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ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301



INTERNATIONAL SECURITY AFFAIRS

21 JUN 1966

MEMORANDUM FOR THE SECRETARY OF DEFENSE

SUBJECT: Rostow Proposal for Disclosure of Satellite
Reconnaissance Capabilities

Walt Rostow has proposed some public disclosure of satellite reconnaissance capability, possibly in a speech. The Chiefs have reviewed this proposal and are opposed. I agree with the Chiefs that the Rostow proposal in its present form should not be approved.

Initiating a policy of sudden public disclosure is undesirable (see Analysis, Tab B). The Soviet Union is the only nation capable of interfering with the satellite reconnaissance program. Our disclosure policy, therefore, should be evaluated primarily in terms of its impact on the USSR.

CONCLUSION

The U.S. should engage in private discussions with the Soviet Union seeking agreement to a policy of mutual non-interference in space reconnaissance activities, and a mutually agreed policy not to reveal publicly information concerning each other's military capabilities.

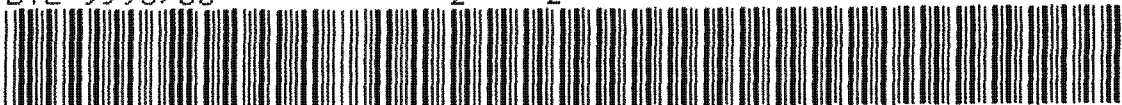
RECOMMENDATION

I recommend that you:

1. approve the above conclusion
2. oppose public disclosure without prior private consultation with the Soviet Union
3. approve careful preparation and analysis of a Talking Paper for such discussions (see Draft, Tab A).

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MOSCOW GUIDELINES

1. You ^awere to inform the Soviet Government that we are both aware that both countries are conducting photographic observations from space. It is the view of our Government that it is in the mutual interests of the United States and the Soviet Governments not to interfere with each other's observations. Certainly, we will not interfere in Soviet space operations as long as the Soviet Union does not interfere with our operations.

2. We think there may be advantages to a freer private exchange of views with the Soviet Union on this matter. We are therefore interested in soliciting the views of the Soviet Government on the following matters.

3. Is the Soviet Union interested in discussions or exchange of information on third countries? ∟ FYI: We wish to see if the Soviets are interested in exchanging information on China, but do not wish to make an explicit proposal on this point. ∟

4. We would like the views of your government on the possibilities of observation satellites which could be used for mapping economic growth and ultimately some reports on military forces in third country areas. We seek your cooperation in this matter and would not propose to reveal any information on US or Soviet military activities.

You should indicate that we would like to consider some initiative on this matter in the General Assembly this fall and would therefore solicit their support for a resolution authorizing the UN Security Council to develop, plan, and program for a UN observational satellite system, subject to the control of the Security Council.

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TAB A

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PRIVATE GUIDANCE

No discussion of US technology is authorized.

No discussion of US performance is authorized except to indicate by inference that we are not planning the public release of "high performance" equipment or material.

If the Soviets indicate surprise and general lack of preparation for such discussions, indicate you are willing to continue the discussions at a later date, if they wish to do so.

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ANALYSIS OF ALTERNATIVE DISCLOSURE POLICIES

The suggestion raised by Walt Rostow raises certain fundamental issues which are not clearly indicated in the subject memorandum. I believe there are four or possibly five policy alternatives for the United States.

1. Say nothing and keep tight controls over any material that might raise public discussion. This is impractical for many reasons. The aviation trade journals and the expanding interests of scientists, and informally in the space program and in the universities, makes it impossible to maintain for long a complete stoppage of public discussion of earth observation from space.

Conclusion: Impractical, whether or not desirable.

2. Evolutionary public disclosure without fanfare. This appears to be an accurate description of our public policy. It is based upon the premise that evolutionary disclosure and Soviet public acceptance of this operation will create a legal and public affairs position that this behavior is legitimate and proper.

However, it may have greater risks than we imagine. The Soviet Union is the only nation capable of taking action against our program. Our present evolutionary disclosure policy may appear to indicate inevitable public disclosure of Soviet military posture. If they believe we are going to publicly disclose the Soviet military posture, they might take action.

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TAB B

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3. Public disclosure. This proposal has the greatest potential impact on the Soviet Union. It is a direct challenge to the United Nations and "open world" in the pattern of Dwight Eisenhower's "open skies" proposal. It also faces the maximum risks. While the probability may be small, this course of action appears most likely to create a hostile Soviet reaction.

4. Private discussions with the Soviet Union. The objective here would be to seek Soviet agreement to a policy of mutual non-interference, and a mutual policy not to publicly reveal information on the other's military capabilities. (This does not mean that such capabilities could not be effective for inspection -- by inference from our capabilities in other areas, our capabilities could be inferred and if a significant violation did occur, we could, of course, utilize the data.)

Conclusion: Continued public disclosure without prior discussion with the Soviet Union, either on a present evolutionary basis, or suddenly, may create major risks to our present program. As the Soviet Union is the key, private discussions indicating our policy, while disclosing little or nothing concerning the substance of our program, could at least provide a useful test of Soviet policy and might provide some very significant private agreements with the Soviet Union not to interfere in exchange for comparable commitments from the United States.

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MEMORANDUM FOR: Ambassador U. Alexis Johnson

With reference to your draft memorandum, responding to Mr. Rostow's proposal, the enclosed memorandum, representing views of the Department of Defense, is submitted for your consideration.

Enclosure

"Disclosure of US
Satellite Reconnaissance"

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Disclosure of US Satellite Reconnaissance (~~TSD~~)

1. (~~TSD~~) The draft memorandum represents an excellent assessment of the political implications of the proposal. It is our view that the implementation of the disclosure proposal, even on a quid pro quo basis, would seriously jeopardize or completely preclude continuation of this nation's single most valuable intelligence collection capability - the National Reconnaissance Program (NRP). In addition, a great deal of technology associated with the NRP would significantly assist others in developing a like capability. Together, the potential intelligence loss to this nation and the technological advantages which would be gained by other nations as a result of disclosure would have an adverse impact upon our National Security and seriously affect our National Defense posture.

2. (~~TSD~~) With respect to the question of technological loss, the KH-7 and KH-8 cameras could not be disclosed without the most serious effect on the comparative positions of the US and all other nations in the area of satellite reconnaissance technology. On the other hand the KH-4 camera could be modified so that it could be disclosed to the USSR without a significant impact upon other NRP technology or the comparative technical position of the US and the USSR. Stated in terms of resolution, presently operational NRP cameras producing photographs with resolutions of 10 feet or greater could be disclosed without adverse technological impact vis-a-vis the USSR. Cameras producing resolutions of 3 to 5 feet are at the forefront of the state-of-the-art and could not be disclosed without significant benefits to all nations.

3. (~~TSTK~~) From an intelligence view point satellite reconnaissance provides the intelligence community with annual usable coverage of 95 percent of the Communist Bloc. It also provides usable coverage of a large portion of the earth's surface for intelligence, mapping, charting, and target materials purposes.

The knowledge of Communist capabilities in the strategic offensive, defensive, and nuclear energy fields is largely obtained or confirmed by satellite reconnaissance and could not be acquired by any other means except possibly on-site inspections or low altitude overflights. Thus, satellite reconnaissance represents a productive and irreplaceable source to accurately assess the military threat against the US and to determine the nature, character, and strengths of the US national force structure and the defense posture to counter these capabilities. These assessments have a direct bearing on national defense budgetary considerations.

4. (~~TSS~~) Appendices A and B hereto set forth in greater detail the effect of the proposal upon NRP technology and intelligence collection capability.

5. (~~TSS~~) The Soviets could initiate an effective program to reduce detection or observation that would result in a serious reduction in US intelligence collection assessment capabilities. While increased high resolution stereo coverage could reduce the effectiveness of such a program, such US reaction would take time, vastly increase collection costs, and increase photo interpretation/exploitation requirements and costs.

6. (~~TSSK~~) Discontinuance of both US and Soviet satellite reconnaissance activities, due to political action, would result in the US sustaining a more serious loss than the USSR. Under such circumstances, the Soviets could continue reasonably effective conventional intelligence collection in the "open" US society, whereas the US conventional intelligence collection in the "closed" Soviet society would remain largely ineffective and nonproductive of intelligence needed to replace that formerly derived from satellite reconnaissance.

7. (~~TSSK~~) Disclosure of the US satellite reconnaissance program could also result in an overestimation of this capability by friendly nations which now authorize US manned reconnaissance activities from their territory. Such overestimation could cause the withdrawal of these privileges, thereby denying the US the capability to conduct more conventional operations employing manned aircraft, which are more flexible, timely, and less costly than satellites, in responding to and satisfying national and military intelligence requirements.

8. (~~TSX~~) In summary, the DOD firmly believes that the National Reconnaissance Program is a productive and irreplaceable intelligence collection asset. Disclosure of this capability would result in the loss or degradation of this source of information with the attendant affect on the National Defense posture. Any disclosure initiative should carefully consider the serious loss to this nation's intelligence collection effort and technological advantage in the satellite reconnaissance field.

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TECHNICAL SECURITY CONSIDERATIONS OF THE
DISCLOSURE OF NATIONAL RECONNAISSANCE PROGRAM
SENSOR TECHNOLOGY

In responding to Mr. Rostow's recent proposal concerning disclosure of the US satellite reconnaissance effort, the State Department's draft reply purposely did not address the question of the technological advantages which might be gained by other nations, if such a proposal were implemented. The following discussion considers the question: What degree of disclosure would so reveal technology that it would seriously contribute to Soviet capability in this the satellite reconnaissance field?

Three satellite reconnaissance cameras (the KH-4, the KH-7, and the KH-8) were examined in light of this question.

(1) The KH-4 Camera

Some form of the KH-4 camera has been available for about ten years. The 112B version of the KH-4 is being flown at present in Strategic Air Command U-2's over Southeast Asia. This camera normally operates in a virtually pre-programmed mode, with flexible command and control to permit override. For mapping, charting, and geodesy applications, the camera uses a coordinated panoramic camera/stellar index camera feature.

The KH-4 characteristics which are potentially sensitive elements of technology are these:

Hardware:	24-inch focal length panoramic camera (utilizes a platenless scan arm)
Software:	Complete pre-programming (exposure of this feature would facilitate a hostile analysis of system vulnerability)
Techniques:	Pan camera/stellar index feature for mapping, charting, and geodesy applications (reveals capability for acquiring mapping information from panoramic materials)
Resolution:	10 feet (ground)

Appendix A

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The KH-4 camera, separated from the software and techniques mentioned above, could be disclosed without significant impact on NRP camera technology. The revelation of KH-4 system information and technology would not represent a significant assist in enabling the USSR to acquire a commensurate capability. On the other hand, any KH-4 disclosure would certainly represent a significant advance in achievable capability for other nations (such as France, China, and Japan) which are not presently engaged in space sensor technology or which have pursued it only to a limited extent.

The KH-7 Camera

The KH-7 camera represents a very substantial advance in technology over the KH-4; its pointing capabilities and its control techniques are at the forefront of the state-of-the-art. Those KH-7 characteristics which are potentially sensitive elements of technology are:

Hardware:	77-inch focal length strip camera (advanced techniques used to obtain high resolution, i.e., the particular optical array; data on limited view angle would enable one to deduce the quality of intelligence obtainable)
Software:	Programmer technology (directly related to complexity of system; memory device utilizes acoustic delay lines - exposure of this feature would facilitate a hostile analysis of system vulnerability.)
Techniques: & Design	Replication to permit production of large, ultra high quality (1/10 wave length) optics (replication represents significant advance in lens fabrication technology)
	IMC control within 1/500% (directly related to the quality of intelligence product)
Resolution:	2 feet (ground).

The KH-7 camera represents the best operational technology of the NRP and should not be disclosed. For the USSR, such a disclosure would probably mean a gratuitous one-generation advance in optical sensor technology. For other nations, such as France, China, or Japan, the availability of this information would place them in the position of being able to move effortlessly from the US position circa 1956 to the US position in 1966.

The KH-8 Camera

This camera, which will produce photographs at resolutions of .2 inches is still under development. It incorporates dramatic state-of-the-art advances over the KH-7 camera. The impact of disclosing this camera would be even more adverse for the US than the case cited for KH-7.

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In summary, the KH-4 camera could be modified rather easily so that it could be disclosed to the USSR without a significant impact upon other NRP technology or upon the comparative technical position of the US and USSR.¹ Other nations would benefit greatly from such a disclosure.

The KH-7 and KH-8 cameras could not be disclosed without the most serious effects on the comparative positions of the US and all other nations in the area of satellite reconnaissance technology.

¹ If it were decided to make any form of technological disclosure of NRP-derived technology, careful planning would be essential. For example, in the case of the KH-4 camera, it would be to the national advantage to surface it as an aircraft reconnaissance camera rather than to expose its origins and usage in the satellite program. This controlled exposure might well be improved further by arranging for a contractor to propose the camera design and then to develop it rapidly under governmentally controlled conditions. In any event, the security of past operational employment of the KH-4 system would have to be protected and preserved.

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Stated in terms of resolution, presently operational NRP cameras producing photographs at 10-foot resolutions could be disclosed without adverse technological impact vis-a-vis the USSR. Cameras producing resolutions of 3-5 feet could not be disclosed without significant benefits to other nations.

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INTELLIGENCE CONSIDERATIONS OF THE DISCLOSURE
OF NATIONAL RECONNAISSANCE PROGRAM

To discuss and assess the estimated security effects of the declassification and surfacing of the intelligence products of the National Reconnaissance Program, it is necessary to first determine the importance of satellite reconnaissance material to the national security and the intelligence community.

From two successful missions in 1960, which proved the feasibility of reconnaissance by satellite, the program has expanded to where today it provides the intelligence community with annual usable coverage of 95 percent of the Communist Bloc. It also provides usable coverage of a large portion of the earth's surface for intelligence, mapping and charting and target materials purposes.

Since 1960, the dramatic improvement in the quality of the imagery has been paralleled by a more than doubling of the quantity of materials obtained. As a result, its value has also dramatically increased to the point where it is of major importance to:

- (1) The intelligence community, since U.S. knowledge of Communist capabilities in the strategic offensive, defensive and nuclear energy fields is largely obtained or confirmed by this source alone and could not be acquired by any other means except possibly on-site inspections or low altitude overflights for photographic purposes.
- (2) The national decision makers, since information on the Communist capabilities is used to determine the nature, character and strengths of the national force structure and national defense posture required to counter these capabilities.

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The contributions of satellite reconnaissance to the mapping, charting, geodesy and target materials program have been equally significant. It is the only source of reliable information on vast areas of the Communist Bloc, and in addition provides the most effective source of information from the standpoint of timely and economical production of maps and charts. With regard to target materials, satellite reconnaissance not only identifies new targets but also provides the details required by planning and operations staffs to establish target priorities, select appropriate weapons and delivery systems, and provide combat crews with materials for target study. In relation to geodesy, satellite reconnaissance has enabled the location of specific targets and installations to be improved, significantly enhancing the precision and effects of weapons systems to be employed against them.

The dynamic and complex nature of the Communist Bloc military posture creates an ever increasing demand for detailed factual information. The sophistication to be provided by follow-on satellite reconnaissance systems--not duplicated by any other source--will satisfy presently stated requirements for detailed factual information and will allow for an even more accurate assessment of the Communist Bloc military threat.

With the above discussion of the importance of satellite reconnaissance material to the intelligence community and the national security, the following provides a basis for assessing the security effects of declassification and disclosure.

The possibility of loss of the satellite reconnaissance source through active countermeasures is greater now than in 1960. Recent studies conclude that there is no major deficiency precluding the Soviets from having an operational anti-satellite system at the present time.

National Intelligence Estimate 11-3-65, 18 November 1965, discussed the subject with the following comments:

"An antisatellite system employing these radars (HEN HOUSE) could use an existing missile with a nuclear warhead. Non-nuclear kill, on the other hand, would require a homing missile capable of exoatmospheric maneuver which would be developed in about two years after a decision to do so. Although we have no evidence of such development, it could well be under way without our knowledge. We believe, therefore, that at about the time the HEN HOUSES become operational the Soviets could have an antisatellite capability with either nuclear or non-nuclear kill. We consider the latter more likely because the capability of the HEN HOUSE radars appear to exceed that required for a nuclear kill."

The decision to use this capability in peacetime would confront the Soviet leaders with very serious problems. However, the Soviet fetish for secrecy, coupled with other reasons to greatly disrupt East-West relations, could provide the inducement to such a course of action. In this connection it should be recalled that the Soviets' sensitivity to possible adverse reactions has not precluded the shoot-down of U.S. aircraft over their territory or over waters which they effectively control, even though these waters are "international" within the normal meaning of "international law". Further, the difficulty that the U.S. would experience in trying to prove direct Soviet connection with acts resulting in satellite destruction/incapacitation might encourage them to take this type of action.

It is interesting to note that since the enactment of United Nations General Assembly Resolution 1721 on 20 December 1961, which commended to the member states the propositions that international law applied to the peaceful use of outer space, and that it was free for exploration and use

by all states in conformity with international law, Soviet pronouncements on this subject have been to the effect that they did not consider reconnaissance to be peaceful use. Analysis of Soviet public pronouncements indicates that some are clearly designed to justify in the eyes of world opinion possible future Soviet action to destroy U.S. satellites.

The degradation of satellite reconnaissance photography through passive means is a course of action open not only to the Soviets, but also to any country that recognizes the need for such action. Passive means could include camouflage/deception, dispersal, or political actions.

Current evaluations of Soviet camouflage and deception thus far noted lead to the conclusion that if the Soviets should fully exercise their knowledge of camouflage and deception techniques concurrent with planned and new construction, a greatly increased volume of high resolution stereo coverage would be essential to optimize the opportunities to detect and evaluate Soviet military capabilities. It is further estimated that even with an increased volume of high resolution stereo coverage, the validity of future U.S. estimates of Soviet military capabilities would not approach the accuracy of today's estimates because of failure to detect all new deployments with present satellite camera systems resolutions. Similar results could be expected in other areas, depending upon the knowledge of camouflage and deception techniques possessed by the country involved.

The Soviet practice of dispersing ICBM sites and other strategic targets cannot be attributed to a planned program designed to reduce detection or observation by satellite reconnaissance. It does appear to result from the application of practical, tactical or operational considerations. If the Soviets were to combine these considerations with a real desire to reduce detection or observation, they could implement an effective program that would result in a serious reduction in U.S. intelligence estimative capability,

particularly in those areas where the U.S. intelligence community is almost totally dependent upon satellite photography as a source of reliable information. Increased high resolution stereo coverage could reduce somewhat the effectiveness of such a program. However, such U.S. reaction would take time to implement, vastly increase collection costs, and increase photo interpretation/exploitation requirements and costs.

Political action designed to force discontinuance of U.S. satellite reconnaissance can be initiated by any country, at any time, and in a wide variety or combination of forums. Such action would most likely be initiated subsequent to the comprehensive appreciation of factual knowledge which reveals the quality and scope of the U.S. satellite reconnaissance program. The discontinuance of both U.S. and Soviet satellite reconnaissance activities by force of political action would result in the U.S. sustaining a more serious loss than the U.S.S.R. Under such circumstances, the Soviets could continue reasonably effective conventional intelligence collection in the "open" U.S. society, whereas the U.S. conventional intelligence collection in the "closed" Soviet society would remain largely ineffective and nonproductive of intelligence needed to replace that formerly secured via satellite reconnaissance.

Another adverse reaction to public disclosure of the U.S. satellite reconnaissance could be an overestimation of this capability by friendly nations which now authorize U.S. manned reconnaissance activities from their territory. Such overestimation could cause the withdrawal of these privileges, thereby denying the U.S. the capability to conduct such operations as the Berlin Corridor flights, Chinese U-2 missions and other missions wherein manned aircraft are more flexible and timely in responding to and satisfying national and military intelligence requirements.

In a recent review of the current security handling of satellite reconnaissance materials, the Defense Intelligence Agency and Military Department Intelligence Officers concluded:

- (1) That the presently operating satellite reconnaissance systems are a productive and irreplaceable source of information vital to the National Security.
- (2) That although action to decontrol and downgrade to a SECRET classification the products of presently operating satellite reconnaissance systems would improve production capability, widen dissemination, and permit direct use of photo imagery thereby improving user confidence in the finished intelligence and map and chart product, such action would also increase the hazard associated with compromise, and could result in loss or degradation of this productive and extremely vital source of information. (Public disclosure would have an even greater impact upon the National Security than the circumstances under which this conclusion was derived.)