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CENTRAL INTELLIGENCE AGENCY
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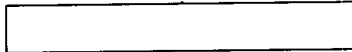
MEMORANDUM FOR: The Director of Central Intelligence
FROM : William W. Wells
Deputy Director for Operations
SUBJECT : MILITARY THOUGHT (USSR): Reconnaissance
to Prevent a Surprise Attack

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". This article is a wide-ranging discussion of Soviet capabilities in strategic reconnaissance for the purpose of preventing a surprise attack. The author presents a tabular listing of indications of enemy preparations for attack, information which can be obtained by reconnaissance, and the types of reconnaissance which can be employed in each instance. He then defines the reconnaissance tasks to be accomplished and launches into a detailed discussion of the pros and cons of air, radio, radar and satellite reconnaissance, citing examples of intercepted radio messages. This article appeared in Issue No. 5 (66) for 1962.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned

William W. Wells

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Intelligence Information Special Report

Page 3 of 19 Pages

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MILITARY THOUGHT (USSR): Reconnaissance to Prevent a Surprise Attack

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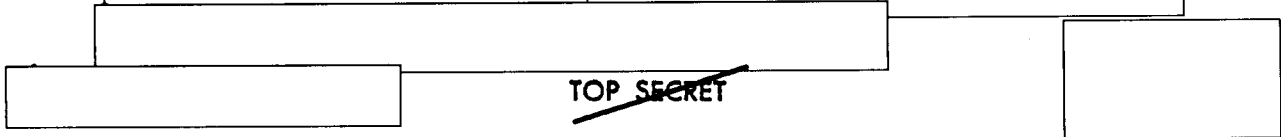
Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 5 (66) for 1962 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The author of this article is Colonel A. Krasnov. This article is a wide-ranging discussion of Soviet capabilities in strategic reconnaissance for the purpose of preventing a surprise attack. The author presents a tabular listing of indications of enemy preparations for attack, information which can be obtained by reconnaissance, and the types of reconnaissance which can be employed in each instance. He then defines the tasks to be accomplished by reconnaissance in peacetime and under threat of attack, and launches into a detailed discussion of the pros and cons of air, radio, radar and satellite reconnaissance and how they are used, and also touches upon special equipment used to detect missile emissions. The article concludes with a summary of overall reconnaissance requirements.

End of Summary

Comment:

The author also wrote "Reconnaissance Conducted on a Coastal Axis by Forces of Formations of the Navy and the Air Defense Forces of the Country" in Issue No. 1 (77) for 1966. After 1962 the SECRET version of Military Thought was published three times annually and was distributed down to the level of division commander. It reportedly ceased publication at the end of 1970.





Reconnaissance to Prevent a Surprise Attack
by
Colonel A. Krasnov

For the countries of the socialist camp, the problems of preventing and disrupting a surprise attack are now becoming very critical and pressing. The course of the initial period of a war, and even the outcome of the war as a whole, depends to a great extent on how these problems are resolved.

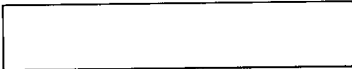
Keeping in mind the nature of the preparation of the imperialist countries for war, we shall try to examine the basic measures that can assist in precluding an enemy surprise attack and in creating for our troops the most favorable conditions for repulsing this attack and delivering the initial strikes.

A surprise attack as a means of unleashing a war and as a means of gaining strategic objectives forms the basis of the military doctrines of the imperialist countries. The unrestrained arms race and the provocative statements of American government officials calling for preventive war against the Soviet Union are leading to where the threat of a surprise attack on the socialist countries is becoming increasingly more acute. At the same time, the availability of qualitatively new means of aerospace attack that are capable of quickly delivering warheads of great destructive force to practically any point in the world allows a potential enemy to initiate an attack from a peacetime status without changing the existing grouping of the armed forces.

Consequently, the current preparation of the imperialist countries for war differs radically in scope and content from their preparation for the Second World War.

From the point of view of resolving the problems of preventing a surprise attack, it is important to note that now it will no longer be possible to detect an aggressor's preparation for attack on the basis of such widely known indications as the rebasing of large forces of aviation to forward airfields, the movement of troops and combat equipment in the direction of the national border, or the departure of naval large units from their bases. To avert a surprise attack, it is now necessary to





detect and exploit other indications that are associated with changed conditions.

The military leaders of the imperialist countries consider necessary the timely (before the delivery of a surprise attack) execution of a broad range of measures aimed at the thorough preparation of the armed forces, in order that the force of the initial strike be maximal and that the effect of surprise not be quickly lost.

In view of the fact that the first surprise strikes will have decisive importance for the outcome of the war, the concept of "maximum readiness" has gained a foothold in the US. According to this concept, a considerable part of the armed forces, primarily missiles and aviation, must be in constant combat readiness in order to deliver nuclear strikes. Therefore, the Thor and Jupiter ballistic missiles and a part of the Atlas missiles have been installed at the launching sites and have a 15-minute launch readiness time. Also in 15-minute readiness to make sorties with nuclear weapons against previously designated targets is a considerable part of the strategic bombers with nuclear weapons on board. In addition, a certain number of bombers are on regular airborne alert, carrying out "patrol flights" over the US, Canada, and the Arctic regions.

The presence of missiles in full launch readiness, the regular flights of strategic bombers with nuclear weapons, the takeoff of aircraft upon the signalling of a combat alert resulting from the misreading of radar signals, and finally, violations of the borders of the Soviet Union by American spy planes all serve to create a situation in which an attack on the Soviet Union becomes possible merely as a result of miscalculations, breakdowns in the control system, crew errors, etc. This kind of beginning of a war should also be regarded as one of the likely variants of a surprise attack.

It is quite obvious that, to prevent a surprise attack, the prerequisites inherent in this method of preparing aggression should be exploited. It is necessary to know the characteristic reconnaissance indications of those measures the enemy might carry out before and at the outset of an attack, as well as what kind of data can be obtained and by what reconnaissance means. These matters are formulated briefly in the table.



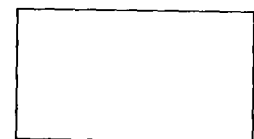
TABLE
Reconnaissance Indications of the Enemy's Preparation and Start
of a Surprise Attack and the Necessary Means for Detecting Them

Enemy Measures	Reconnaissance Indications	Obtainable Reconnaissance Data	Employable Reconnaissance Means
1. The concentration of combat aircraft for various types of aircraft for various purposes, the evacuation of servicemen's families from the particular military operations to the US, the partial evacuation of densely populated areas, the evacuation of reserve forces, the intensification of anti-Soviet propaganda	1. Indications of combat aircraft for various purposes, the evacuation of servicemen's families from the particular military operations to the US, the partial evacuation of densely populated areas, the evacuation of reserve forces, the intensification of anti-Soviet propaganda	1. Increase in the activity of military transport aviation on the air routes connecting the US continent with the most probable theaters of military operations, the increase of the activity of military transport aviation in order to increase their traffic capacity, the increase in the activity of reporting from the missile and air bases about the activity of the forward bases about the progress of preparation for receiving strategic aviation	Radio reconnaissance, aerospace reconnaissance, agent reconnaissance, spent reconnaissance
2. The preparation of launching sites and all types of missile launchers	2. The technical inspection of missile guidance systems, the appearance of new radio nets and radio stations for guidance systems, the increase in the activity of the personnel of missile units, the transfer of missiles to alternate launching sites, the reinforcement of the security of installations	2. The start of preparations for an attack, the degree of readiness and the probable start of combat actions, the grasping of attack means	Radio reconnaissance, radio-technical reconnaissance, spent reconnaissance
3. The concentration of forward air bases of combat aircraft for various purposes, the evacuation of servicemen's families from the particular military operations to the US, the partial evacuation of densely populated areas, the evacuation of reserve forces, the intensification of anti-Soviet propaganda	3. The evacuation of servicemen's families from the particular military operations to the US, the partial evacuation of densely populated areas, the evacuation of reserve forces, the intensification of anti-Soviet propaganda	3. Radio traffic between the forward air bases and the command posts, the increase in the activity of the personnel of the forward bases, a rapid increase in the amount of aircraft at the forward bases	Radio reconnaissance, aerospace reconnaissance, agent reconnaissance, naval reconnaissance, spent reconnaissance
4. The departure of carrier strike large units from their bases, the dispersal of naval forces, the recall of merchant ships, the intensification of operations subject to attack and from threatened navigational waters	4. An increase in rail, sea, and air traffic, the appearance of the ships of the merchant fleet in the press, on radio and television	4. The probable start of an attack	Radio reconnaissance, agent reconnaissance, information from diplomatic sources and the press, aerial reconnaissance of the probable enemy countries and neutral countries
5. The absence of large naval vessels from naval bases, the departure of foreign merchant ships from our ports, the presence of carrier strike large units on the open sea	5. The absence of large naval vessels from naval bases, the departure of foreign merchant ships from our ports, the presence of carrier strike large units on the open sea	5. The probable start of an attack, the probable means of the actions	Naval reconnaissance, aerospace reconnaissance, radio reconnaissance, agent reconnaissance

Enemy Measures	Reconnaissance Indications	Observable Reconnaissance Data	Employable Reconnaissance Means
6 The intense activity of the enemy in the area of control, the deployment of additional control organs, the employment of camouflage and deception	The intensive flights of reconnaissance aircraft along the enemy's territory, the violation of the borders, the launching of reconnaissance and weather balloons, an increase in the activity of submarines, the appearance of aircraft in the area of control, the transmission of weather data in particular areas	The targets designated by the enemy for strikes, the probable aims of the actions	Radar reconnaissance, radio reconnaissance, status security organs
7 The organization of control, the deployment of additional control organs, the employment of camouflage and deception	The appearance of new radio posts and radio stations, an increase in radio traffic or a general disturbance of radio communications activity, an increase in aerial radio traffic, the appearance of radio transmitting enemy radio means, the brief operation of radio-technical means during checking	The degree of readiness for an attack, the position of the grouping	Radio reconnaissance
8 The shifting of the armed forces to a status of increased combat readiness	The dispersal of aviation at airfields, the beginning of movements, changing of the sites of radio-technical means of control, the activation of means of daily aviation, the preparation of facilities which the preparation of facilities aviation for combat actions takes place, the prohibition in individual areas of civil aviation flights, the appearance of aircraft between civil and combat aviation and the transmission of navigational warnings about these observations	The degree of readiness for an attack, the aims of the actions, the probable strategic aviation	Radio reconnaissance, radiotechnical reconnaissance, status security organs
9 The bringing to increased combat readiness of US air defense means and the air defense means of the other defense means in the aggressive block	The operation of radiotechnical stations, the appearance of new radar stations, an increase in measures to counter our aerial reconnaissance, the concentration of reports by the means of control, the delivery of messages directly to the areas in which the aerospace attack means are located.	The degree of readiness for an attack, the aims of the actions, the probable strategic aviation	Radio reconnaissance, radiotechnical reconnaissance, aerospace reconnaissance, agent reconnaissance
10 A declaration about the state of "increased combat readiness" of the armed forces are brought to all combat readiness	Transmissions in the control radio reports, the brief operation of radiotechnical means, the delivery of messages directly to the areas in which the aerospace attack means are located.	The probable start of an attack, the grouping and aims of the enemy's actions	Radio reconnaissance, radiotechnical reconnaissance, agent reconnaissance
11 The fading of activities in the area of control, the raising to the surface of Titan and Atlas missiles from their underground bases, the appearance of strategic bombers for taking	Intense activity in the missile and rocket areas, the launching of missiles from launchers, the landing or towing of aircraft to the takeoff runways, the continuous operation of the radiotechnical means, the appearance of reports in the control radio area	The probable start of an attack, the aims of the actions, the grouping and aims of the enemy's actions	Radio reconnaissance, radiotechnical reconnaissance, aerospace reconnaissance, agent reconnaissance



	Enemy Measures	Reconnaissance Indications	Obtainable Reconnaissance Data	Employable Reconnaissance Means
12	The launching into orbit of space means of reconnaissance and destruction	The appearance in space of new objects travelling in orbit, the operation of radiotechnical means of control	The probable start of an attack and the axis of the enemy's actions	The reconnaissance means of the anti-missile defense, radio reconnaissance, agent reconnaissance
13	The employment of camouflage and deception	Radio silence, the changing of frequencies and radio operating data, a switch to new secure troop control documents and cipher systems, the transmission of phony, deceptive information	The probable start of an attack	Radio reconnaissance, agent reconnaissance
c. Indications of the start of an attack				
14	A massive missile launching and the taking of aircraft to the air	The infrared and luminous emissions of missiles in the launching periods, the ionization and disturbance of the atmosphere, the commands for control of attack means in flight, the takeoff and rendezvous of bombers, the radio traffic between aircraft and the ground control posts	The start of an attack, the amount of attack means participating in the initial strike, the axes of the actions, the time of crossing the national border, in part the enemy's intention	The reconnaissance means of the anti-missile defense, radio reconnaissance, aerospace reconnaissance
15	The refueling of strategic aircraft during flights across the Atlantic Ocean and the Arctic regions	The radio traffic of the bombers with tanker aircraft and with their own bases, operation of means to home in on the tankers, the reports of the tanker crews about the number of refueled bombers, information about the passage by aircraft of certain lines or reference points	The axes of the enemy's actions, the strength of the forces, the disposition of the grouping, the time of crossing the national border	Radio reconnaissance, naval reconnaissance
16	The employment of camouflage and deception	The appearance of diversionary and decoy groups, radio silence in the shortwave frequency band, radio-electronic countermeasures against our radiotechnical means	The nature of the actions and the enemy's intention	Radio reconnaissance, radar reconnaissance, aerospace reconnaissance, reconnaissance means of the anti-missile defense



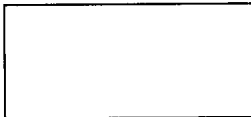


The reconnaissance indications that have been examined, which give evidence of the potential enemy's preparation to conduct an attack and of the beginning of the attack, are not all equally probable and reliable. A number of them (1, 3, 4, 5, 7) can take place over a relatively long period of time, while others (3, 10, 12, 15, 16) are of brief duration. Several indications may not occur at all (6, 7); others (12, 13, 15) still cannot be reliably detected by the existing reconnaissance means.

An analysis of the reconnaissance indications shows that taken as a whole they are fully able to be employed as initial data to determine the enemy's preparation for an attack and the start of an attack, as well as to draw conclusions regarding the degree of readiness, the strength of forces, and the anticipated nature of the enemy's actions. However, to do this, it is necessary to study thoroughly the daily activity of the probable enemy's armed forces in peacetime and to know the procedure for bringing them to combat readiness so that one can, in good time and on the basis of information received and an evaluation of the reconnaissance indications, detect changes in the usual routine and determine whether these indications mean a preparation for exercises, a local war, or a surprise attack. Also necessary are new, more improved reconnaissance means.

Thus, under present-day conditions, the warning of a surprise attack becomes the basic task of military reconnaissance, the successful activity of which will to a considerable extent determine whether there will be a period of threat and its duration. However, to achieve this, reconnaissance must do the following:

- establish and constantly update data on the grouping and combat strength of the means of attack, primarily the nuclear means;
- determine and systematically refine information about the organizational structure, level of development, and possible future development of the attack means, as well as about the deployment, changes in basing, and forming of new units and large units;
- monitor the missile/nuclear preparation and equipping of the theater of military operations, ascertaining the number and status of the missile and air bases, the structure and degree of preparation of the missile sites and nuclear weapons depots, the operational capacity of the airfield network, and the setting up of control systems and other installations;
- reveal the orientation and nature of the probable enemy's combat training;
- carry on constant observation of the "patrol flights" of US aircraft with nuclear weapons aboard, of the rebasing of tanker aircraft, and of all foreign aircraft near the borders of the Soviet Union;



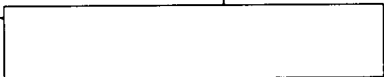
- ascertain the possible nature of the enemy's actions with the start of an attack;
- determine precisely the degree of the enemy's readiness for combat actions, the progress of the preparation, and the probable time of the start of the attack;
- detect the beginning of a mass missile launching, the takeoff and further actions of aircraft.

All the above tasks can be divided according to their content into two groups: one group has as its goal the study of the probable enemy (the technical equipping of the armed forces, the status of the combat equipment, views on the operational-tactical employment of missiles and aviation); the other -- the knowledge of the actual situation at the given moment.

It should be noted that, whereas the first group of tasks, which requires thorough and painstaking work, always remains on the agenda in peacetime, the importance of the second group is determined by the degree of threat of attack. The more real the threat the more actively reconnaissance must be carried out and the greater the forces required in order for this to be done.

Special attention and vigilance are required of reconnaissance during the preparation and conduct by the imperialist states of large-scale maneuvers and exercises in areas adjacent to the socialist countries, since these exercises may have as their purpose a surprise attack on the Soviet Union. Should such exercises be detected, appropriate measures must be taken to increase the combat readiness of the rocket forces and air defense forces of the country.

During the conduct of maneuvers and exercises, troops and aviation actually regroup and shift to a status of increased combat readiness. At this time, nuclear warheads are in a number of instances installed on aerospace attack means. In the course of the exercises, large masses of aviation and troops are in operation, and a great number of radiotechnical means are employed to support them. Consequently, during the conduct of maneuvers and exercises, the enemy has the most favorable conditions for achieving surprise. At the same time, conditions emerge enabling our reconnaissance to study in greater detail the nature of the probable enemy's actions. During this period, it is possible to obtain information about the composition of the commands and staffs of the formations and large units, the initial operational-strategic situation and the concept of the exercises, the organization of control, and the progress and results of



the exercises.

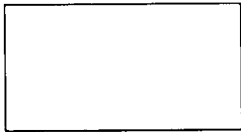
It follows from Table 1 that there is not a single reconnaissance means that could not be employed for detecting reconnaissance indications of the probable enemy's preparation for war. However, it must be kept in mind that in peacetime reconnaissance is carried out from one's own territory (except for agent reconnaissance, which is not being considered here). Therefore, the capabilities of the existing means of aerial reconnaissance are limited by the prohibition against flying across national boundaries and over the territorial waters of foreign countries; and those of radiotechnical reconnaissance -- by the insufficient operational range of the equipment it employs.

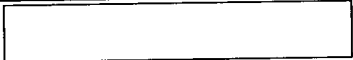
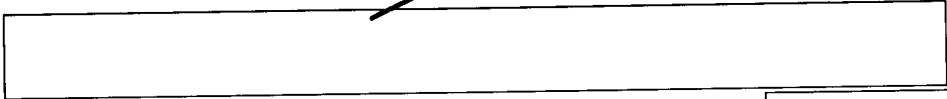
Under these conditions, radio reconnaissance remains for the present the main type of reconnaissance. Its advantages are its extensive operational range, its secrecy and continuity, its low vulnerability, and the speed with which data can be passed from the subunits and units that acquire it to the interested elements. Therefore, radio reconnaissance can play a decisive role in warning of a surprise attack.

The basic information about the daily activity of the probable enemy in peacetime is obtained by radio reconnaissance through intercept of his transmissions and direction finding of detected installations. Regular monitoring of the radio nets for control of the attack means makes it possible, as experience shows, to obtain relatively complete data about the grouping of missiles and aviation and the location of missile and air bases and staffs, to ascertain the location of nuclear attack means, and finally, to arrive at conclusions about the probable enemy's possible intentions.

From the systematic conduct of radio reconnaissance there often emerges, on the basis of separate fragmentary and diverse kinds of information (call signs, service headings of radio messages, and other radio intercept materials), a picture that indicates the enemy's intention and makes it possible to anticipate his actions.

For example, during one of the exercises radio reconnaissance intercepted a radio message of the traffic control center of the International Traffic Safety Service. It reported to New York and to the operations department of Bruntingthorpe Air Base [Leicester, England] that the 100th Air Wing still had to carry out 70 operations (an operation is understood to mean a flight across the Atlantic Ocean). On the basis of this, a conclusion was made regarding the strength of forces, the length of





the exercise, and the nature of the forthcoming actions of the 100th Bomber Air Wing. Later, this conclusion was confirmed.

In conducting radio reconnaissance of other exercises held by the armies of the imperialist countries the specific boundaries assigned to aircraft were established. This was done by correlating data obtained from radio direction finding and from radio intercept of encoded messages sent by air crews reporting on their location. This later facilitated the monitoring of the actions of the strategic bombers.

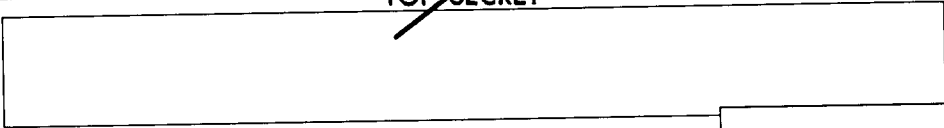
Constant monitoring of the activity of the air forces of the imperialist countries makes it possible to discover in advance an imminent regrouping of aviation and also to anticipate probable violations of the borders of the Soviet Union. This can be seen from the following examples.

Radio reconnaissance intercepted a radio message sent from the staff of an air division of the Strategic Air Command to the staff of a strategic reconnaissance wing in the US inquiring about sets of spare parts. The sets mentioned in the radio message usually are intended to provide for the long-term basing of aircraft. By itself the intercepted material still did not permit any definite conclusions to be drawn. However, as a result of previous monitoring, study, and the correlation of new data, it was possible to determine that a new subunit would be sent to one of the air bases in England.

Another example. Radio reconnaissance picked up the flight of an RB-47 reconnaissance aircraft from the US to Europe (West Germany) and ascertained the names of the crew members and the aircraft tail number. Since the crew of an aircraft with this aircraft tail number had earlier violated the borders of the Soviet Union, the conclusion was reached that a violation of the border in the near future was possible. And, as a matter of fact, three days later this aircraft attempted to penetrate our airspace.

It can be seen from the examples cited that radio reconnaissance is a very effective means for warning of a surprise attack. However, it must be borne in mind that at the outset of a war, when the enemy maintains radio silence and makes broad use of dummy transmissions, the capabilities of radio reconnaissance will be substantially reduced. This situation is aggravated by the enemy's employment of military spacecraft and ballistic missiles, which, as is known, cannot be detected in flight by radio reconnaissance. Consequently, the need arises to have in addition other reconnaissance means that make it possible to detect the approach of the enemy's attack means, primarily ballistic missiles. In this instance, the





farther off the distance of initial detection, the easier it is for the air defense to ward off a surprise strike in different variants of the start of an attack.

The theoretically attainable ranges for radar detection of ballistic missiles and military spacecraft are indicated in Figure 1. It shows that, depending on their altitudes, missiles can be detected at a distance of 1,500 to 5,500 kilometers. This detection range will provide warning of a surprise attack six to 14 minutes before the missiles cross the borders of the Soviet Union and will permit the employment of the antimissile defense means on alert.

However, since the probable enemy is planning the use of various forms and methods of radioelectronic countermeasures against the antimissile defense, including nuclear bursts in space, a reconnaissance system based only on the employment of radar means can no longer be considered sufficiently reliable. Therefore, along with improving radar equipment, it is also necessary to continue the search for new reconnaissance means based on other principles of detecting targets.

The possible ways of devising reconnaissance means for use against ballistic missiles and military spacecraft may be found as a result of the study of the physical processes and phenomena that occur during the movement of missiles (Figure 2). During their movement, these attack means reflect and emit luminous, sonic, and electromagnetic energy and have in their powered phases of flight an emitting radiotechnical device, which results in the disturbance of the properties of the surrounding atmosphere. With these processes and phenomena taken into account, there can be devised a quite diversified reconnaissance device that can be used in both long-range and short-range reconnaissance systems.

Also still a rather complex problem is the timely detection of enemy aviation, particularly strategic aviation, that employs long-range guided missiles. In order to solve this problem, it is necessary to improve radically the system of long-range detection of aircraft by echeloning the reconnaissance means in depth, by moving them out to the greatest distances possible from the installations being covered, and by widely employing ships, submarines, and radar picket aircraft for this purpose.

In examining the matters of warning of a surprise attack by the enemy's manned means, it should be stressed that it is impossible to determine in advance the start of an attack by employing radar means alone.



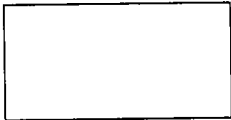


The fact is that in determining the time and place of an attack the initiative is on the side of the aggressor. Moreover, for the purpose of detecting our radar system, causing our fighter aviation to take off prematurely, and harassing the air defense forces as a whole, as well as for provocation purposes, the probable enemy even now broadly employs single (and group) aircraft flights in the vicinity of the national borders of the USSR. Therefore, even when a period of threat exists in the country, the detection of enemy aircraft proceeding toward our borders still is no reason to consider it the start of an attack until they violate the borders.

Consequently, in order to provide a timely warning of the threat of an attack and at the same time not create an unnecessary strain on the air defense forces because of an incorrect assessment of the enemy's action, radar reconnaissance must be carried out in close cooperation with those other types of reconnaissance that can obtain data about the enemy's preliminary activity. Here reconnaissance in areas of the enemy's missile and air bases acquires the greatest significance. The conduct of this reconnaissance will ensure the timely detection of the greater part of the reconnaissance indications shown in the table, including the detection of a mass missile launching and the takeoff of aircraft; that is, it will provide warning of a surprise attack considerably earlier than radar reconnaissance. In this instance, not only the means on alert, but also the main air defense forces will be able to participate in warding off the enemy's strike. Reconnaissance in the areas of missile and air bases is necessary also in support of the rocket forces, since the latter must have complete and reliable data about the nature of the installations and about the importance and the coordinates of the targets in order to deliver a timely strike against the detected enemy attack means and put a halt to his aggressive intentions.

The only means that can be used in peacetime to carry out effective monitoring of the probable enemy's daily activity in the areas of missile and air bases is aerospace reconnaissance.

Currently it is customary to assume that aerial reconnaissance can be carried out only from our territory without crossing national borders. Yet, for reconnaissance purposes the US military command makes broad use of the Samos, Midas, and Tiros artificial earth satellites and of unmanned reconnaissance balloons. Should we knowingly place ourselves at a disadvantage by not employing similar reconnaissance means, which can operate very secretly and are not very vulnerable targets for an air defense?





Obviously, as aerospace reconnaissance means are devised, it is advisable to employ them immediately for the systematic surveillance of those enemy installations that are potential vehicles of the threat of a surprise attack, that is, missile bases, air bases, and carrier strike large units.

Reconnaissance conducted to warn of a surprise attack will become particularly effective if the means it employs are supplemented with special reconnaissance equipment for detecting the enemy's preparation and start of an attack, namely: radars to detect a missile launching from the thermal and luminous radiation and from the operating radiotechnical missile guidance equipment, and radio receivers to intercept radio transmissions in the ultra-shortwave frequency range. With this kind of equipment reconnaissance will be able to detect with the greatest reliability the most important reconnaissance indications of the enemy's preparation for an attack and indications of the start of an attack (in the table -- 1, 2, 7, 9, 10, 11, 12, 14), and the dimensions of sectors of the terrain observed during a single overflight of aerospace reconnaissance means will substantially increase.

The employment in peacetime of artificial earth satellites, space ships, space gliders, unmanned reconnaissance balloons, and other aerospace reconnaissance means may reach global proportions; and the great operational range of this equipment, which is close to the range of direct optical visibility, will ensure the carrying out of reconnaissance with a relatively small amount of forces.

The availability of special equipment permitting the monitoring of the enemy's activity in the areas of missile and air bases from great distances also makes it possible to employ special reconnaissance aircraft successfully for this purpose. In view of the existing international law granting freedom of flight over the sea and of the fact that the range of the onboard equipment of the reconnaissance aircraft can reach 500 to 600 kilometers at an altitude of 16,000 to 17,000 meters, reconnaissance is possible outside the detection zones of the enemy's land-based coastal radar. This ensures it the necessary secrecy.

Thus, aerospace reconnaissance is a very effective means for warning of a surprise attack.

In summary, it is possible to formulate a number of general requirements for reconnaissance that is carried out to warn of a surprise attack. In our view, they are as follows:





The constant monitoring of the probable enemy's daily activity and the systematic study of reconnaissance indications for the purpose of making a timely detection of his preparation for a surprise attack. To achieve this requires of reconnaissance a high level of proficiency, the employment of a sufficient number of forces, close cooperation among all the types of reconnaissance, and careful correlation and analysis of the information received from various sources.

The timely detection of the start of an attack and of the means of attack at a distance that ensures that the air defense means can be brought to readiness to ward off air attacks and deliver strikes for the purpose of disrupting the enemy's aggressive intentions. In order to carry out this task, it is necessary to improve drastically the status of reconnaissance by finding and developing qualitatively new integrated means of reconnaissance, by increasing the reliability of their operation under conditions of active enemy radioelectronic countermeasures, by organizing a constant alert of surface ships, submarines, and radar picket aircraft on the distant approaches to the installations being covered, and by introducing automation into the reconnaissance processes so as to decrease the time spent on the detection and identification of targets and the transmission of notification data.

Constant combat readiness of the reconnaissance means. This ensures that they can go into operation virtually immediately at any time. To achieve this, it is necessary for part of the reconnaissance means to be continuously on operating status and for all the remaining ones to have short readiness times. Decreasing the time required for the reconnaissance means to go into operation depends not only on the time that the reconnaissance equipment begins operating, but also on the level of preparation and the state of training of the personnel. Therefore, regular training sessions have to be carried out with the personnel and combat readiness has to be monitored constantly.

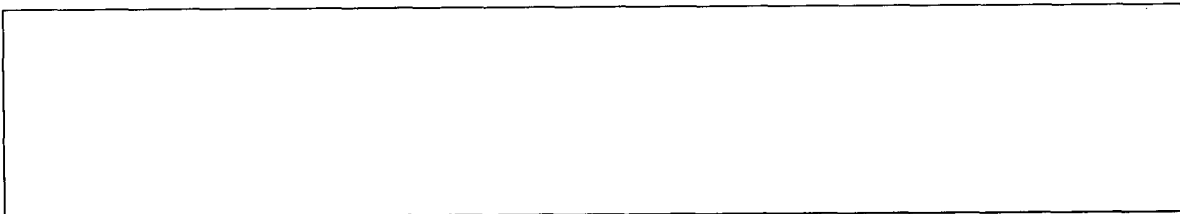
The tasks of preventing a surprise attack by no means end with the carrying out of reconnaissance. It is also necessary to have a reliable air defense system and means to deliver crushing strikes that are in constant combat readiness. Moreover, the threat of a surprise strike also requires the timely carrying out of things that will make it possible to minimize the effectiveness of the enemy's initial strikes. These include prior planning for moving large units of the ground forces, the navy, missiles, and aviation out from under a strike, the dispersal and camouflage of installations, the construction of alternate positions and various shelters, and the conduct of civil defense measures.





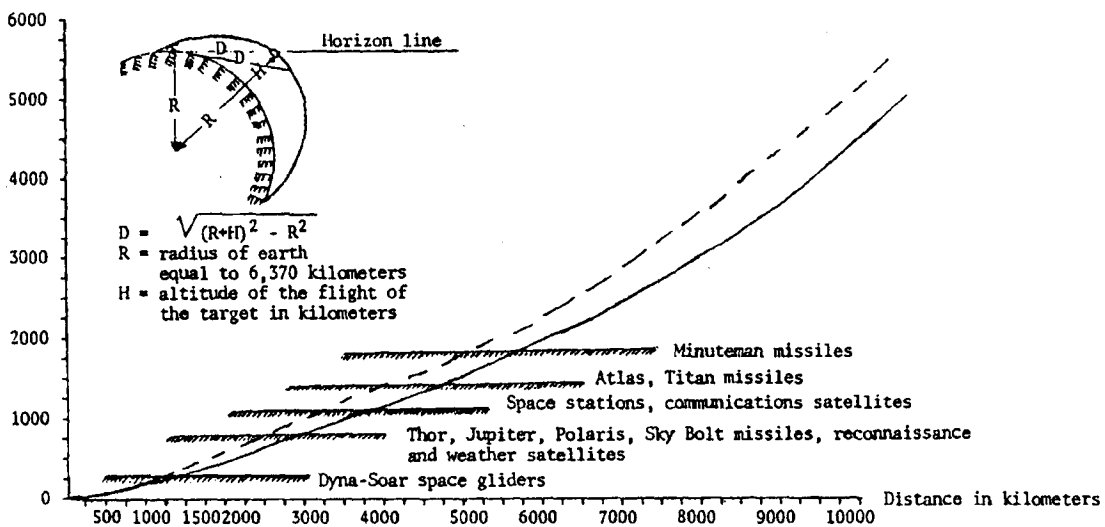
In conclusion, it must be noted that under present-day conditions, with the availability of effective means and well-organized reconnaissance, a surprise strike by an aggressor has become very improbable. Only neglect of the reconnaissance capabilities and the resulting lack of knowledge of the enemy's plans and intentions will give him the opportunity of preparing and carrying out a surprise attack.

It follows from this that reconnaissance conducted to prevent a surprise attack must be carried out constantly under all conditions of the international situation. A complete and systematic monitoring of the daily activity of the imperialist countries in peacetime is an absolutely essential condition.





Altitude in kilometers

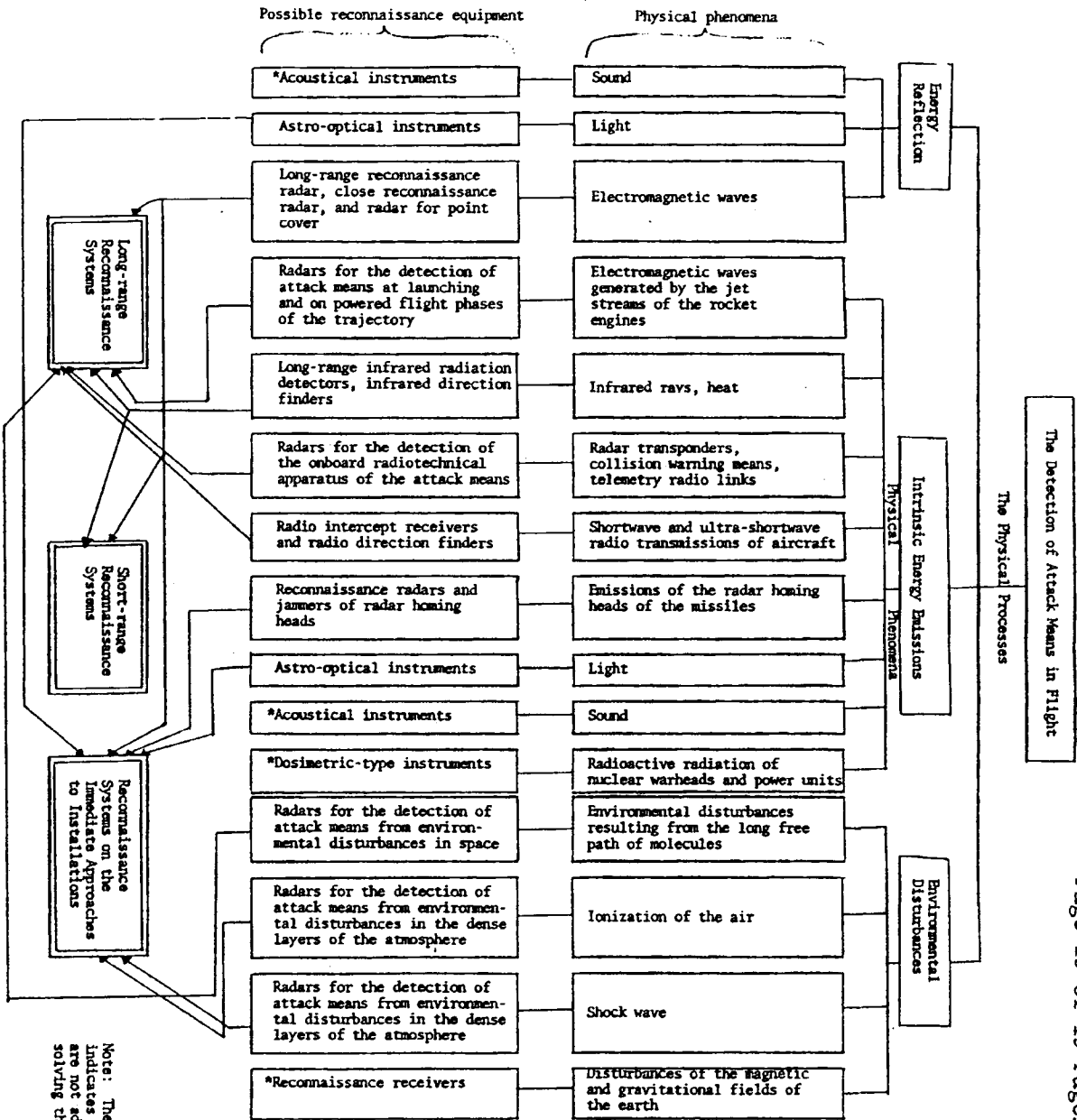


Conventional Signs

- Detection range, with direct-line wave propagation taken into account
- Detection range, with atmospheric radio refraction taken into account

Figure 1. Theoretically attainable ranges for radar detection of ballistic missiles and military spacecraft





Note: The asterisk (*) indicates methods that are not advisable for solving the problem

Figure 2. Possible ways of setting up means for reconnaissance of ballistic missiles and military spacecraft.