information in decision-making during the Cuban missile crisis point this way.

CUBA AND PEARL HARBOR: HINDSIGHT AND FORESIGHT

To recall the atmosphere of September and October 1962 now seems almost as difficult as to recreate the weeks, over two decades earlier, before the Pearl Harbor attack. But if we are to understand the onset of the Cuban missile crisis, it is worth the effort. Indeed we may learn something about the problems of foreseeing and forestalling or, at any rate, about diminishing the severity of such crises by examining side by side the preludes to both these major turning points in American history. In juxtaposing these temporally separate events, our interest is in understanding, rather than in drama. We would like to know not only how we felt, but what we did and what we might have done, and in particular what we knew or what we could have known before each crisis.

Afterthoughts come naturally following the first wave of relief and jubilation at having weathered the Cuban missile crisis and forced the withdrawal of the missiles. But it is good to keep in mind the obvious contrast with Pearl Harbor. At the least, Pearl Harbor was a catastrophe, a great failure of warning and decision. At the very worst, the missile crisis was a narrow escape. Taken as a whole, however, its outcome must be counted as a success both for the intelligence community and for the decision-makers. But a comparison of the failure at Pearl Harbor and the Cuban success reveals a good deal about the basic uncertainties affecting the success and failure of intelligence.

It is true for both Pearl Harbor and Cuba that we had lots of information about the approaching crisis. In

discussing this information it will perhaps be useful to distinguish again between signals and noise. The "signal" of an action means a sign, a clue, a piece of evidence that points to the action or to an adversary's intention to undertake it; "noise" defines the background of irrelevant or inconsistent signals, signs pointing in the wrong directions, that tend always to obscure the signs pointing the right way. Pearl Harbor, looked at closely and objectively, shows how hard it is to hear a signal against the prevailing noise, in particular when you are listening for the wrong signal, and even when you have a wealth of information. (Or perhaps especially then -- there are clearly cases when riches can be embarrassing.)

After the event, of course, we know -- like the detective story reader who turns to the last page first, we find it easy to pick out the clues. And a close look at the historiography of Pearl Harbor suggests that in most accounts, memories of the noise and background confusion have faded most quickly, leaving the actual signals of the crisis standing out in bold relief, stark and preternaturally clear.

After the crisis, memories fade and recriminations take their place. For a time the Cuban missile crisis figured as an outstanding triumph for the United States -- in the swift discovery of "hard evidence," in the retention of American initiative, in the maintenance of strict security and taut control of power by the Executive Committee. Today, some of these aspects of the Cuban crisis have been thrown into doubt, and in particular critics talk of a significant intelligence failure to anticipate the crisis. In both Pearl Harbor and Cuba the notion of a conspiracy of silence has been raised: that we knew all along and failed to act;

that Kennedy, like Roosevelt, had some special information which he withheld; or that the information was so obvious that even a layman could have interpreted it correctly.

New York's Senator Keating, for example, was explicit and articulate in his insistence that long-range or medium-range missiles and Soviet combat troops were in Cuba as early as August. On August 31 he said in the Senate that he had reliable information on landings between August 3 and August 15 at the Cuban port of Mariel of 1200 troops wearing Soviet fatigue uniforms. He also reported that "other observers" had noted "Soviet motor convoys moving on Cuban roads in military formation," the presence of landing craft, and of suspicious cylindrical objects that had to be transported on two flatcars, and so on. He claimed that his statements had been verified by official sources in the United States government, and between August 31 and October 12 he made ten Senate speeches warning of the Soviet military build-up.

After the crisis, congressmen naturally wondered why we hadn't listened to Senator Keating, why it was possible to have had these warnings and many others and still be surprised on October 15. But failures to foresee and to forestall catastrophes are by no means abnormal. Military men and statesmen have no monopoly on being taken by surprise. The example of the Dallas police department springs to mind, and the murder of Oswald that gave rise, like Pearl Harbor, to rumors of conspiracy in high places and in local governments. Nor are American businessmen and financiers immune. In the recent De Angelis Salad Oil scandal, the injured businessmen "had seemingly attached little weight to some facts that were, to most of them, either well known or

readily accessible...on the backgrounds of both De Angelis and his Company, and also on [its] highly unusual operations in the market for commodity futures contracts."[1]

It is not always possible to blame failures to act on some kind of conspiracy, for example in a crisis occasioned by a natural catastrophe. The earthquake in and near Alaska that sent a tidal wave to shatter the northern shore of California caught some towns unprepared in spite of timely warnings. For these warnings had sounded just like many others in the past that had not been followed by tidal waves. The examples cited are American, but Singapore, "Barbarossa" (the German attack on Russia), and many others suggest that we are not dealing with a purely national susceptibility to surprise.

* * * * * * *

Defense departments and intelligence agencies, of course, continually estimate what an opponent can do, may do, intends to do. They try to gauge the technical limits within which he is operating, to determine his usual ways of behavior and under what conditions he will probe, push, or withdraw. They try to measure what risks he will take, and how he might estimate the risks to us of countering him. Much of this work by American analysts is sound, thorough, intelligent, frequently ingenious, and sometimes brilliant -- but not infallible. Unhappily, any of these estimates may be partly, but crucially, wrong. A wealth of information is never enough.

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[1]Norman C. Miller, Jr., "Dealing with De Angelis," Wall Street Journal, January 7, 1964.

To get a rapid idea of the mass of data available for predicting the Cuban crisis and the Pearl Harbor attack let us run through the main intelligence sources. In the case of Cuba, there was first of all superb photographic coverage as well as visual reconnaissance. The Navy ran air reconnaissance of all ships going in and out of Cuba, especially ships originating in Soviet or satellite ports during the summer of 1962, and intensified this sort of coverage during September.[2] High-level photographic reconnaissance by the U-2 over the island of Cuba was taking place at the rate of one flight every two weeks until the month of September, when it increased to once a week.[3] Low-level photographic reconnaissance began only after the President's speech of October 22; the first low-level flight occurred on October 23.[4] In addition to photography, we had voluminous accounts from Cuban refugees who were leaving the island in a steady stream. We had agents stationed on the island who were reporting and we were listening to radio broadcasts from Cuba. The Cuban press, while carefully controlled, was making some announcements

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[2]U.S. Congress, House of Representatives, Subcommittee on Department of Defense Appropriations, Department of Defense Appropriations for 1964, 88th Congress, 1st Session, 1963, Part 1, p. 3. (Hereafter cited as Defense Appropriations.)

[3]Ibid., p. 67. Flights over the island took place on September 5, 17, 26, 29, October 5, 7, and 14. The irregularity is attributed to bad weather.

[4]Ibid., pp. 4, 9.

that are interesting in retrospect. A number of European correspondents stationed on the island were reporting to their newspapers, though the American press was not welcome.

Finally, but by no means least, we had Castro's pronouncements. His casual interviews with reporters, debates with students, interrogations of prisoners, and nearly interminable television speeches offer a rich fount of information. If you wait long enough, it seems, Castro will tell you everything. The only problem in a crisis is that you may not be able to wait that long. Castro is noted for his slyness, and he is perhaps better able than most Cubans to keep a secret. But sometimes he cannot resist hints that may reveal a trap before his victim falls into it. And often, in real rather than calculated anger, he will show his hand.

For predicting the Pearl Harbor attack, the United States government had an equally impressive array of intelligence sources. Though aerial surveillance of the Japanese fleet was limited, the Navy had developed a system of pinpointing the location of ships and deducing their types by radio traffic analysis. This was accomplished by analyzing the call signs of various ships even though we could not read the content of the messages. Any change in call signs was in itself a cause for alarm, and it took usually several weeks of close listening to an enormous amount of traffic to re-identify the call signs. Call signs were changed on November 1, 1941, and again on December 1. We had not identified the new ones by December 7.

Although we had not broken any military codes, we did have one excellent source that is perhaps comparable to the evidence provided by U-2 photography. That was the

breaking of the top-priority Japanese diplomatic code, known as MAGIC, as well as some less complicated codes used by Japanese consular observers. We were listening in on diplomatic messages on all the major Tokyo circuits -- to Rome, Berlin, London, Washington, and so on. Colonel Friedman, an Army cryptographer, had devised a machine for rapidly decoding these messages, which worked so efficiently that, in general, we knew what a message said before its intended Japanese recipients. Our ground observers, stationed in key ports along the coast of China and Southeast Asia, were reporting in by radio. Ambassador Grew and his embassy staff in Tokyo were experienced observers of local economic and political activities. Grew himself had a very sound estimate of Japanese character and diplomacy, but as Japanese censorship closed in during the last few weeks before the attack, Grew had to warn Washington that he was unable to report accurately on any military preparations then under way. American newspaper correspondents in Japan were also well informed and shrewd in their reporting. In addition to our own sources, we exchanged information with British intelligence. At that date, our own intelligence officers did not fully trust British intelligence. They expressed a certain amount of unease over British methods of picking up information, which they regarded as sophisticated but underhanded. As General Sherman Miles put it, U.S. intelligence preferred to be "above board." However, the British provided us with some good leads and lots of corroborative information. And there was, of course, the Japanese press, which proclaimed Japan's undying hostility to the American presence in Asia, and announced with increasing

violence the Japanese intention to expand to the south.

In sum, for each of the two crises there was plenty of information suggesting its advent. Even though Cuba is a closed society, and even though Japan, in the last weeks, was under heavy censorship and tight security, the data provided by U.S. intelligence agencies were excellent. Once more, then, we come to the question, what went wrong? With all these data, why didn't we know that Japan would attack Pearl Harbor on December 7? Why, when it seems so clear in retrospect, didn't we anticipate that Khrushchev might put medium-range missiles into Cuba? Why didn't we seize the first indications that such installations were on the way? Weren't these early signs clear enough?

Unfortunately, they were not, and almost never are. Even with hindsight, we are not able to reconstruct the exact sequence of events that led to the Cuban missile crisis. Most of our sources are alive, and some of them are talking. But what can we say with certainty about Cuban and Soviet motives? Castro, for example, has spoken on many occasions about why missiles were put into Cuba. But he swings between the view that he requested them and the view that Khrushchev suggested the idea and that he, Castro, felt so indebted economically he had to accept. He has mentioned two motives: first, defense against an American invasion that he believed was imminent; and second, the need to advance the international cause of socialism, which implied that the missiles were for offense as well as defense. Khrushchev's story is more consistent, but also more "official": He cites only the need to help Cuba prepare against an American invasion. But, of course, for

active Cuban defense, long-range missiles are not necessary. Speculation on Soviet and Cuban motives still continues.

With hindsight, we can look back now and see that during the crisis there were naturally many confusions embedded in the mass of intelligence reports. A report of a "missile" might refer to a surface-to-air missile that is approximately 30 feet long, to the nose cone of a surface-to-surface missile that is about 14 feet long, to its body that is almost 60 feet long, or to a fuel storage tank. Or perhaps it might just represent the imagination of an excited Cuban refugee. Most of the objects were seen at night through closed shutters and in motion. Visual observation, except by a highly trained observer, could not be accurate even about the length of the object. Senator Keating helped to prolong this confusion centering around the word "missile." He was right when he described the total build-up as alarming, but he was proceeding beyond the evidence in suggesting, as he did, that he had positive proof of the presence of medium-range missiles,[5] and of the capability for rapid transformation of surface-to-air missiles into medium-range surface-to-ground missiles.

Or take the presence of Soviet combat troops. President Kennedy's critics noted after the crisis that in his

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[5]See testimony, September 17, 1962, in U.S. Congress, Senate Committee on Foreign Relations and Committee on Armed Services, Situation in Cuba, 87th Congress, 2nd Session, 1962, pp. 7, 12; U.S. News and World Report, November 19, 1962 (distributed week of November 12), p. 87; and speech to the Senate, October 12, 1962.

October 22 speech he made no mention of combat troops in Cuba, of whose presence the American public was informed later. Actually, Soviet troops, organized into four regimental units, totaled approximately 5,000 men. They were located at four different spots, two near Havana, one in Central Cuba, and one in Eastern Cuba.[6] They were equipped with modern Soviet ground-force fighting equipment, including battlefield rocket launchers similar to the American "Honest John." This equipment, with the accompanying barracks and tent installations, was not identifiable, or at least not identified, until we started photographing at low level. For this reason, President Kennedy made no demand about removal of troops on October 22, but kept to the colorless term, "Soviet technicians." Although U-2 photography is almost as magical as the MAGIC code at the time of Pearl Harbor, like the code it is limited; it cannot reveal all.

For the layman, the feeling persists that there must be some marvelous source that will provide a single signal, a clear tip-off that will alert the American forces and tell them exactly what to do. Unfortunately, there has been no instance where such a tip-off arrived in time, except perhaps in the Philippines in 1941, when General MacArthur had a minimum of nine hours' warning between his knowledge of the Pearl Harbor attack and the initial Japanese assault on his own forces. The news of the attack on Pearl Harbor clearly did not tell him what alert posture to take, since

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[6] These locations were at Artemisa and Santiago de las Vegas near Havana, Remedios in Central Cuba, and Holguin in Eastern Cuba.

his planes were found by the Japanese attackers in formation, wing tip to wing tip on their bases.

One of the signals usually interpreted as a tip-off for the Pearl Harbor attack is the famous Winds Code. The Japanese sent out two messages announcing the Winds Code, and American intelligence intercepted them on November 19, 1941. The two messages differed slightly in their instructions. One said

> In case of emergency...and the cutting off of international communications, the following warning will be added in the middle of the daily Japanese language short-wave news broadcast:
>
> (1) In case Japan-U.S. relations in danger:
> EAST WIND RAIN
>
> (2) Japan-USSR relations:
> NORTH WIND CLOUDY
>
> (3) Japan-British relations:
> WEST WIND CLEAR
>
> This signal will be given in the middle and at the end as a weather forecast and each sentence will be repeated twice. When this is heard please destroy all code papers, etc....[7]

This message was read at the time as a code destruction message, and a precaution for preserving secret means of communication. All sorts of procedures were set up for picking up a weather forecast of the kind expected. But no "execute" was picked up until December 8, when a Japanese-British announcement came through. Only after the attack did rumors start that the earlier message had something

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[7] U.S. Congress, Hearings Before the Joint Committee on the Investigation of the Pearl Harbor Attack, 79th Congress, 1st Session, 1946, Part 12, p. 154. (Hereafter cited as Pearl Harbor Hearings.)

special to say, that in reality it was announcing an attack on Pearl Harbor on December 7. Reading the message today -- after a still longer lapse of time -- it is possible to separate oneself from the emotions aroused by the catastrophe and thus come closer to the position of those looking at the information in November 1941, when the disaster that was soon to occur was only one of many possibilities.

The United States had also sent code destruction messages to its consulates throughout the Far East. The consulates were to return the code word "boomerang" when the American codes had been destroyed. We certainly did not expect the Japanese in intercepting these messages to conclude that they were signals announcing a U.S. intention to attack Japan. Read by itself, the Winds Code is not much help, but put together with the large number of other signals of Japanese intentions it contributed to revealing the Japanese attack timetable. And here the record of American intelligence is very good. Except for Pearl Harbor, the intelligence services had picked all the other Japanese targets in the Philippines, Malaya, Thailand, Guam, Wake, and Hong Kong, and had predicted an attack either on the weekend of November 30 or on that of December 7.

The converging of a number of signals to form a single hypothesis about the intentions and actions of an opponent is a necessary but slow process. In 1962, for example, General Carroll, head of the Defense Intelligence Agency, became suspicious of Soviet activities on the basis of several pieces of data from different sources. According to Secretary McNamara's testimony,

> he had had thousands of reports like this. What gradually formed in his mind was a hypothesis

> based on the integration of three or four pieces of evidence, one of which was not a report at all, one of which was a recognition through photographic analysis that a SAM site appeared to be in a rather unusual place.... Gradually over a period of time -- I do not know over what period of time -- but sometime between the 18th of September and the 14th of October, there was formulated in his mind a hypothesis specifically that there was the possibility of a Soviet ballistic missile installation in a particular area, a hypothesis that had been formulated previously and had been tested previously and found to be in error with respect to other locations.
>
> His only action here -- I think quite properly his only action here -- was to test that hypothesis, to submit it to the targeting group that targets the reconnaissance missions, and place that target on the track for the next reconnaissance mission, which was the October 14 mission.[8]

This period of time from September 18 to October 14 is not long for the crystallization of a hypothesis.[9] It is long only when placed against the speed of the missile installation. This time difference is one of the perpetually agonizing aspects of intelligence interpretation. Collection, checking of sources, and interpreting all take time. There is always delay between the intelligence source and the evaluation center, and between the center and the final report to the decision-maker. Even then, the decision-maker

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[8] Defense Appropriations, pp. 45-46.

[9] According to Roger Hilsman, the request for a U-2 flight covering the western end of Cuba was made on October 4, which is ten days earlier than the date of action. "The Cuban Crisis: How Close We Were to War," Look, August 25, 1964, p. 18.

may merely request more information before taking action. In the meantime, the opponent moves forward.

In the Cuban missile crisis, for example, there were delays in the identification of surface-to-air missiles. From July 29 to August 5, Cuban refugees reported that "an unusual number of ships" unloaded cargo and passengers at the ports of Havana and Mariel. All Cubans were excluded from the dock. By August 14, these reports reached U.S. intelligence agencies, which then requested photo coverage of the suspect areas by U-2 on August 15. On August 29, a U-2 flight covered these areas. From the first visual observation on July 29 to the overflight action on August 29, a full month passed. If we count the time from August 5, the terminal date of the unusual number of ships unloading, it is still three weeks, including a period of nine to fifteen days for transmission from the source to U.S. intelligence.

The August 29 flight turned up the first hard evidence of surface-to-air missiles in Cuba. During September, surveillance flights seem to have been stepped up: The U-2 flew on September 5, 17, 26, 29, and on October 5, 7, and 14. On the September 5 flight, which took in the San Cristobal area, a hundred miles east of Havana, the photographs showed no evidence of medium-range missile activity. A flight scheduled for September 10 was cancelled,[10] perhaps because a U-2 had been shot down over Red China the previous

[10] The Stennis Committee reported the cancellation of this flight. U.S. Congress, Committee on Armed Services, Preparedness Investigating Subcommittee, Investigations of the Preparedness Program, Interim Report on Cuban Military Build-Up, 88th Congress, 1st Session, 1963, p. 8.

day. According to the American press, all U-2 flights stopped while the United States waited for world reaction.

Secretary McNamara testified that available evidence indicated the first landing of mobile MRBM's occurred on September 8.[11] It is possible that September 10 photography might have shown some activity at the San Cristobal site. The September 17 flight was of little use because cloud cover obscured the areas photographed. However, between September 18 and 21 further Cuban reports came to U.S. intelligence, and these were evaluated on September 27. They eventually led to the flight on October 14, finally again over San Cristobal. This flight produced the first reliable evidence of medium-range missiles on the island.

In spite of the frequency of the U-2 flights, there is a lag of 33 days from the first visual observation made by a Cuban exile on September 8 and reported on September 9 to October 14, the day action was taken to obtain the hard evidence. There is a lag of 39 days between September 5 and October 14, during which no flights covered the San Cristobal area. This gap in coverage was not apparent until some inquiring Congressmen, Mr. William Minshall of Ohio in particular, pressed their cross-examination:

> Mr. Minshall: You were covering the central portion and eastern end of the

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[11] Secretary McNamara testified: "We do not believe, even with hindsight, that the initial construction of the sites began before September 15 to 20." Hearings, p. 25. According to Roger Hilsman, "The Russians must have done their survey work for the MRBM and IRBM sites in July and August. Construction apparently started on the Guanajay site in early September; on the San Cristobal and Remedios sites between September 15 and 20; and on the Sagua la Grande site between September 25 and 30." "The Cuban Crisis: How Close We Were to War," p. 18.

> island with the U-2 flights when you should have been covering the western end?[12]

General Carroll explained that it was necessary to cover the eastern and central portions. Secretary McNamara supported him by pointing out that the September 5 flight over San Cristobal "showed absolutely no activity whatsoever." He also recalled that this was the hurricane season, "and the weather in that part of the Caribbean is very bad. We had a number of flights cancelled during that period." Mr. Minshall then produced the official weather report showing clear days in the vicinity of Havana, and that "the weather from September 25 to October 2, at least at 7:00 in the morning, was generally clear."[13] No one pointed out at that time that weather forecasts, not actual weather, determined the schedule of U-2 flights.

Photographic coverage, then, was apparently being made on the assumption that any Soviet construction would proceed at a pace which, within our own experience, would be suitable for rapidly installing American equipment. Secretary McNamara repeated several times that there was no missile construction activity in the Havana area on September 5, as if this, coupled with the pressing need to get clear pictures of other parts of the island, were sufficient reason for not covering the area again until October 14. This judgment, with hindsight, may have been correct, but in the absence of the full intelligence picture the layman can only wonder why it was not possible to cover more than

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[12] Defense Appropriations, p. 68.

[13] Ibid., p. 69.

one section of the island on a single U-2 sortie, or why it was not possible to make several simultaneous sorties when good weather prevailed. Perhaps Secretary McNamara's statement, under pressure of Mr. Minshall's criticism, to the effect that "we were facing surface-to-air missile systems that might be coming into operation"[14] indicates that the flight schedule was sensitive to the political atmosphere. The fact is that there were increasing dangers to our pilots as the SAM sites became operational. With the Republicans now in opposition, it was easy for some of them to forget the extreme embarrassment of the Eisenhower regime at the shooting down of the U-2 over the Soviet Union in 1960 and the collapse of the Paris summit that followed. Certainly after the publicity given to the U-2 shot down over Red China on September 9, the United States would not want to lose such a plane over Cuba. U-2 planes are never armed; and the August 29 flight had showed surface-to-air missile installations in western Cuba. "Two of these were specifically located and six others tentatively located in western Cuba."[15]

Naval photography shows a somewhat similar gap. Photographs of the crates containing IL-28 bombers were taken on September 28 but not evaluated until October 9 and not disseminated until October 10. This identification of bombers capable of carrying a nuclear or non-nuclear payload of 6,000 pounds and with a combat radius of about 700 miles[16]

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[14] Ibid.

[15] Ibid., p. 3.

[16] W. W. Kaufmann, The McNamara Strategy, Harper & Row, 1964, p. 270. According to John Hughes, Special Assistant to General Carroll, "about 600 nautical miles," Defense Appropriations, p. 15.

came together with a report of October 15 evaluating the U-2 photographs of MRBM's.

This sort of delay can easily be paralleled in the Pearl Harbor intelligence picture. In the handling of the coded messages, there was inevitably a delay -- from interception of the message at the intercept station to transmission to the decoding center in Washington, to determination of priority in handling, to assignment for full decoding, to assignment for translation, to actual translation, and to final delivery to the approved list of recipients. The longest delay recorded in the Congressional hearings is 54 days between interception and translation. Part of the delay is a function of the time necessary for transmission. Part of the delay comes from checking the accuracy of the reports, which is necessary for responsible decision. But these delays in response must all be seen against the forward march of events.

We had not expected the Russians to be able to move so rapidly. The speed of their mobile MRBM installation was in effect a logistical surprise comparable to the technological surprise that happened at the time of Pearl Harbor. Before September 1962 we were scheduling U-2 flights approximately two weeks apart, because we couldn't believe that capabilities could change significantly within a shorter period. However, Secretary McNamara testified in his first background briefing that the medium-range mobile missiles were designed to be de-activated, moved, re-activated on a new site, and ready for operation within a period of about six days.[17]

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[17]October 22, 1962.

The Stennis Report,[18] which reviewed the entire intelligence operation, referred to "a matter of hours." In one instance, between two sets of photographs separated by less than 24 hours, there was an increase of 50 per cent in the amount of equipment visible.[19] On the date of withdrawal, October 28, the medium-range missiles were fully operational. Intelligence estimates set December 15 as the outside date for the non-mobile IRBM's to be operational.

This kind of technological or logistical surprise may be either a secret so carefully guarded that it doesn't reach our intelligence agencies until after the event or it may happen too swiftly, too near the outbreak of the crisis to be transmitted and evaluated in time. In the case of Pearl Harbor, two technological advances by the enemy failed to reach either the intelligence agencies or the commanding officers who needed the information: (1) that the Japanese had fitted fins to their torpedoes, which would permit bombing in the shallow waters of Pearl Harbor; and (2) that the combat radius of the Zero had been stretched to 500 statute miles, making possible aerial attack on the Philippines from Formosa. Both of these developments occurred in late November.

Besides technological surprise and the inevitable physical delays involved in transmission and checking,

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[18] U.S. Congress, Committee on Armed Services, Preparedness Investigating Subcommittee, Investigations of the Preparedness Program, Interim Report on Cuban Military Build-Up, 88th Congress, 1st Session, 1963, p. 3.

[19] U.S. News and World Report, November 5, 1962.

there are more subtle obstacles to accurate perception of signals. First, there is the "cry-wolf" phenomenon. Admiral Stark actually used this phrase in deciding not to send Admiral Kimmel any further warnings about the Japanese. An excess of warnings that turn out to be false alarms always induces a kind of fatigue, a lessening of sensitivity. Admiral Kimmel and his staff were tired of checking out Japanese submarine reports in the vicinity of Pearl Harbor. In the week preceding the attack they had checked out seven, all of which were false. General Carroll had the same problem with missiles in Cuba. Refugee reports of missiles had been coming in for a year and a half, and the first San Cristobal report of September 9 describing that suspect area, later confirmed as harboring medium-range missiles, was "comparable to many other reports ...similarly received and checked out," and found to reveal not surface-to-surface missiles, but surface-to-air or nothing at all. This history of mistaken observations by the refugees tended to reinforce the feelings of fatigue and disbelief. There was also a justifiable reaction to the fact that refugee exaggerations of revolutionary ferment in Cuba had not been properly discounted at the time of the Bay of Pigs, and that their self-interest in wanting to return to Cuba had not been properly weighed. This background increased the reluctance of the intelligence agencies to credit their reports without careful verification. Besides the refugees, members of the Congressional opposition, as we have seen, were also using exaggeration and pressure, because they had an interest in overstating provocation in order to indicate laxness on the Administration's part. Senator Keating claimed to have hard

evidence at a time when, it seems, such evidence did not exist. Opposition pressure tended to evoke a natural counterpressure from the Administration, which responded by charging irresponsibility in its critics and insisted on caution and the necessity for special evidence before entering on such serious action. In this way the opposition served in some respects as rein rather than simply as spur.

Another obstacle to objective evaluation is the human tendency to see what we want to see or expect to see. The Administration did not want open conflict with the Soviet Union. It was working on a program of trying to relax tensions, of which a test-ban agreement was one important though distant goal. It most definitely did not want an offensive Soviet base in Cuba. And just as FDR wanted no war in the Far East, no war on two fronts, and didn't want to believe that it could happen, so we didn't want to believe that the Soviets were doing what they were doing.

When this is the background of expectation, it is only natural to ignore small clues that might, in a review of the whole or on a simple count, add up to something significant. For example, the large ships that turned out to be the villains in the Cuban case had especially large covered hatches. They were unloaded at night by Soviet personnel, and all Cubans were excluded from the docks. The contents, whatever they were, were moved at night. The decks were loaded with 2 1/2- and 5-ton trucks and cars, which suggested a bulk cargo. But these ships, in transit, had been noted to be riding high in the water. If intelligence analysts in the American community had been readier to suspect the introduction of strategic missiles, would they have been able to correlate this signal -- the ships' water line --

before as well as after October 14, with a "space-consuming [i.e., large volume, low density] cargo such as an MRBM"[20] rather than a bulk cargo? Roger Hilsman points out that these ships had been specially designed for carrying lumber, and "our shipping intelligence experts presumably deduced that lumbering ships could be more easily spared than others." "We knew," Hilsman writes, "that the Soviets had had some trouble finding the ships they needed to send their aid to Cuba."[21] This is a good illustration of the way we can adjust (without doing violence to the facts) a disturbing or out of the daily routine observation to "save" a theory, in this case that the Soviets would not send strategic missiles into Cuba.

Our estimate of Soviet behavior included, of course, some expectation of how the Russians would react to what we were telling them, to our warnings in words and acts. However, we overestimated the clarity of our signals. General Maxwell Taylor had visited Florida bases on August 25 with a great deal of publicity. Naval reconnaissance of ships approaching Cuba had been stepped up to the point where U.S. planes were shot at by nervous Cubans on September 2. Castro reacted with great restraint in commenting on this incident, which might in itself have been thought suspicious. But above all, on September 4, President Kennedy announced the installation of surface-to-air

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[20]"Department of Defense, Special Cuba Briefing by Honorable Robert S. McNamara, Secretary of Defense, State Department auditorium, 5:00 p.m., February 6, 1963," a verbatim transcript of a presentation actually made by John Hughes.

[21]"The Cuban Crisis: How Close We Were to War," p. 18.

missiles on Cuba, which had been confirmed by the photographs of August 29. He said with the greatest care that we would not tolerate an offensive base or the installation of missiles capable of reaching U.S. territory. He made the distinction between offensive and defensive weapons, and he did this publicly in a way that put him on the spot. To anyone familiar with the workings of the American political system, this should have indicated that we were "contracting-in." The President was deliberately engaging his own prestige and that of the country. He was reacting to the Republicans as well as to Castro. He was justifying not taking action up to a certain point, but making it more likely that he would take action beyond that point. In other words, he was drawing a line, and he was making it extremely unlikely that we would back down if that line were crossed.

President Kennedy's exact words were:

> There is no evidence of any organized combat force in Cuba from any Soviet bloc country; of military bases provided to Russia; of a violation of the 1934 treaty relating to Guantanamo; of the presence of offensive ground-to-ground missiles; or of other significant offensive capability either in Cuban hands or under Soviet direction and guidance.
>
> Were it to be otherwise the gravest issues would arise. The Cuban question must be considered as a part of the world-wide challenge posed by Communist threats to the peace. It must be dealt with as a part of that larger issue as well as in the context of the special relationships which have long characterized the inter-American system.
>
> It continues to be the policy of the United States that the Castro regime will not be allowed to export its aggressive purposes by force or the threat of force. It will be prevented by

> whatever means may be necessary from taking action against any part of the Western Hemisphere.[22]

Read today, this statement seems like a clear warning. Moreover, it was repeated on September 13:

> But let me make this clear once again: If at any time the Communist build-up in Cuba were to endanger or interfere with our security in any way, including our base at Guantanamo, our passage to the Panama Canal, our missile and space activities in Cape Canaveral or the lives of American citizens in this country, or if Cuba should ever attempt to export its aggressive purposes by force or the threat of force against any nation in this hemisphere, or become an offensive military base of significant capacity for the Soviet Union, then this country will do whatever must be done to protect its own security and that of its allies.[23]

But neither statement convinced the Russians that we would act.

To these official Administration statements, we must add the formal announcements by the opposition party. Charles A. Halleck of Indiana and Senator Everett McKinley Dirksen of Illinois, the Republican Congressional leaders, both issued statements on Cuba on September 7.[24] Halleck

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[22] New York Times, September 5, 1962. Alain Joxe, in "La Crise Cubaine de 1962," Stratégie, Summer 1964, Vol. 1, No. 1, pp. 60-87, argues that the warning is misleading and could be read as a warning to Cuba alone not to export its revolutionary activities. This was clearly not the President's intent; the context was a Russian build-up, and concerned the limits of Russian incursion that we would stand.

[23] New York Times, September 14, 1962.

[24] New York Times, September 8, 1962.

warned that the increases in armaments and numbers of military technicians supplied by the Soviet Union to Cuba made the situation there "worse from the point of view of our own vital interests and the security of this country." Senator Dirksen invoked the Monroe Doctrine and defined current Soviet military aid to Cuba as a violation of that doctrine. He pointed out that, in view of our treaty commitments, either a course of action should be fixed on immediately by the Organization of American States or, quoting President Kennedy's speech of April 20, 1961, the United States should act on its own, "if the nations of this hemisphere should fail to meet their commitments against outside Communist penetration."[25] He then proceeded to recall that

> In 1955, when Communist China menaced Formosa [Taiwan] and the Pescadores [Pengu], the Congress by joint resolution authorized the President of the United States to employ our own armed forces as he deemed necessary to protect those Asiatic islands.
>
> We, the members of the joint Senate-House Republican leadership, believe that the Congress should now adopt a similar authorizing resolution to meet the Cuban problem and we shall invite our Democratic counterparts to join us in its drafting, its introduction and its passage by this Congress before it adjourns. We recommend that the measure be drawn up by the Foreign Relations Committee of the Senate and the Foreign Affairs Committee of the House, acting in consultation with the appropriate agencies of the Executive Branch.
>
> This course of action by the Congress will reflect the determination and clear purpose of the American people and will demonstrate to the

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[25] Ibid.

world the firmness of this nation in meeting this problem.[26]

American elections and their accompanying distractions have been the subject of worldwide speculation and concern. They are not always easy for an outsider to understand. These protests from the opposition were taking place in a setting of pre-election debate, and Khrushchev may have hoped to exploit that fact. He may not have been aware that the alarm expressed by the Republicans was something President Kennedy could not ignore. Some of their more explicit proposals and resolutions about the Monroe Doctrine were accompanied by the President's request for authorization by Congress to call up 150,000 reserves. This action too should have been a warning signal; it did trigger a Soviet reassurance that Moscow had no need for an offensive base in Cuba. However, the Soviets did not find these warnings clear enough to reverse their plans for installation.

Another major barrier to an objective U.S. evaluation of the data was our own estimate of Soviet behavior. The Stennis Report isolated as one "substantial" error in evaluation "the predisposition of the intelligence community to the philosophical conviction that it would be incompatible with Soviet policy to introduce strategic missiles into Cuba."[27] Khrushchev had never put medium- or long-range missiles in any satellite country, and therefore it was

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[26] Ibid

[27] U.S. Congress, Committee on Armed Services, Preparedness Investigation Subcommittee, Investigations of the Preparedness Program, Interim Report on Cuban Military Build-Up, 88th Congress, 1st Session, 1963, p. 3

reasoned, it was extremely unlikely that he would put them on an island 9,000 miles away from the Soviet Union, and only 90 miles away from the United States, when this was bound to provoke a sharp American reaction.

In considering this estimate of Soviet behavior, let us remember that the intelligence community was not alone. It had plenty of support from Soviet experts, inside and outside the government. At any rate, no articulate expert now claims the role of Cassandra. Once a predisposition toward a particular interpretation of the opponent's behavior becomes settled, it is very hard to shake. In this case, it was reinforced not only by expert authority but also by the knowledge both conscious and unconscious that the White House had adopted a policy of relaxing tension with the East. This policy background was much more subtle in its influence than documents or diplomatic experience. For when an official policy or hypothesis is laid down it tends to obscure alternative hypotheses, and to lead to overemphasis of the data that support it, particularly at a time of increasing tension, when it is important not to "rock the boat."

In the case of Pearl Harbor, there was a concentration on Atlantic and European affairs, which led to a kind of neglect of or tendency to ignore Far Eastern signals, and to a policy of staving off the outbreak of a Pacific war as long as possible. In the last months especially, this tendency was combined with a desire to avoid incidents. The wording of the final warning messages to the Army and Navy reflected this concern:

> If hostilities cannot repeat not be avoided the United States desires that Japan commit the first

> overt act. This policy should not repeat not be construed as restricting you to a course of action that might jeopardize your defense. Prior to hostile Japanese action you are directed to undertake such reconnaissance and other measures as you deem necessary but these measures should be carried out so as not repeat not to alarm civil population or disclose intent.... Undertake no offensive action until Japan has committed an overt act.[28]

These directives have been frequently characterized as "do-don't."

Another attempt to avoid incidents was the Navy order of October 17 to reroute all trans-Pacific shipping to and from the Far East through the Torres Straits, thus clearing the sea lanes to the north and northwest of the Hawaiian Islands. This order followed a warning of possible hostile action by Japan against U.S. merchant shipping. We avoided any incidents in these sea lanes, and at the same time we cut off the possibility of visual observation of the Japanese task force bound for Pearl Harbor.

In the Autumn of 1962, pursuing a policy of reducing tension, the Kennedy Administration made very little allowance for deception in Soviet statements, and for false reassurances that would quiet justifiable American fears. On September 2, TASS published a joint communiqué on Soviet military aid to Cuba, in connection with the August 27 visit to Moscow of Ché Guevara and Emilio Aragones. The Soviet government announced assistance in metallurgical work and the sending of technical specialists in agriculture to Cuba. It added that

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[28] Pearl Harbor Hearings, Part 14, p. 1407.

> views were also exchanged in connection with threats of aggressive imperialist quarters with regard to Cuba. In view of these threats the government of the Cuban Republic addressed the Soviet government with a request for help by delivering armaments and sending technical specialists for training Cuban servicemen.
>
> The Soviet government tentatively considered this request of the government of Cuba. An agreement was reached on this question. As long as the above-mentioned quarters continue threatening Cuba, the Cuban Republic has every justification for taking necessary measures to insure its security and safeguard its sovereignty and independence, while all Cuba's true friends have every right to respond to this legitimate request.[29]

This was reassuring in a negative understated way: It limited military aid to vague "armaments" and "technical specialists." On September 11, in response to the President's request for permission to call up reserves, a higher keyed, if not hysterical, pronouncement was issued by TASS. This started with an attack on "bellicose-minded reactionary elements" and "the provocations the United States government is now staging, provocations which might plunge the world into disaster of a universal world war with the use of thermo-nuclear weapons." In the U.S. Congress and in the American press, the Soviet government claimed, an unbridled propaganda campaign was calling for an attack on Cuba and on Soviet ships "carrying the necessary commodities and food to the Cuban people."[30] "Little heroic Cuba" was pictured

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[29] New York Times, September 3, 1962.

[30] New York Times, September 12, 1962.

as at the mercy of American imperialists, who were alarmed by the failure of their economic blockade and calling for measures to strangle her. Particularly serious was the President's action in asking Congress' permission to call up 150,000 reservists to the Armed Forces of the United States. The statement then embarked on a series of jeers at the ridiculous fears of the American imperialists. The peace-loving Soviet Union was sending agronomists, machine operators, tractor drivers, and livestock experts to Cuba to share their experience and knowledge and to help the Cubans master Soviet farm machinery.

> What could have alarmed the American leaders? What is the reason for this Devil's Sabbath?... Gentlemen, you are evidently so frightened you're afraid of your own shadow.... It seems to you some hordes are moving to Cuba when potatoes or oil, tractors, harvesters, combines, and other farming industrial machinery are carried to Cuba to maintain the Cuban economy. We can say to these people that these are our ships and that what we carry in them is no business of theirs.... We can say, quoting a popular saying: "Don't butt your noses where you oughtn't." But we do not hide from the world public that we really are supplying Cuba with industrial equipment and goods which are helping to strengthen her economy.[31]

A bit farther on, having had its fun, TASS recalled that "a certain amount of armaments is also being shipped from the Soviet Union to Cuba" and that Soviet military specialists had also been requested by the government of Cuba. However, the number of Soviet military specialists sent to Cuba "can in no way be compared to the number of

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[31] Ibid.

workers in agriculture and industry sent there. The armaments and military equipment sent to Cuba are designed exclusively for defensive purposes and the President of the United States and the American military just [like] the military of any country know what means of defense are." The statement went on to imply that any threat to the United States was a figment of the American imagination. The major reassurance then followed:

> The Government of the Soviet Union also authorized TASS to state that there is no need for the Soviet Union to shift its weapons for the repulsion of aggression, for a retaliatory blow, to any other country, for instance Cuba. Our nuclear weapons are so powerful in their explosive force and the Soviet Union has so powerful rockets to carry these nuclear warheads, that there is no need to search for sites for them beyond the boundaries of the Soviet Union. We have said and we do repeat that if war is unleashed, if the aggressor makes an attack on one state or another and this state asks for assistance, the Soviet Union has the possibility from its own territory to render assistance to any peace-loving state and not only to Cuba. And let no one doubt that the Soviet Union will render such assistance just as it was ready in 1956 to render military assistance to Egypt at the time of the Anglo-French-Israeli aggression in the Suez Canal region.[32]

This sort of reassurance had also been privately delivered to the President, and the misuse of the private channel apparently shocked President Kennedy as much as the creation of the strategic base in Cuba. In his speech of October 22, the note of most intense indignation occurs when he says,

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[32] Ibid. Emphasis supplied.

after quoting the statements emphasized above, "That statement was false." He then continued:

> Only last Thursday, as evidence of this rapid offensive build-up was already in my hand, Soviet Foreign Minister Gromyko told me in my office that he was instructed to make it clear once again, as he said his government had already done, that Soviet assistance to Cuba, and I quote, "pursued solely the purpose of contributing to the defense capabilities of Cuba," that, and I quote him, "training by Soviet specialists of Cuban nationals in handling defensive armaments was by no means offensive," and that "if it were otherwise," Mr. Gromyko went on, "the Soviet government would never become involved in rendering such assistance." That statement was also false.[33]

President Kennedy and his staff had believed the earlier Soviet reassurances. Their reaction to what they regarded as deception was one of genuine outrage, for one of the President's basic tenets had been that a state of mutual trust between the great powers is an important step toward solving the problem of relaxing international tension.

There is a considerable body of literature that goes farther and isolates the attitude of mutual suspicion itself as the central danger today in international relations. It is a permanent problem of diplomacy to know where to draw the line in extending trust to unfriendly states. A certain amount of healthy suspicion of the opponent's public statements is in order. The President deliberately tested the willingness of Gromyko to lie, after the President knew the truth, but before the Russians knew that he

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[33] New York Times, October 23, 1962.

knew. The trap set by the President aroused the indignation of some of those very Americans who urge mutual trust. But the President of the United States would be simple indeed if on the basis of many such probings he did not build his trust cautiously. The Russian performance in the fall and winter of 1962 made it perfectly clear that we cannot take Russian statements at face value, even statements made to top American leaders in private and without the constraints that might be imposed by having the Chinese or other Communist powers or the nonaligned or even our own allies listening.

In periods of high tension it is commonly accepted that deception will be an enemy tactic. Before the Pearl Harbor attack, Japanese deception was very refined and ingenious. It involved, among other things, giving shore leave to large numbers of Japanese sailors, reinforcing garrisons on the northern border of Manchuria to give the impression of a thrust to the north, issuing false war plans to Japanese commanders and substituting true ones only days before the attack, and on the diplomatic side continuing the appearance of negotiation. For deception is not confined to statements, but must also be translated into actions.

It is important for the enemy's security that he keep his signals quiet. On the Soviet side, this meant that all movement on the island of Cuba must take place at night. The Cubans were excluded from the docks and from many of the missile construction areas. Troops were carried below decks, and unloaded equipment was camouflaged or hidden

under the trees. On our own side, in the period before October 22, tight security was important to preserve the initiative. And this tight security was maintained through the next few weeks. The members of the group close to the President, known as the Executive Committee or EXCOM, were directly supervising decisions normally left to lower command levels and were doing paper work normally handled by their staffs. This sort of procedure is fine for a couple of weeks, but it means the neglect of other areas of government and, in particular, other areas of foreign policy.[34] Richard Neustadt, a keen observer, reminds us that the Sino-Indian conflict was in progress at the same time, and offers a "lay impression" that "at least one side effect of Cuba" was to tighten the time and narrow the frame of reference of the decision -- then in the making -- on Skybolt.[35] Under conditions of tight security, there is also a danger that we may keep signals not only from the enemy but also from ourselves. There are a good many who feel that careful study by a wider range of experts might have been useful at the time and would be

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[34]According to Secretary Rusk, "Senior officers did their own typing; some of my own basic papers were done in my own handwriting, in order to limit the possibility of further spread...." CBS Reports, televised interview of Secretary Rusk by David Schoenbrun, November 28, 1962.

[35]U.S. Congress, Senate Subcommittee on National Security Staffing and Operations of the Committee on Government Operations, Administration of National Security, 88th Congress, 1st Session, 1963, Part 1, p. 97, testimony of March 25, 1963.

useful now, particularly with regard to top-level communication between the United States and the USSR. These, like MAGIC, were very closely guarded during the crisis and when received had to be read and interpreted swiftly.

Another set of signs we may have misread or missed were those appearing in official Cuban statements. Castro is so verbose and temperamental that we tend not to listen carefully to his speeches, and his controlled press is so dull that we are equally careless about that. In addition, the policy of embargo and isolation of the island tends to carry over in a curious way to ignoring the voice of Cuban officialdom.

It is interesting now to review the Cuban press of 1962 for clues we might have picked up. After Raul Castro's July visit to Moscow, the warmth of the references to the Soviet Union increased noticeably. Thanks and praise became the order of the day. On September 11, the day of the falsely reassuring TASS statement, the Cuban newspaper Revolución underlined the threat of thermonuclear war invoked by TASS. The front page was printed with a single white headline on a black background: "Rockets over the United States if Cuba Is Invaded." Forcing the Soviet Union's hand in this way had been Cuban policy for some time, so that it was natural for our experts to take this as another instance of Cuban wishful thinking.

Finally, in the intelligence picture we have always with us the role of chance, accident, and bad luck. It was bad luck that September-October is the hurricane season in the Caribbean, so that some reconnaissance photography was unclear and certain flights were cancelled. It was bad luck that the Red Chinese shot down a U-2 on

September 9. In 1941, it was bad luck that we had cut all traffic on the northwest passage to Russia, and thereby made visual observation of the Pearl Harbor task force impossible. It was bad luck that there was a radio blackout in the Hawaiian Islands on the morning of December 7, and that Colonel French of the Communications Room then decided to use commercial wire instead of recommending the scrambler telephone for the last alert message.

To sum up then, in both the Pearl Harbor and Cuban crises there was plenty of information. But in both cases, regardless of what the Monday morning quarterbacks have to say, the data were ambiguous and incomplete. There was never a single, definitive signal that said, "Get ready, get set, go!" but rather a number of signals that, when put together, tended to crystallize suspicion. The true signals were always embedded in the noise or irrelevance of false ones. Some of this noise was created deliberately by our adversaries, some arose by chance, and some we made ourselves. In addition, our adversary was interested in suppressing the signs of his intent and did what he could to keep his movements quiet. In both cases the element of time also played against us. There were delays between the time information came in, was checked for accuracy, evaluated for its meaning, and made the basis for appropriate action. Many of these delays were only prudent, given the ambiguities and risks of response.

The interpretation of data depends on a lot of things, including our estimate of the adversary and of his willingness to take risks. This willingness depends on what our opponent thinks the risks are, which in turn depends on his interpretation of us. We underestimated the risks that the

Japanese were willing to take in 1941, and the risks that Khrushchev was willing to take in the summer and fall of 1962. Both the Japanese and the Russians, for their part, underestimated our ultimate willingness to respond.

It is important to understand that the difficulties described are intrinsic, that they are examples of a much wider problem in the confrontation of any body of knowledge with the deliverances of experience. By focusing on misestimated capabilities, dispositions, and intentions, we obscure the fact that, without a very large complex body of assumptions and estimates, the data collected would not speak to us at all. If there were no technological constraints whatsoever -- if, for example, a large missile installation could be put in place in an instant -- no reconnaissance, no matter how frequent, could provide assurance that we would not at any moment face a massive new adversary. The complex inferences involved in the act of interpreting photographs are made possible only by a large body of assumptions of varying degrees of uncertainty, ranging from principles of optics and Euclidean geometry through technological, economic and political judgments. The inferences from the interpretations themselves in turn are based on an even wider range of uncertain beliefs. But just because a very large body of partially confirmed beliefs and guesses is involved in interpreting a reconnaissance photograph or the observations of a Cuban refugee or intelligence agent, it is possible to interpret the photograph or observations in many differing ways. Our beliefs, as Willard Van Orman Quine has put it, are "underdetermined" by our experience, and they do not face experience separately, statement by statement, but always in mass,

as a collection. We have a good deal of freedom as to what statements to adjust in the light of any new and seemingly disturbing report.

An observation or its report does not seize us then and force any specific interpretation. This relatively free situation of hypotheses in intelligence is no different in kind from that of hypotheses in the more exact sciences such as physics. A more naive empiricism once suggested that statements in physics could be refuted definitively by an observation, by the result of a crucial experiment. But a great many physicists and students of the logic of science, at least since Pierre Duhem, have shown that even the interpretation of the simplest experiment depends implicitly on comprehensive theories about the measuring instruments and a great deal else. It is always possible therefore to "save" a theory or hypothesis by altering some other one of the large set of our beliefs that connects it with any given observation.[36]

If this is true in the more exact sciences it is more obviously true for spheres of practical activity such as the operation of an intelligence agency, and the inferences and decisions of an executive. Here the assumptions that shape interpretation are likely to be more multifarious and also less explicit and therefore often less tentatively held. This puts it mildly. Some of the relevant assumptions may be held passionately. They are likely to include wishful or self-flattering beliefs, items of national pride or claims at issue in partisan debate. For the case of Japan in 1941, some of our critical assumptions concerned

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[36]The analogy with hypotheses in the physical sciences was called to my attention by Albert Wohlstetter.

technology, the range, speed, and maneuverability of the Zero plane, the supposed inability of the Japanese to do any better than the Americans in launching torpedoes in shallow water. In the case of Cuba again some critical assumptions were technological; for example, the minimum time to put into place and make operational a medium-range ballistic missile. Others concerned the politics and character of the Soviet, Cuban and American leadership and their estimates of each other's willingness to take a chance. Our expectations and prior hypotheses guide our observations and affect their interpretation. It is this prior frame of mind, now changed, that we forget most easily in retrospect. And it is this above all that makes every past surprise nearly unintelligible -- and inexplicable except perhaps as criminal folly or conspiracy.

This comparison of Pearl Harbor and Cuba may seem to have dwelt unhappily on the limitations of Intelligence, and its fallibilities. It is not easy to predict the course of a crisis in a complicated world, but this does not imply that Intelligence has no use, or that its uses cannot always be improved; they have been and can and should continue to be. Intelligence with a capital "I" as well as intelligence with the lower-case may have their limitations; but we have nothing better.

Furthermore, the genuine analogies between Pearl Harbor and Cuba should not obscure the important differences. A study of the Pearl Harbor case makes clear that the problem of getting warning of an impending nuclear raid today is much harder than the problem of detecting the Japanese attack some twenty years ago. It is against this increased difficulty that we must balance improvements

in intelligence techniques and organization. But the missile crisis illustrates something else; namely, that there are other acts very much short of nuclear war of which we want to be apprised, and here our improved techniques and organization can put us ahead of the game. Action was taken during the missile crisis and taken in time to forestall Soviet plans. For while we can never ensure the complete elimination of ambiguity in the signals that come our way, we can energetically take action to reduce their ambiguity, by acquiring information as we did with the U-2. And we can tailor our response to the ambiguities and dangers that remain.

In the Cuban missile crisis action could be taken on ambiguous warning because the action was sliced very thin. After reconnaissance reduced the ambiguity, the response chosen kept to a minimum the actual contact with Russian forces, but a minimum compatible with assuring Khrushchev that we meant business: quarantine, the threat of boarding, the actual boarding of one Lebanese vessel chartered to the Soviet Union. Further, it was a response planned in great detail as the first in a sequence of graded actions that ranged from a build-up of U.S. Army, Marine and Tactical Air Forces in Florida and our southeastern bases to a world-wide alert of the Strategic Air Command. We had been partially prepared for such sequences of action short of nuclear war by the Berlin contingency planning, and this put us in a position to use the warning we had accumulated. If we had had to choose only among much more drastic actions, our hesitation would have been greater.

The problem of warning then is inseparable from the problem of decision. The more drastic our reply, the greater the certainty we need. We cannot guarantee foresight. But we can improve the chance of acting on signals in time to avert or moderate a disaster. We can do this by a more thorough and sophisticated analysis of observers' reports, by making more explicit and tentative the framework of assumptions into which we must fit any new observations and by refining, subdividing and making more selective the range of responses we prepare, so that our response may fit the ambiguities of our information and minimize the risks both of error and of inaction. Since the future doubtless holds many more shocks and attempts at surprise, it is comforting to know that we do learn from one crisis to the next.