

CHAPTER 19

RECONNAISSANCE SATELLITES, INTELLIGENCE, AND NATIONAL SECURITY

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Policy arenas do not arrive on the scene full-blown, nor do they remain static over time. They grow and evolve. We are witnessing this today with homeland security. More than a half-century ago we saw it with national security. One way to conceptualize the dynamics involved in the development of a policy arena is as a stream of activity. Much like the origins of a river are found in the merging of smaller tributaries, a policy arena is the product of several different forces coming together. Typically they involve a definition of a problem, the emergence of a collection of institutions designated to address that problem, and the identification of a strategy set to solve the problem. Once under way, a river reinvents itself daily. The changes are not necessarily visible at the outset, but over time they become clear. External events, both man-made and natural occurrences, play their part in this evolution, but so, too, do the currents of the river and the life its waters sustain within it. International crises, accidents, bureaucratic politics, personalities, as well as new ideas and technologies are such driving and shaping forces in policy arenas. Finally, given enough time, rivers themselves disappear by either merging into larger bodies of water or vanishing into the ground as their water flow is reduced to a trickle. Changing perceptions of a problem or the proper way to address it may cause the first phenomenon to occur in a policy arena, whereas shrinking budgets and public apathy may bring about the second.

A key element of the policy stream that is national security was the development of reconnaissance satellites. They were not present in 1947 at the formal founding of national security as a policy arena—with the passage of the National Security Act—but they became an important force in its subsequent downstream development.¹ Its effects can be seen in the identity and influence of the government agencies that make up the intelligence community; the manner in which intelligence was

1. See R. Cargill Hall, “Clandestine Victory: Eisenhower and Overhead Reconnaissance in the Cold War,” in *Forging the Shield: Eisenhower and National Security for the 21st Century*, Dennis Showalter, ed. (Chicago: Imprints Publications, 2005) for a discussion of the technological and political streams from which reconnaissance satellites emerged.

thought about by policy makers; and the problems to which intelligence was put. In none of these cases were reconnaissance satellites the sole factor in producing these changes but in each case they played a major role.

FORMATIVE CURRENTS

Four forces can be seen as having a formative influence on the development of the national security policy stream into which reconnaissance satellites would enter. The first was the problem of strategic surprise as symbolized by Pearl Harbor. This was the event that, in the minds of many, national security policy had to make sure was not repeated. The second force was the solution of greater centralization and cooperation at the national level among bureaucracies involved in foreign diplomatic, military, and economic policy. Pearl Harbor occurred in spite of warning; intelligence was present, but it was not recognized or acted upon. The inherent validity of this solution was reinforced by the wartime experience of ad hoc military centralization that came about out of the need to cooperate with the British. To bring this about, the 1947 National Security Act created the Central Intelligence Agency (CIA), the National Security Council (NSC), and unified the military services under a Secretary of Defense in a national defense establishment that would soon become the Department of Defense (DOD).

The third force was the de facto establishment of an intelligence community that was to work together to prevent another Pearl Harbor. Along with the newly created CIA the other founding members were the Bureau of Intelligence and Research (INR) at the State Department and U.S. Army, Navy, and Air Force intelligence. The final force that exerted great influence on the origins of American national security policy was the advent of the cold war. It presented the United States—and national security policy—with a clearly identifiable enemy in the Soviet Union and then a strategy—containment—around which policy makers could unite.

GROWTH AND DEVELOPMENT OF THE INTELLIGENCE COMMUNITY

Today there are 16 organizations that officially constitute the intelligence community. Reconnaissance satellites played a central role in the formation of one organization and had a substantial impact on the development of two others. Reconnaissance satellites can be most directly linked to the establishment of the National Reconnaissance Office (NRO). President Eisenhower established the NRO by executive order in August 1960. It became operational on 6 September 1961, following an agreement between the CIA and the Air Force setting it up as a joint operation. The Air Force was placed in charge of launching the satellites and recovering the film capsules; the CIA was charged with developing the satellites. The director of the NRO was to be the undersecretary of the Air Force and

the deputy director was to be drawn from the CIA. Under terms of the initial agreement, neither the CIA nor the Air Force had to give up control over any of its reconnaissance satellite programs to the NRO. Instead, they would be merged at a higher level into a National Reconnaissance Program.

Reconnaissance satellites also played a role in creating the National Photographic Interpretation Center (NPIC), the predecessor of one of the newest members is the National Geospatial Intelligence Agency (NGIA). The original impetus for creating NPIC lay in a March 1960 suggestion by Secretary of Defense Thomas Gates that Eisenhower commission a study of the defense intelligence bureaucracy, describing it as an inefficient, huge conglomerate. Gates's proposal languished until Francis Gary Powers's U-2 reconnaissance aircraft was shot down. After this incident a Joint Study Group was formed that reported out just prior to the end of Eisenhower's presidency. Among its conclusions were that the military was playing too prominent a role in the intelligence process, and it called for increased efficiency through the creation of NPIC. Both the CIA and DOD sought to run NPIC, with the DOD proposing the creation of a new unit and the CIA calling for the expansion of its already existing Photographic Intelligence Center. Secretary of Defense Robert McNamara acted on this recommendation and NPIC came into existence in 1961 as a community-wide asset in the interpretation of aerial photos. He also followed Eisenhower's inclination to place NPIC within the CIA.

The third member of the intelligence community whose existence and development is tied to reconnaissance satellites is the National Security Agency (NSA). It was established by a secret executive order, National Security Council Intelligence Directive (NSCID) No. 6, entitled "Communications Intelligence and Electronics Intelligence," on 15 September 1952. It formally came into existence on 4 November 1952. NSA is the successor organization to the Armed Forces Security Agency (AFSA). It was set up as the result of a Joint Chiefs of Staff Directive signed by Secretary of Defense Louis Johnson on 20 May 1949. Located within the DOD, the AFSA was assigned responsibility for directing the communications intelligence and electronic intelligence of the three military services signals intelligence units. In spite of this broad mandate, the AFSA had little power. For the most, part its activities consisted of tasks not being performed by the Army Agency, the Naval Security Group, and the Air Force Security Service—the units whose work it was to direct.

Walter Bedell Smith, President Harry S. Truman's executive director of the National Security Council, found this state of affairs to be unsatisfactory. Particularly troubling was the failure of the AFSA's performance during the Korean War when it was unable to break the Chinese and North Korean codes. His view was shared by General James Van Fleet, commander of the U.S. Eighth Army who complained that "[W]e have lost, through neglect, disinterest and possibly jealousy, much of the effectiveness in intelligence work we acquired so painfully in World War II."²

2. James Bamford, *Body of Secrets: Anatomy of the Ultra-Secret National Security Agency* (New York: Anchor Books, 2002), p. 30.

Smith wrote a memo in December 1951 calling for a review of communications intelligence activities, describing the current system for collecting and processing communications intelligence as “ineffective.” Three days later, on 13 December 1951, the National Security Council set up a committee (commonly referred to as the Brownell Committee after its chair, Herbert Brownell) to examine the matter. The Brownell Committee recommended strengthening the national-level coordination and direction of communications intelligence activities. The NSA was created as a result of these recommendations.

NSA got off to an inauspicious start. Although it successfully engaged in overflights of the Soviet Union, it lacked a capacity to provide intelligence on events elsewhere, such as the Suez crisis. Moreover, its efforts to break Soviet codes repeatedly met with failure. James Bamford goes so far as to speculate that in the 1950s NSA faced the prospect of going out of business and that a “produce or else” atmosphere had settled over the agency.³ Salvation came in two forms. First, there was support from President Eisenhower and his Board of Consultants along with an influx of funds in an effort to strengthen its code-breaking abilities. Second, there arose the perceived necessity of obtaining signals intelligence from Soviet missiles as a result of the launching of Sputnik in 1957. The initial solution to this need was the construction of Earth-based receiving dishes. The second-generation solution was the deployment of space-based satellite receivers. President Eisenhower gave his approval for the first launching of an ELINT satellite five days after Gary Francis Powers’s U-2 was shot down.

The story of the creation and growth of these national security organizations is more complicated than a straight-line response of policy makers to the development of reconnaissance satellites. It is one in which the existing currents of the national security policy stream heavily influenced organizational design. This comes through most vividly in the development of the National Reconnaissance Office.

The decision to create the NRO came years after explorations into the feasibility of space reconnaissance satellites had already begun. Not surprisingly, the Air Force was first to move in this direction. Officials were attracted by the potential power of long-range missiles and tasked the RAND Corporation to study whether they might be used to launch space reconnaissance satellites. Its report, “Preliminary Design of an Experimental Earth-Circling Spaceship,” was delivered in May 1946. Three others followed in 1947, 1952, and 1954. The last study was cosponsored by the CIA and recommended that the Air Force begin at “the earliest possible date completion and use of an efficient satellite reconnaissance vehicle.”⁴ RAND’s report formed the basis for General Operational Requirement No. 80, issued by the Air Force in March 1955, requesting proposals from the private sector for the development of a photographic reconnaissance satellite.

3. *Ibid.*, p. 355.

4. William Burrows, *Deep Black: Space Espionage and National Security* (New York: Random House, 1986), p. 83.

Discussions were also under way at the presidential level. On 27 March 1954, President Eisenhower held a meeting with James B. Conant, James R. Killian, Jr., and other scientists that led to the formation of a study group under Killian's direction to develop solutions to the problem of surprise attack. Its report, "Meeting the Threat of Surprise Attack," was completed on 14 February 1955. Project 3 dealt with intelligence and was chaired by Edwin Land. In their briefings to Eisenhower, Land and Killian identified satellites as a promising system for collecting intelligence that would provide warning to the United States of an impending Soviet surprise attack. They also noted that the technology to realize this collection platform would take time to develop and suggested an interim technology: a high-flying reconnaissance aircraft. It would become the U-2.

Interest in space reconnaissance satellites led in multiple directions in the search for a technology to accomplish this mission. The favored Air Force option was to transmit photographs through a radio downlink. First known as WS-117L/Pied Piper and then Sentry, it would ultimately be known as the Satellite and Missile Observation System (SAMOS). The CIA advocated the mid-air capsule recovery system that had been rejected by the Air Force. It became known to the world as Discoverer and to those involved in intelligence collection as CORONA. Competition continued even after a February 1958 Eisenhower meeting with Killian and Land that reviewed the difficulties the Air Force was having in developing its reconnaissance satellite. As a result of that meeting, Eisenhower decided to give the CIA primary responsibility for developing a reconnaissance satellite. The Air Force did not, however, stop work on its preferred option. It proceeded with its Sentry system.

The search for an appropriate technology to use for satellite reconnaissance went hand-in-hand with efforts to devise an organizational structure within which to house it. The search did not begin with a clean slate. A stream of activity was already in place and had left a legacy into which organizational thinking would enter. When the earlier decision had been made to build the U-2, Eisenhower determined that the CIA—not the Air Force—would be in charge of the operation. There was nothing automatic about this. Director of Central Intelligence (DCI) Allen Dulles was a firm believer that human intelligence gathering should be at the core of the CIA's covert operations. He had shown little interest in the project earlier in 1954 and is described as "accepting the inevitable" in later accepting CIA jurisdiction over it.⁵ This came after Edwin Land wrote a letter to him strongly urging the CIA to take the lead in the CL-282 Project that would become the U-2. Land wrote "I am not sure that we have made clear that we feel there are many reasons why this activity is appropriate for the CIA . . . We told you that this seems to us the kind of action and technique that is right for the contemporary version of the CIA: a modern and scientific way for an Agency that is always supposed to be looking, to do its looking."⁶

5. Jeffrey Richelson, *The Wizards of Langley: Inside the CIA's Directorate of Science and Technology* (Boulder, CO: Westview, 2002), p. 13.

6. *The CIA and the U-2 Program, 1954-1974* (Washington, DC: Center for the Study of Intelligence, Central Intelligence Agency, 1998), p. 33.

Richard Bissell, a special assistant to Dulles, was given the assignment to develop the U-2, and a special standalone unit within the Directorate of Plans, the Development Projects Staff, was created to manage it. This decision did not put an end to bureaucratic jockeying for control over the U-2 program. Air Force Chief of Staff General Nathan Twining believed that the Strategic Air Command (SAC) under the direction of General Curtis LeMay should be in charge of the U-2. In the spring and summer of 1955, he lobbied for such a change, only to have SAC settle for limited participation in the U-2 program.

Given the speed with which the U-2 was developed and became operational, it is not surprising that Eisenhower again turned to Bissell and his Development Projects Staff in 1958 as the lead organization after the decision was made to go ahead with the Discoverer/CORONA reconnaissance satellite program. Beneath them, the CIA and Air Force continued to go their separate ways. Each encountered internal organizational problems. Within the Air Force, responsibility for space satellite reconnaissance shifted from unit to unit with dizzying frequency. At different times it was the responsibility of the Air Force and the Advanced Research Projects Agency, sometimes leaving the Air Force with responsibility for little more than supervising global surveillance studies and at other times being in charge of total control over satellite reconnaissance programs.

At the CIA a different sort of organizational problem arose. Bissell was appointed Deputy Director for Plans, putting him in charge of all CIA covert operations. In moving into this new position in 1959, he took with him control over U-2 and CORONA, effectively removing them from the Development Projects Staff. This move alarmed Killian and Land, who saw covert action and human espionage as very distinct from espionage based on science and technology. Moreover, they were concerned that within the CIA there was now insufficient attention being given to science and technology issues which were now found in virtually all quarters of the CIA.

The establishment of the NRO as an operational unit in 1961 did not end the conflict between the CIA and Air Force over control over reconnaissance satellites. Where the CIA saw the Air Force and the NRO as one and the same, and as together trying to force it out of the satellite reconnaissance business by taking over its successful CORONA program, the NRO saw itself as a truly national intelligence agency having a small Air Force component. Over the next several years, each body recommended that the other all but go out of the satellite reconnaissance business. In November 1962 Air Force officials proposed that many (if not all) CIA reconnaissance projects should be transferred to the Air Force and that all program functions should be consolidated within the NRO. The CIA would later counter with a proposal to eliminate the NRO with "all research, preliminary design, system development, engineering, and operational employment" going to the CIA. It was not until April 1965 that a truce was achieved with DCI Admiral William Raborn and Secretary of Defense Cyrus Vance agreeing to a formula whereby the Secretary of Defense had ultimate responsibility for managing the NRO, including its budget

and choosing the director. The DCI was to have responsibility for determining collection priorities and the CIA was to continue to be responsible for CORONA and the development of new systems once the concept was selected.

A NEW DECISION-MAKING ENVIRONMENT

Reconnaissance satellites not only helped to create new organizations or transform existing ones; they also altered the shape of the national security policy decision-making environment into which they flowed in three ways. A first change was to complicate and accentuate the managerial challenge facing the DCI. From the outset this individual was simultaneously the head of the CIA and the head of the intelligence community. And from the outset the DCI struggled to transform this grant of authority into something meaningful. Not only was the CIA a new organization but also the other founding members of the intelligence community were located in existing organizations. This would also be true of all others who later joined the intelligence community. This created an immediate point of contention between a DCI trying to forge a community wide policy and intelligence officials in these agencies who were part of organizations that did not always agree with this policy.

This problem was noted by the First Hoover Commission in its 1948 report. Its subcommittee on national security policy, the Eberstadt Committee, wrote that “[T]he Central Intelligence Agency deserves and must have a greater degree of acceptance and support from old-line intelligence services than it has had in the past.”⁷ Singled out as still unsatisfactory were relations between the CIA and G-2 (Army intelligence), the FBI, the Atomic Energy Commission, and the State Department.

As we have seen, the development of reconnaissance satellites quickly elevated the Air Force to the position of the CIA’s primary antagonist. Conflicts of interest also developed between intelligence agencies involved with the operation and development of reconnaissance satellites and the analysis of their products. NSA and NRO have quarreled over the proper mix of space-based systems, with NRO consistently supporting a more costly systems mix. In addition to competing with NSA, NRO also solicits funds directly from the military services through the promise of tactical intelligence that will support their missions. In an effort to resolve these conflicts the National Imagery and Mapping Agency (NIMA) was created in 1996 by bringing together several offices including NPIC. The creation of NIMA did not end bureaucratic disputes over imagery intelligence. The CIA’s Directorate of Science and Technology sought to regain control over functions lost to NIMA, while the NRO continued to have program and budgetary control over ground station and mission control elements of space-based imagery.

7. Frank Gervasi, *Big Government: The Meaning and Purpose of the Hoover Commission Report* (New York: Whittlesey House, 1949), p. 279.

Second, the development of reconnaissance satellites also contributed to changing the balance of power among the members of the intelligence community by directing spending toward some agencies and away from others. Current estimates are that by 9/11, 85 percent of the intelligence budget lay beyond the control of the CIA. The overwhelming portion of this money went to DOD intelligence agencies, most notably NSA and NRO. The inability to control intelligence budgets beyond the CIA, and especially those in the DOD, became a constant issue in studies of intelligence reorganization and a point of debate in the creation of the Director of National Intelligence position. The 9/11 Commission's proposal to create a Director of National Intelligence gave this individual significant budgetary powers over all intelligence community funds. As passed, the legislation accepted the view put forward by the DOD that this power should be limited.

Third, reconnaissance satellites contributed to the development of collection "silos." Under ideal conditions, the relationship between analysts and collectors is one where analysts identify intelligence needs and collectors translate those needs into specific targets. Instead, a system has developed that is driven by collectors and the technology they control. Additionally, the information gathered by these collection systems, more often than not, is treated in a proprietary fashion. Its distribution is controlled and limited. As a consequence, intelligence from different collection sources tends not to merge together in a constructive fashion so that analysts can provide policy makers with answers their questions; instead, it comes forward in competing streams from different collection silos.

Even in their early stages, the managerial impact of these changes was recognized. In 1971 the Schlesinger Report, an inquiry into the operation of the intelligence community, began by stating what it saw as two disturbing trends in the operation of the intelligence community. The first was the "impressive" rise in cost and size. The second was the inability to translate those two features into improved intelligence products. Among the factors it cited as responsible for this state of affairs were competition between collection units that has led to unproductive duplication and unplanned growth, which has led to a series of compromise solutions. It concluded that the main hope for realizing any such improvement lay in a "fundamental reform of the intelligence community's decision making bodies and procedures." What was needed were "governing institutions."⁸

VIEW OF INTELLIGENCE

Reconnaissance satellites fit uneasily into the ongoing thinking about the role of intelligence in the national security process. This relationship was anchored in two guiding assumptions. First, the purpose of intelligence was to prevent strategic

8. The Schlesinger Report, "A Review of the Intelligence Community," can be found at George Washington University's National Security Archive Web site, <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB144/document%204.pdf> (accessed 15 February 2006).

surprise. The development of reconnaissance satellites fit comfortably here. Second, the collection of intelligence was thought about primarily in human terms: covert action and espionage. Reconnaissance satellites ran counter to this assumption and would ultimately undermine this tendency to equate intelligence collection with human intelligence. In the process it would lend an aura of legitimacy to espionage that had never existed.

Reconnaissance satellites, along with their predecessor, the U-2 reconnaissance aircraft, were quick to demonstrate their value as instruments for preventing strategic surprise. Beginning in the mid 1950s, political forces within the U.S. intelligence community (led by the Air Force) raised the specter of a bomber gap in which the Soviet Union held a decided and threatening lead over the United States in the development of a large strategic bomber force, creating an American vulnerability to a surprise attack. U-2 overflights in 1956 provided visual evidence that this gap did not exist. Satellite reconnaissance photographs would do the same just a few years later when they provided visual evidence that led to a repudiation of the charge that a missile gap now existed.

The change in emphasis from human to technological intelligence collection can be traced both to failures of the former and successes in the field of photographic reconnaissance. The late 1940s and 1950s were the heyday of covert action against procommunist regimes around the world and efforts to place agents inside the Soviet Union and behind the iron curtain. The failed 1961 Bay of Pigs invasion marked the end of that period, calling into question the credibility of the CIA and its top leadership in the area of covert action. Eighteen months later, the Cuban missile crisis cast doubt upon relying on human intelligence to prevent strategic surprise. U-2 photographs provided the conclusive proof needed by the Kennedy administration, confirming that Soviet missiles were being installed in Cuba. Classical human espionage in Cuba had been unable to provide such intelligence.

There is, however, one aspect of intelligence that the increased prominence of information (especially photographic images) gathered from U-2 overflights or reconnaissance satellites did not change. It did not provide a silver bullet that ended policy debates over how to interpret intelligence. Army and Navy intelligence, along with the CIA, saw in early U-2 photographs evidence that future Soviet ICBM launching sites would resemble the testing site at Tyuratam, Kazakhstan. The Air Force disagreed and argued that no particular configuration could be assumed.⁹ In fact, the arrival of the U-2 photographs may have accentuated the problem of interpretation. Photographs were compelling and easily understood by policy makers. At the same time, they were too compelling and lent themselves to self-deception and wishful thinking.¹⁰

9. Lawrence Freedman, *U.S. Intelligence and the Soviet Strategic Threat*, 2nd ed. (Princeton: Princeton University Press, 1986), p. 71.

10. Mark Lowenthal, *Intelligence from Secrets to Policy*, 2nd ed. (Washington, DC: CQ Press, 2003), p. 64.

EMERGENCE OF A NEW POLICY AREA

The success of first aerial reconnaissance and then satellite reconnaissance in determining Soviet weapons capabilities helped to usher in a shift to thinking about the fundamental purpose of intelligence and national security policy more broadly. Although a concern for preventing a surprise attack never totally disappeared, it was now joined by a concern for developing a framework for managing U.S.–Soviet superpower relations.

Historically, attempts at reducing international tensions were predicated on two assumptions and frustrated by one overriding concern. First, military cooperation among enemies had to be preceded by some form of political accommodation. Second, such cooperation was negotiated into existence by a treaty or similar international agreement. Even when these were realized, a reduction in tensions could be frustrated by the fear of cheating.

By the late 1950s and early 1960s, the cold war had become recognized by all as an international fact of life. No abatement was in sight. Efforts to formally negotiate cooperation, such as the Open Skies proposal, had not met with success. The development of huge nuclear inventories also made it clear that neither side in this struggle could hope for a military triumph over the other at anything except a tremendous cost. The Cuban missile crisis reminded policy makers and the public that conflicts between the two superpowers were not a thing of the past and that they held the real potential for leading to war. Together, large nuclear inventories and the danger of accidental war made it increasingly clear to policy makers in both countries that even though they were enemies they had an interest in reducing tensions.

Steps such as the hot line linking Moscow and Washington were post-Cuban missile crisis moves in the direction of seeking to have a more peaceful and stable relationship without a formal treaty of any kind. This was followed later by interest in negotiating a reduction in the number of nuclear weapons through the Strategic Arms Limitations Talks (SALT I). Still, the problem of cheating remained and it was accentuated by the recognition that the United States and Soviet Union remained enemies. Where political considerations made on-site inspections impossible, reconnaissance satellites offered a more reliable and politically acceptable method for ensuring that each side lived up to the SALT I agreement. They did not infringe on state sovereignty in a traditional sense because the principle of nonterritorial spaceflights had been established in 1955, when the Eisenhower administration and the Soviet Union both announced plans for launching of International Geophysical Year satellites. Reconnaissance satellites also operated unilaterally; they did not require the formal cooperation of other states.

Their ability to verify behavior and act as a stabilizing force in world politics was dependent, however, on three conditions being met. First, both sides had to possess this satellite capability. The first Soviet reconnaissance satellite was launched in April 1962 and it appears that the Soviet Union reached this capability in 1963

when Khrushchev began to publicly refer to such a capability. Second, both the United States and Soviet Union had to agree not to try and shield information from the reconnaissance satellites. This was accomplished in SALT I with the agreement on noninterference with national technical means of verification. Third, neither side could have a serious anti-satellite capability.¹¹ The U.S. moved its policy in this direction in late 1962 when the DOD “reoriented” or canceled the Air Force’s Satellite Interception Program. The Soviet Union ceased its anti-satellite testing in 1971, on the verge of the SALT I treaty.

As we asserted at the outset, policy arenas are constantly evolving and changing as they move forward in time. So it was with conflict management. The ability of reconnaissance satellites to perform their verification function was dependent upon more than technology. As the political foundations of détente began to crumble in the late 1970s, unilateral actions on the part of the Soviet Union and United States began to undermine this verification function. Talk of winning nuclear wars appeared in official pronouncements; definitions and standards of verification were now openly debated; and both sides moved once again to test and develop anti-satellite capabilities. Currently the development of a strategy of preemption threatens to reduce the stabilizing influence of space reconnaissance satellites by making them early targets for military action.

A spinoff from the employing space reconnaissance satellites as a key element in the development of a conflict management framework for stabilizing U.S.–Soviet relations was the need to obtain ground stations to receive the information they collected. Here again, reconnaissance satellites did not create a new national security issue area as much as they added a new element with its own unique dynamics into an ongoing policy stream. The early 1950s saw the United States establish ground stations to support the gathering of electronic intelligence and to monitor Soviet nuclear tests from Great Britain and Norway. More politically sensitive ground stations were set up in Turkey and Iran.

The 1966 decision to rely upon satellites in geostationary orbit to detect Soviet missile launches required the construction of ground stations outside of the United States. The most advantageous site for such a station was Australia. Two would be constructed, one at Nurrangar and the other at Pine Gap. Over the next few decades this decision became the focal point of conflict within Australia and consequently an occasional issue in U.S.–Australian relations.¹² One point of contention was the potential such a station created for making Australia the target of a nuclear attack. This issue was raised in Australia’s Parliament by the opposition Labor Party. Another

11. John Gaddis, “The Evolution of a Satellite Reconnaissance Regime,” in *U.S.-Soviet Security Cooperation: Achievements, Failures, Lessons*, Alexander George et al., eds. (New York: Oxford University Press, 1988), pp. 353–374.

12. Jeffrey Richelson, *America’s Space Sentinels: DSP Satellites and National Security* (Lawrence, KS: University of Kansas Press, 1999), pp. 137–156.

issue (and one that resonated well in Australia) was the secrecy surrounding the project. Gough Whitlam, the head of the Labor Party, raised this point in Parliament, asserting that while it was right for Australia to cooperate with the United States, it was wrong for the Australian government to withhold information on the project from Parliament and the public. Relations between the United States and Australia became particularly touchy during and immediately after Whitlam's short-lived Labor government of 1973–1975. Whitlam had made it known that he wanted to review the future of American bases on Australian territory. In 1975, with his government locked in a budget crisis, Governor-General Sir John Kerr removed Whitlam from office and replaced him with Conservative leader Malcolm Fraser. Left-wing forces in Australia asserted that Whitlam's removal from office was a CIA-engineered coup.

THE POST-COLD WAR ERA

The impact of reconnaissance satellites on intelligence and national security policy did not end with the passing of the cold war. Instead, the policy stream in which reconnaissance satellites now operate has altered course. In most cases the changes now evident were present as ripples in the latter part of the cold war, and subsequently have gained in strength. As was the case with the cold war national security policy stream, we can expect reconnaissance satellites and the content of this policy to affect one another. Several indicators already point in directions where this interactive effect is likely to be most pronounced over time.

One notable and already evident area of impact on national security policy is the increased use of reconnaissance satellite imagery for tactical military purposes. Satellites had provided support for military operations on a limited scale prior to the end of the cold war, in the 1986 bombing campaign against Libya, and Operation Just Cause in 1989. A quantum leap in the reliance on satellites took place in 1991 with the Persian Gulf War. Satellite intelligence was used to provide warning of SCUD attacks, target Patriot anti-tactical ballistic missile rockets, provide weather data, aid with land navigation and aerial bombardment, and serve as a communication channel. The war against terrorism also has seen a heavy reliance upon satellite imagery and electronic intelligence in efforts to trace the movements of key terrorist leaders and identify targets.

This changed role for reconnaissance satellites (away from strategic intelligence to tactical intelligence) has brought with it the necessity for adjustments by both the providers of this intelligence and its recipients. In the 1991 Persian Gulf War, postmortems noted that distribution of intelligence was a significant problem and that some senior commanders were unfamiliar with the capabilities and limitations of U.S. intelligence systems.¹³

13. House Committee on Armed Services, *Intelligence Successes and Failures in Operations Desert Shield/Storm*, Committee Print 5, 16 August 1993.

A second emerging change is that the United States and Russia no longer have a monopoly over satellite reconnaissance. Two sets of competitors with different interests have emerged. One group is made of states that have begun to pursue a reconnaissance satellite capability for national security reasons.¹⁴ Foremost among them is Israel, which in the past chafed at the inability or unwillingness of the United States to provide it with satellite images. It launched its first reconnaissance satellite in April 1995. Japan has also acted on regional security concerns to launch reconnaissance satellites; its first launch was in March 2003. Germany, Italy, Spain, India, and Pakistan are also moving in this direction. Down the road, the ability of other states to use satellite reconnaissance for self-defense or offensive maneuvers reduces the ability of the United States to use reconnaissance satellites as a conflict management tool.

Also emerging as competitors are commercial reconnaissance or observation satellites.¹⁵ The first U.S. commercial observation satellite was launched in 1972. France followed in 1986, as did the Soviet Union one year later. The increased technological sophistication of commercial reconnaissance or observation satellites effectively makes them dual-use systems with commercial and military applications. They have the potential for revealing sensitive information that states would otherwise like to keep secret, such as when SPOT and Landsat photos showed the level of devastation at Chernobyl. They also have the ability to allow states to challenge the United States' interpretation of events. This occurred in 1996 when France did not support a cruise missile strike on Iraq because imagery at its disposal did not show a significant Iraqi troop movement into Kurdish areas. Commercial observation satellites may also serve as auxiliary or adjunct intelligence services for states. This occurred in the war against terrorism in Afghanistan when NIMA bought exclusive and perpetual rights to all imagery taken of Afghanistan by the Ikonos satellite.¹⁶

A third emerging trend is a broadened demand for the services of reconnaissance satellites that transcend the traditional dividing line between national security and non-national security policy issues. These include monitoring of environmental conditions such as droughts and natural disasters, and narcotics trafficking and potential terrorist targets. NIMA was tasked to provide support to the 2002 Winter Olympics in Utah and the 2004 Summer Olympics in Greece. The National Geospatial Intelligence Agency supported Hurricane Katrina relief efforts by providing information to the Federal Emergency Management Agency on affected areas from U.S. government satellites, commercial satellites, and airborne reconnaissance platforms.

14. Jeffrey Richelson, "The Whole World is Watching," *The Bulletin of the Atomic Scientists* 62 (January/February 2006): pp. 26–35.

15. Michael Krepon et al., eds., *Commercial Observation Satellites and International Security* (New York: Carnegie Endowment for International Peace, 1990).

16. Lowenthal, *Intelligence from Secrets to Policy*, p. 68.

In looking to the future impact of reconnaissance satellites on national security policy, the key questions may not be technological in nature as much as they will be contextual. Three features related to intelligence are of particular importance. First, during the cold war the intelligence challenge largely was defined in terms of unearthing secrets. Today, the challenge is more to unravel mysteries.¹⁷ Searching for secrets involves searching for something that is knowable but being denied to you. Mysteries are open-ended and evolving. Reconnaissance satellites proved their worth in revealing secrets; solving mysteries may be a different matter. Photographs could not establish whether Saddam Hussein had weapons of mass destruction or what his intentions were. Years of electronic and communication intercepts have not clarified the nature of the global war on terrorism.

Second, a strong current of reform in intelligence circles pertains to the need to integrate open-source intelligence into both collection and analytic processes.¹⁸ During the cold war, secret intelligence gathered by reconnaissance satellites was combined with secret intelligence collected by human sources to provide the basis for intelligence analysis. The possibility now exists that secret information gathered by reconnaissance satellites and other sources will be combined with information from public sources to produce intelligence products. One consequence may be a reorientation among intelligence agencies and a shift in the balance of power among them.

Finally, should terrorism continue to provide the main context for American national security policy, a readjustment in the place of reconnaissance satellites in the strategy to fight it may come about. Conceptualizing the conflict with terrorism as a war works to place military action at the core of an anti-terrorism strategy. It also favors reconnaissance satellites over other means of intelligence collection for bureaucratic and historical reasons. Should the conflict with terrorism come to be viewed in a criminal justice context, then intelligence from reconnaissance satellites is not so favored. Instead, policing strategies will be most heavily relied upon, and intelligence gathered by reconnaissance satellites will be read by analysts and consumers with different notions about how to use intelligence and what type of intelligence is most valuable.

CONCLUSION

Reconnaissance satellites have contributed in a number of ways to the changing face of intelligence within the national security policy arena. Their influence has been considered not so much as an isolated variable forcing change, but as one force

17. Gregory Treverton, *Reshaping National Intelligence in an Age of Information* (New York: Cambridge University Press, 2001).

18. Jennifer Sims and Barton Gerber, eds. *Transforming U.S. Intelligence* (Washington, DC: Georgetown University Press, 2005), pp. 63–78.

of many. This is because the national security policy arena into which reconnaissance satellites entered already existed as a stream of activity. Reconnaissance satellites entered this stream and helped change it. The impact of reconnaissance satellites on intelligence and national security policy does not end because the cold war is over. They will continue to shape intelligence and national security policy as this policy arena moves further downstream.

In the cold war period, two particular areas of impact were, first, on the changing fortunes of the CIA within the intelligence community, and second, on the development of a framework for managing superpower cold war relations. From the outset, the CIA faced challenges in establishing a position of leadership within the intelligence community. The advent of reconnaissance satellites, combined with the CIA's own failings in the areas of covert action and human espionage, helped bring into existence an intelligence community whose key organizational players lay beyond its effective control and whose key intelligence collection methodologies were rooted in science and technology. The resulting situation proved to be a mixed blessing. On one hand, reconnaissance satellites produced unprecedented insight into the national security policies of the Soviet Union. On the other hand, collection silos arose, human intelligence capabilities declined, costs rose dramatically, and managerial problems festered.

Reconnaissance satellites also helped usher in an era of conflict management between the United States and Soviet Union. They were instrumental in transforming an area of competition into one of conflict management by providing each side with a largely unilateral means of verifying the behavior of the other. Students of international relations have long commented that it is the absence of trust and the fear of cheating that makes cooperation so difficult in world politics. Reconnaissance satellites showed that, with proper motivation, technology can provide a mechanism allowing states to cooperate in the absence of trust. The changed atmosphere of the cold war during the Reagan administration also showed the limits of technology as a proxy for trust.

