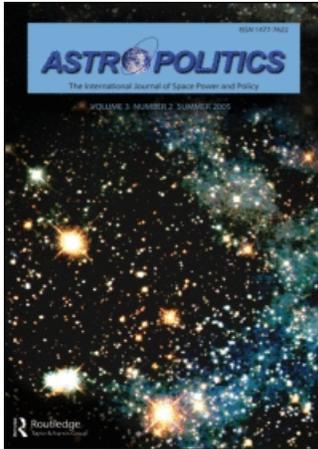


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## COLD WAR SPACE POLICY AND OBSERVATION SATELLITES

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*Constellations of observation satellites resemble the “Panopticon” system imagined by British philosopher Jeremy Bentham in his 18th century project for an ideal jailhouse—a system that Michel Foucault analyzed in Discipline and Punish (1975). Just as the warden in the central tower watches the prisoners without their being able to see him, satellites watch the Earth while observed countries cannot escape or monitor the extent of the observation.*

*Will observed countries factor in the control exerted by observing countries, just as prisoners will eventually interiorize the warden’s discipline? This may indeed have been the goal of the U.S. satellite observation policy during the Cold War (1950’s–1980’s). The U.S. at the time sought to exert a new form of power on the international scene, resorting to persuasion and deterrence rather than all-out aggression.*

*US satellite surveillance was at work vis-a-vis the USSR through different policies linked to nuclear deterrence; and vis-a-vis U.S. Allies (NATO, Great-Britain, France and Israel), then subject to a U.S. information monopoly. The intended panoptical power was not totally efficient, however. Regarding the USSR, its exercise depended ultimately on the political climate between the two Superpowers. Allied countries succeeded repeatedly in warding off U.S. attempts at control through information.*

Observation satellites allow effective surveillance of foreign territories. This type of intelligence-gathering tool played an important role in United States (U.S.) foreign policy during the Cold War. Although the Soviet Union also developed such systems at the time, the fact that the U.S. depended much more on satellite technologies for intelligence purposes makes its case more interesting. Possession of apparently thorough information by the U.S. may indeed have allowed political influence to be successfully

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applied on foreign countries. This mode of non-violent action may correspond to a particular attitude adopted by the U.S. on the international scene.

After 1945, the U.S. became the leader of the *Free World*, one of the two most powerful actors on the international scene. Its role in international policy became crucial and deliberate. Because of the magnitude of the Soviet threat, and the dangers of a nuclear confrontation, the U.S. often chose not to use direct force in its dealings with other countries, but rather resorted to deterrence and persuasion.

Henry Kissinger, among other thinkers, attributes this preference for non-violent methods in foreign policy as a rejection of the corrupt and often brutal methods of the "Old World's" diplomacy.<sup>1</sup> He claims it can be traced to President Wilson's peace restoration program after World War I, and beyond, to the moral heritage of the Founding Fathers of the U.S.

Use of this particular type of persuasive/dissuasive power may correspond to what French philosopher Michel Foucault defines as a "contemporary power" in his book, *Discipline and Punish: The Birth of the Prison*.<sup>2</sup> Contemporary power is a mode of social organization that appeared at the end of the 18th century. It achieves better control of the individuals through deployment of control networks, such as schools or factories, in everyday life. People behave better and punishments become less necessary.

This article explores the parallels between a contemporary power, relying on social institutions acting as control centers, and the U.S. post-war policies towards the rest of the world, relying on global control devices such as satellite observation. The juxtaposition of two different fields yields interesting lessons. Beginning in the 1950s, U.S. engineers developed the technology of space observation, and by the early 1960s, American satellites could watch foreign territories. Leaders of foreign countries would know that they were being watched without knowing the moment, object, and precision of the observation. It was expected that after a while they would hesitate to go against the political wishes of the U.S. The U.S. would therefore not have to resort to coercion. Space observation may have contributed to the use of a contemporary power by the U.S. This hypothesis is examined by looking at American leadership on two points: the confrontational relationship with the Soviet Union; and the policies of information exchange with a number of allied countries.

## International Relations Analysis

With the goal of assessing its potential contribution to the exercise of international power, space observation is examined from the perspective of political science. An innovative methodology was created from definitions proposed by French philosopher Michel Foucault (1926–1984) in texts where he analyses power and strategy.<sup>3</sup>

Foucault's philosophy is very much steeped in the student unrest movements of the 1960s and 1970s, when modern democracies were criticized for limiting the freedom of individuals. His books were admired on the U.S. West Coast as well as the Paris Left Bank.<sup>4</sup> One key condemnation of Foucault's theory of power, however, is that he makes no theoretical and moral difference between different types of political regimes. He observes that networks of control exist and rule in all modern societies without differentiating on principle between a democracy and a totalitarian regime. Other philosophers, such as Hannah Arendt, have analyzed the principles of a totalitarian society and shown the essential differences with democratic systems.<sup>5</sup>

Although his ideas have been criticized, Foucault's analyses supply innovative and fruitful concepts for the understanding of international relations and of surveillance techniques as a tool of power. Foucault studied how power and discipline are at work in our societies. He particularly emphasized the idea that knowledge, be it medical knowledge or social sciences teachings, is always representative of the political philosophy of a particular moment in history. Social discourses are never neutral. They convey particular political messages to the masses and each individual is prey to these powerful instruments. Towards the end of his life, Foucault applied these theories to international relations, developing concepts of international power.

### *Contemporary Power*

The balance of power in Western societies has evolved in time and description of these evolutions is an important aspect of Foucault's work. Contemporary power, he explains, is a type of political power that first appeared in the 18th and 19th centuries, along with the Enlightenment era. Before that time, notably in medieval times, governments left the population relatively free in its daily pursuits but signaled the existence of law by enforcing rare but

atrocious corporal punishments. Contemporary power, by contrast, creates a multiplicity of control networks, such as schools, prisons, hospitals, military conscription, and churches, which surround each individual. People are expected to obey the norms set up by these institutions. Little by little, they will do so. As the individual becomes more self-disciplined, deterrence by punishment finally becomes less necessary.

A characteristic of contemporary society is that the focus of interest has switched from the King as source of power—with the rest of society remaining an obscure mass—to a system where different techniques seek to watch the latter, putting them in full light. This feature is reminiscent of satellite observation, a hidden technology that monitors human activities. A further element of Foucault's work also provides a link to post 1945 observation techniques. In his book, *Discipline and Punish, the Birth of the Prison*, Michel Foucault describes the reformatory prison as a disciplining institution that is characteristic of contemporary power.

In the second half of the 18th Century, British philosopher Jeremy Bentham (1748–1832) devised a new model of jailhouses.<sup>6</sup> Bentham was the founder of Utilitarian philosophy. He believed that the ultimate moral principle is to create means of progress for the human condition.<sup>7</sup> His jailhouse model, called the Panopticon, would be such that convicts sent there would acquire social discipline and be redeemed. The building has a very precise plan. The cells holding the prisoners are set in a ring around a central tower, in which the sentinel is sitting. Each cell has a window looking inside the ring. The sentinel can look into each cell whenever he wants to. The prisoners cannot hide from him and have no way of knowing when they are being watched. They know they cannot misbehave without being found out and punished. Very quickly, they will interiorize the discipline enforced by the prison system and stop misbehaving of their own accord. When let out of prison, they will be responsible citizens. According to Foucault, the Panopticon prison is symbolic of the contemporary power exerted on members of society. Constant surveillance brings self-discipline to the prisoners.

### *A Panopticon in Space*

Can the Panopticon scheme be adapted to the post-1960s era, when observation satellites were first deployed for purposes of

intelligence? The defining elements are the same indeed. Observation satellites provide an all-powerful means of surveillance. Everybody can be watched by a single power, via deployment of technical devices. The fact that the watchers (the satellites) now circle the inmates (people on Earth), in a role reversal of the Bentham plan, does not alter the governing principles of the Panopticon.

In order to complete the parallel between the Bentham jailhouse and observation satellite systems, the possibility of a reformatory motive for the latter must be explored. Were the space observation systems deployed by the U.S. after 1960 given the purpose of disciplining other countries of the world? Was that their political *raison d'être*?

Although military space systems were classified after 1962, the U.S. government made sure other countries' leadership knew about their new intelligence-gathering tool. The Soviet Union was well aware of the new technology, since it was already working on its own version. Under the Kennedy Presidency, official tours of Western capitals were organized to brief political leaders, military, foreign affairs, and intelligence authorities about space imagery.<sup>8</sup> In the ensuing years, it may therefore have been possible to exert influence based on space-based intelligence on the Soviet Union as well as allied countries. Careful analysis of government archives, ranging from 1946 to the 1960s sheds light on the political intent behind American space observation.

### *The Survival of Counter-Powers*

Supposing influence was indeed a political goal of space observation, the next question is whether this space Panopticon really worked. Did the U.S. successfully influence policy choices in the Soviet Union and allied countries through the demonstration of powerful intelligence gathering means? The last sections of this article will look at the relationship with the Soviet Union and allied countries. Relations with the Soviets, who possessed observation systems of their own, are analyzed in the fields of nuclear posture and arms control dialogue. A number of case studies of allied countries' reactions to U.S. possible influence were chosen: the North Atlantic Treaty Organization (NATO) taken as a group of countries, Israel before and during the Kippur War, France during the Chad crises in the 1980s, and the United Kingdom (U.K.)

during the Falkland war. Study of these cases shows that a U.S. policy of influence based on wide-ranging space observation worked to a very limited degree and that many other factors came into play.

In the contemporary society, described by Foucault, social networks of power never perform ideally either. Counter-powers strive to escape the discipline. There is always a struggle going on, and the balance of power is constantly evolving. The fact that power relations are never static is an important tenet of Foucault's power theory. This is why strategy, seen as an evolutionary process, is the best tool to explain power relations within a society as well as between international actors. Indeed, in the last writings of his life,<sup>9</sup> Foucault showed an interest for international relations and the particularities of the exercise of power.

When a leading country tries to impose order among allied countries, such as the Soviet Union in its dealings with Warsaw Pact countries, one can see a struggle for freedom on the part of the smaller countries, counterbalanced by efforts to dominate on the part of the larger power. This is typically a "power relation." "Confrontation strategy" is rather a fight between two established powers of equal force and legitimacy. It designates for instance the relationship between the U.S. and U.S.S.R. during the Cold War.

It is sometimes difficult to tell one from the other. Liberation movements fighting against colonial powers in the 1950s and 1960s were called either terrorist movements or legitimate adversaries. Foucault therefore proposes the terms "domination phenomenon", to encompass the two notions of "power relation" (between unequal actors) and "confrontation strategy" (between actors of comparable strength).

*Nuclear Deterrence and the Observation Duopoly:  
The 1955–1985 Era*

Other notions are necessary to analyze international relations in the nuclear era. For instance, words designing the actions chosen by countries to exert power on others while remaining carefully below the threshold of war or deliberate aggression had to be found. Edward Luttwak calls such actions "suasion," a notion that divides into "dissuasion," forbidding an action by the other actor and "persuasion," bringing about a particular action by the other actor.<sup>10</sup>

Thomas Schelling proposes “compellence” and “deterrence” for the same types of action.<sup>11</sup> Deterrence and compellence only work if the expectation of a sanction is closely associated with them. A sanction can be the denunciation of a breach of a treaty, other diplomatic moves, or threatening troop movements.

Compellence and deterrence were enacted quite differently in the relations with the Soviet Union on the one hand, and allied countries on the other. Political pressure was openly exerted on the Soviet Union, which happened to possess the same kind of satellite observation devices. The “confrontation strategy” between the two superpowers existed on the technological/informational level as well as on the political level.

Influence sought in the dealings with allied countries was of course less aggressive. But the links established between allied countries and the U.S. also played in the information area. Allied countries did not have observation satellite systems and could not verify the veracity of information given to them. They relied on the U.S. for such precious intelligence. This dependence created distrusts and struggles characteristic of a “power relation.”

Regarding satellite observation, the U.S. and the Soviet Union both enjoyed a situation of monopoly within their respective alliances. This technological duopoly lasted until the mid-1980s, when Europe launched the *Spot* satellite. The period of time chosen for the study of a U.S. space Panopticon is that of the U.S. observation monopoly vis-à-vis its allies from the 1950s to the mid-1980s.

The next section examines early policy choices by the U.S.; the following one explores the impact of space observation on the relationship with the Soviet Union; and the last part addresses possible manipulation of allied countries’ decision-making process based on satellite intelligence.

### **Early Space Policy Choices in the United States**

Debates on the possible uses of space started early after World War II. The Eisenhower Administration took the first steps in U.S. space policy and chose to develop a passive militarization of space. The Kennedy administration concurred in that choice and succeeded in translating it into international law.

*Early Strategic Thinking*

By the end of the second world war, possibilities offered by the use of extra-atmospheric space started to be explored in the U.S. Research on ballistic missiles had been well under way in Germany during the War, with V2 ballistic missiles being fired at England and the Netherlands as soon as 1944. The U.S. and the U.S.S.R. took many of the German engineers back home with them, to help set up their own space research programs. The German Peneemünde team, headed by Wernher von Braun, contributed to the early U.S. space program.

Strategic thinking started rapidly, as selected archival documents show. In May of 1946, the very first report of Project Rand (then a new component of the Douglas Aircraft Company) was produced. This report looks at the technical feasibility of artificial Earth satellites and lists their possible uses, among which observation of the Earth is mentioned.<sup>12</sup> In 1949, Rand Corporation held a conference on the psychological uses of unconventional weapons, including satellites.<sup>13</sup> A 1950 report of the conference focuses on the political impact of satellites on foreign countries and comes up with an innovative communication strategy for the U.S. government.<sup>14</sup> It claims in particular that information gained from satellite imagery can bring political influence.

Two other texts by Thomas White constitute important milestones. White was a military career officer, who retired as chief of staff of the Air Force in 1961. He is one of the first military space thinkers. The first text is an Air force memo dated 1952, in which White claims space responsibilities for the Air Force as opposed to the other services.<sup>15</sup> The second is an article published in *Air Force Magazine* in 1958, in which he presents his ideas about U.S. space power.<sup>16</sup> These texts show that space observation is a very early goal of the U.S. space program. Intelligence gathering, political influence, and military uses are identified as primary applications.

Intelligence gathering is a primary motive of the space effort. Kept under Stalin rule until 1953, the U.S.S.R. was very secretive and it was almost impossible to establish accurate maps of the country. The U.S. lacked information on the level and location of Soviet forces. The “Bomber gap” and the “Missile gap” were influential and frightening rumors throughout the 1950s. Not too

long after the 1941 Pearl Harbor surprise attack, the U.S. also lacked means of early warning. Over-flight of a foreign territory is only possible with the authorization of that country. It is otherwise forbidden by international law. Missions by reconnaissance airplanes such as the U2 were illegal and risky. Operational after 1956, the new plane had to stop all missions after Gary Powers' plane was shot down in May 1960.

As soon as the 1946 Rand study, observation by satellite was envisioned as offering the means for meteorology and bombing assessment. This presumes a resolution of around a hundred meters. By 1952, White's USAF memo shows progress of sensor technology for surveillance of soviet ballistic and nuclear arsenals. This supposes sensor resolution closer to ten meters or less.<sup>17</sup> Development of satellite technology is strongly recommended by both texts. Indeed, funding and development of observation satellite continued steadily throughout the 1950s. The first operational U.S. reconnaissance satellite program, the Corona, was launched in August of 1960.

The 1950 Rand report mentioned above focuses on the possible political impacts of satellite observation on foreign countries, first looking at the Soviet Union. By the end of the 1940s, U.S. observers assumed that the Soviets also knew about satellite technologies and were developing their own systems. Letting them know about U.S. capabilities in that area would demonstrate U.S. technological advance. If included in the comprehensive U.S. posture vis-à-vis the Soviet Union, perception by the Soviets of far-reaching U.S. intelligence capacities could have two important consequences. First, satellite observation might reinforce the deterrent effect of nuclear bombs and strategic bombers, by making air strikes more efficient.<sup>18</sup> It might play a reinforcing role in the strategic nuclear posture adopted by the U.S. It might also reinforce the impact of political pressures on the Soviet Union, by hitting directly at Stalin's policy of secrecy. It could therefore lead them to participate in international dialogue mechanisms, such as inspection regimes.<sup>19</sup> This latter objective fits in with the policies of "opening up" of the Soviet Union that have been periodically favored by the Department of State in the U.S. during the decades of East-West confrontation. Satellite observation, the report claims, would therefore play an active role in the U.S. strategic and diplomatic attitude towards the U.S.S.R.

Thinking in the military, although less accommodating than Rand ideas on the “opening up” of the Soviet Union, was based on the same idea of an ultimately political use for space observation. The goal here was to demonstrate absolute U.S. superiority in outer space, thus politically subjugating the Soviet Union. In his 1958 article, Thomas White comes up with the notion of “Space Power”. Inspired by Alfred Mahan’s Sea Power concept, Thomas White’s Space Power strategy includes aggressive notions such as blockades—which, for example, forbids access to space by destroying enemy launch facilities.<sup>20</sup>

The 1950 Rand report also mentions political use of satellites with regard to allied countries. While there is a lot to be gained by maintaining U.S. prestige as the first space power, it is also important not to frighten friendly countries with an aggressive military program. This statement anticipates the classification decision of the early 1960s, which hid away military programs and focused general attention on civilian programs such as the race to the Moon.

Military uses of space observation were also envisioned. Targeting, reconnaissance, and telecommunications were identified as possible satellite payload uses as soon as 1946. However, tactical uses did not prove these uses a priority of the military space effort in the 1960s and 1970s. Such developments were given a back seat, while emphasis was laid on more immediate uses such as intelligence gathering. Real-time uses of space for tactical purpose were developed later on. They were put to use for the first time during the invasion of Panama by American forces (1989) and much more famously during the 1991 Gulf War. By then, the Cold War was over and space observation was used in a new political framework.

### *Strategic Choices under the Eisenhower Administration (1953–1961)*

Eisenhower is often described as the president who let the Soviet Sputnik be launched first. His impact on U.S. space policy is generally overshadowed by Kennedy’s Moon decision of 1962. In fact, he set up a momentous administrative commission that made important decisions and committed to develop strategic space capacities.

This important milestone is a National Security Council (NSC) report dated 1958.<sup>21</sup> Publication of the *Statement on Preliminary Policy on Outer Space* was preceded by intense debate within the

administration. Even though U.S. satellites were not yet operational, the government had a clear view by 1958 of the use they must be put to. The most important assertions of the report are the choice of the peaceful use of space and the necessity of securing freedom of over-flight by satellites.

The report is skeptical about the development of space-based weapons. At the end of the 1950s, they seemed technologically too challenging and expensive. For one thing, missiles against targets on Earth were much easier to deploy in other areas than space orbit. As for anti-satellite weapons (ASATs), their rationale also was strongly questionable. First of all, they did not seem to be a necessary protection against the Soviets at that point. The report mentions that development of space-based weapons did not seem to be a goal of the Soviets yet. Soviet military space developments would most probably not be so important that the U.S. needed to work on offensive means against them. Conversely, if both countries were to deploy ASATs in orbit, this would have a destabilizing effect. An aggressor would be tempted to destroy the other's ASATs at once in case of hostilities, in order to ensure that its own space systems remain safe. Deployed ASATs did invite a first strike and therefore were seen to be dangerous.

Reconnaissance satellites, however, were of critical importance to U.S. national security.<sup>22</sup> Even after Stalin's death in 1953, the Soviet Union remained a very secretive country. The U.S. still needed to identify targets, such as military bases, industrial complexes, and population centers that were spread across the Eurasian continent. After the fall of the U2 plane in 1960, only satellites could bring such information to the U.S.

The need for satellite observation was less crucial for the Soviets. Soviet space observation systems became operational in 1962. But the Soviets could access many more open sources of information about the U.S. The Soviet Cosmos reconnaissance satellite series was far less precious for soviet intelligence agencies than the Corona satellites for their U.S. counterparts.

The U.S. would therefore have more to lose from launching an arms race in space than the Soviet Union. The intelligence brought by satellites was much more important than the military uses they could be put to. This did not preclude the U.S., as well as the Soviet Union, to pursue research and development (R&D) on ASATs throughout the Cold War.

It therefore appeared as essential to ensure free use of observation satellites by steering clear of an arms race in space. The U.S. also sought to secure freedom of over-flight in international law. This choice by the Eisenhower Administration was retained by the Kennedy Administration.

### *Freedom of Over-Flight and International Law*

The United Nations (U.N.) began to discuss new developments in outer space around 1955. Prevention of an arms race in space was obviously to be a concern of the U.N., and by November of 1958 the creation of the U.N. Committee on the Peaceful Uses of Outer Space (COPUOS) took place. As can be expected, the U.S. Department of State played a primary role in diplomatic negotiations. It also oversaw bilateral discussions with the Soviet Union.

In accordance with the 1958 NSC report, U.S. diplomats choose to use the terms of “peaceful uses” of space, as opposed to “non-military uses” of space.<sup>23</sup> While excluding deployment of bombs, missiles and other offensive weapons in space, “peaceful uses” could be understood to allow military uses of observation and communication satellites. Such systems are passive by nature. They can be considered as “peaceful” even when used by the military. This expression fitted the U.S. Administration’s view perfectly. U.S. proposals within UNCOPUOS recommended adoption of an agreement banning use of “non-peaceful” devices in outer space.

In 1959, Thomas Schelling had created a slightly different definition of space military devices, introducing a distinction between “active” and “passive” weapons.<sup>24</sup> “Active” weapons were nuclear or mass destruction weapons deployed in orbit, as well as ASATs; “passive” weapons described most satellite applications when put to military use: meteorology, early warning, mapping, communication, navigation, etc . . . In other words, peaceful uses of space allowed deployment of passive military systems such as observation satellites.

It seemed at first that U.S. diplomats would not succeed in having an international agreement accepted along their preferences. The Soviets had no intention of allowing U.S. satellite over-flight rights over their territory. Indeed, they initially refused to participate in UNCOPUOS activities. The Kennedy Administration

understood that securing over-flight rights was essential to U.S. intelligence and, at the beginning of 1962, decided to make two concessions. First, space issues would be negotiated separately from the on-going and over-ambitious discussions on a general plan of disarmament. Also, reaching a declaratory resolution, as opposed to a formal treaty, would be enough to satisfy the U.S.

Attitudes also evolved on the Soviet side. By the beginning of 1962, it appeared that the adoption of a Partial Nuclear Test Ban Treaty was becoming politically unavoidable. This treaty required a verification regime. Steadfastly opposed to on-site inspections, the Soviets gave in on satellite reconnaissance, accepting it as a non-intrusive means of verification. Soviet representatives agreed to participate in UNCOPUOS discussions in March of 1962 and quickly agreed to satellite over-flight.

U.N. Resolution 1884 was adopted on October 17, 1963. It bans deployment of nuclear and weapons of mass destruction in outer space or on any celestial body. It implicitly allows deployment of all other space devices.<sup>25</sup> The *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, signed in January 1967 and entered into force in October of that year, confirms the principles adopted in 1963. By 1963, the U.S. had managed to have their vision of space embodied in international law: an arms race in space was postponed for the time being, while reconnaissance activities were allowed. The Soviet view on all this is assessed next.

### **Impact of U.S. Space Observation on Soviet Attitudes**

During the Cold War, the U.S. and the Soviet Union had two main areas of dialogue: the nuclear threat and the process of arms control. Developing within the limits of these two frameworks, the U.S.-Soviet relationship managed to avoid an open war.

The U.S. and the Soviet Union had both set up satellite observation systems. One could say that there was a mutual Panopticon at work. However, it is well documented that the Soviet Union relied less on its observation satellites than the U.S. and more on spies and information networks on the ground. Also, the Soviet

operating mode on the international scene and particularly within the Eastern Bloc was far from resembling that of a contemporary power *à la* Foucault (Soviet political use of satellite observation still deserves its own study). We are therefore looking mainly at a U.S. possible Panopticon.

Satellite observation reinforced the posture of nuclear deterrence then adopted by the U.S. by providing better means of targeting and early warning. It made the process of arms control possible by supplying the indispensable means of verification. How did the Soviets react?

### *Space Observation and the Credibility of U.S. Nuclear Deterrence*

A few years after World War II, nuclear weapons came to be considered in the U.S. as profoundly different from conventional weapons. In 1954, massive retaliation against Soviet cities became the official U.S. nuclear doctrine.<sup>26</sup> It was meant to be so threatening that any attack by the U.S.S.R. would be deterred, although many experts questioned the credibility of such a posture. In the following years, U.S. nuclear doctrine underwent momentous evolutions.

In 1962, President Kennedy's Secretary of Defense, Robert McNamara, introduced the flexible response strategy. The U.S. posture now relied on different types of targets on Soviet territory (mainly cities and military bases) and different levels of aggression. By the end of the decade, growth in the nuclear arsenal of the two countries led to a stabilization of the nuclear doctrine around the concept of Mutual Assured Destruction (MAD). There was all along a lively debate among defense thinkers in the West.

By comparison, public debate on military space did not develop at that time. After strategy analysts in the Eisenhower Administration reached the conclusion that space weapons were not needed for national security, there was a pause in military space thinking. Also, as is customary in espionage matters, uses of space for intelligence had to remain in the dark. Prepared by the National Reconnaissance Office and signed by the Assistant Secretary of Defense, a March 1962 directive classified all information pertaining to military satellites.

It is likely, however, that satellite observation helped reinforce the credibility of flexible response and MAD. The first successful

flights of the U.S. observation space system, the Corona satellites equipped with a Keyhole camera, took place in August and December of 1960. U.S. knowledge of Soviet military arsenals rapidly grew afterwards. *National Intelligence Estimate* (NIE) 11.8/1.61, dated September of 1961, was the first document taking the new information into account. It showed that the Soviet Union possessed no more than ten intercontinental ballistic missiles. The "Missile gap" threat was over.<sup>27</sup>

Perhaps more importantly, the U.S. targeting plan of the U.S.S.R., called "Single Integrated Operational Plan" (SIOP), underwent drastic modification. SIOP-62, adopted in December of 1960, before satellite coverage of Soviet territory was complete, listed 1200 urban targets and 800 military targets. This was consistent with the current massive retaliation doctrine, which favored counter-cities strikes for maximum terror. It was also easier to establish such a plan, because American planners knew where Soviet cities were.

SIOP-63 was adopted in January of 1962, after the September 1961 NIE was written. The new plan listed 210 urban and industrial targets and 1650 military targets.<sup>28</sup> Scattered and often hidden across the Eurasian continent, the latter had been spotted by the new reconnaissance instruments. This modification also corresponds to McNamara's flexible response strategy, which favors counterforce strikes.

The role of satellite observation in the creation and adoption of the new nuclear doctrine is of course difficult to assess. This question belongs to the debate on the role of technology innovations in the evolution of military strategy. Which comes first? The gathering of comprehensive intelligence on Soviet military bases allowed flexible response strategy to be put into place and therefore gain credibility in the eyes of the Soviets. Strategic thinking at Rand in the 1950s, where flexible response was first conceived, proceeded in synergy with Rand's research on satellite technology.

While flexible response had become technically feasible, this is not the reason why the new doctrine was adopted. Flexible response was not just a military capability, but also a policy choice. The adoption by the McNamara team answered diplomatic and strategy considerations specific to the 1960s. The technology had to be available, but it did not supersede political decision-making.

A second element confirms the subjection of technology to policy-making choices. Study of successive targeting plans after

1962 shows an ever-expanding number of targets spotted on Soviet territory. In 1972, when the Strategic Arms Limitation (SALT) Agreement and the Anti-Ballistic Missile (ABM) Treaty were signed, the U.S. already had 5700 strategic launchers in its arsenals<sup>29</sup> and close to 30,000 nuclear warheads of all types.<sup>30</sup> By 1983, the U.S. targeting plan, now SIOP-6, provided 8757 Soviet targets in the event of a U.S. first strike.<sup>31</sup> This seems to go beyond the actual needs of a coherent strategic plan.

In a number of studies, Australian researcher Desmond Ball claims that the expansion of the number of targets was actually used by the U.S. military to demand more missiles and warheads from their government.<sup>32</sup> They allegedly used the stance that to every target a weapon must be assigned. By identifying more targets, thanks to the satellites, they could logically ask for more weapons. This hypothesis tends to show that satellite observation can be used for various and self-serving policy ends.

The interaction of early warning satellite systems and U.S. nuclear strategy in the 1960s provides an additional lesson. It suggests that satellite technology cannot be used for any policy or end. These systems have significant features that make them unfit to serve certain strategies.

In 1957, President Eisenhower authorized R&D of a satellite early warning system called Missile Defense Alarm System (Midas).<sup>33</sup> Midas would upgrade the capacities of ground-based radars then deployed in Greenland, Canada, and the United Kingdom (UK). Giving more notice of a surprise attack for the U.S. to strike back, early warning systems would make the Massive Retaliation doctrine more reliable.

Nevertheless, the Kennedy Administration canceled the Midas program in 1963. Secretary of Defense Robert McNamara had recently introduced the Flexible Response strategy. Technical studies showed that the Midas program would provide the U.S. military with just enough time to trigger a massive "launch-on-warning" response to a Soviet attack. In that situation, there would be no time for consultation of policy-makers. However, McNamara wanted to move away from all kinds of automatic responses linked to massive retaliation postures.

The flexible response doctrine sought to reintroduce a possibility of choice for the government in times of nuclear crisis. Allowing limited responses to an attack was deemed to enhance

the credibility of the U.S. nuclear deterrent. The Midas program did not fit as it only ensured massive retaliation in case of an attack. Its cancellation emphasized the earnestness of the new administration in its momentous strategy choice.

Evolution of U.S. nuclear doctrines did not stop there. The idea of limited nuclear options proved to be politically too difficult to sustain for the Johnson Administration. Nuclear war was too terrible to be contemplated. Also, growth of the nuclear arsenals in the U.S. and the U.S.S.R. made a second-strike (i.e. in response to a surprise nuclear attack) more credible. The MAD posture became official U.S. doctrine in 1967.<sup>34</sup> In that scenario, a nuclear first-strike would trigger complete destruction of all protagonists. Early warning systems, which gave the country under attack more time to launch its retaliation, became again a desirable technology.

R&D of early warning systems never completely stopped after the cancellation of Midas in 1963. The early warning Defense Support System (DSP) was deployed in the 1970s. Whereas intelligence gathering by satellite could serve different policies, early warning systems proved to be not totally malleable to political choices. They could only fit a doctrinal framework of automatic retaliation, and their technology could not be used to serve other ends.

Operational as of 1960, U.S. satellites systems aimed at gathering complete and permanent information about the Soviet Union. The information was fed into U.S. targeting plans and early warning systems, and reinforced the credibility of U.S. deterrence. What was the impact on the Soviet government? Did U.S. space observation affect the Soviet Union in the way Bentham's Panopticon surveillance system was supposed to affect the prison inmates? Did it have a political impact on the Soviet government? Throughout the 1960s, study of Soviet nuclear thinking shows knowledge of strategy evolutions in the West and, in some cases, reactions to it.

The first Soviet atomic bomb was detonated in 1949. At that time, and until the death of Stalin, there was no room for independent strategic thinking in the country. Marxist-Leninist ideology was foremost; even nuclear technology could not supersede the "operative permanent factors" concept outlined by Stalin in 1942.<sup>35</sup> Nuclear weapons were considered very efficient weapons, although not different from conventional weapons.

There was no immediate move towards a concept of nuclear deterrence, even after Stalin's death. Khrushchev's Revolution in Military Affairs, launched in 1960, still asserted that conducting a successful military campaign using nuclear weapons was possible. Signs that the Soviets were moving towards a deterrent approach to nuclear strategy multiplied by the end of the decade. Several official textbooks on Soviet military strategy were reedited and extensively modified around 1968 and 1969.<sup>36</sup> The new versions did not mention the use of nuclear weapons as inevitable in case of hostilities. Additionally, some deterrence of intercontinental nuclear strikes was now said to be possible. In a 1987 study, Michael McGwire claims that the decision to adopt a nuclear deterrent concept can be pinpointed to a meeting of the communist Party Central Committee held in December of 1966.<sup>37</sup>

The idea of a strategic balance based on MAD was apparently adopted at the same time by Soviet leaders. To relinquish anti-ballistic missile systems and to remain vulnerable to nuclear strikes is a central tenet of the MAD doctrine. Even though Soviet nuclear arsenals continued to grow, the interruption of anti-ballistic missile systems deployment around 1968,<sup>38</sup> followed by the agreement to participate in the SALT and ABM negotiations in 1969, were signs that Soviet leadership had embraced this concept.

One can argue that this evolution of Soviet doctrine came in reaction to the evolutions in the U.S., both of strategic thinking and of military capabilities. Throughout the 1960s, Soviet military thinkers undoubtedly kept in touch with U.S. open strategy debate and followed official strategy announcements. Since they had no latitude for debate on the inside, they would probably be influenced by the debates in the West.

Military arsenals in the U.S.S.R. were also struggling to keep up with their U.S. counterparts. Soviet observation (satellite-based and others) of U.S. military capabilities probably brought the perception of a high-level of threat from America. Knowledge of satellite capabilities for targeting and for early warning, among their other uses, participated in creating the image of a powerful enemy. One can say that, in a Soviet-operated Panopticon, the warden would have been scared by the inmates' strength. In the 1960s, the Soviet Union modified its nuclear thinking to accommodate a greater U.S. nuclear threat. We can argue that this is partly a result of better targeting and early warning brought by satellite

observation. In this case, the Space Panopticon disciplined the Soviet enemy.

### *Verification of the SALT Treaties*

The arms control verification regimes of the 1970s provide another case study of the role of technology versus policy. The U.S.-Soviet relationship and continuing arms race were a frightening trait of the post-1945 world. Within the U.N., as well as bilaterally, there were a number of endeavors to secure disarmament agreements between the two countries. Though, this proved very difficult.

The two countries could not trust each other. Since to disarm was perceived as a decrease in one's level of security, a reliable verification system was absolutely necessary. Each country must be able to check if the other one is complying or not complying with the agreements. But the two enemies could not agree on a verification regime. The Soviet Union refused on-site inspections, denouncing them as too intrusive, while the U.S. would not feel secure with other verification means.

Between 1955 and 1960, debates in the U.S. led to the adoption of a new stance on the issue of disarmament. Since disarmament proved too ambitious a goal, it would be wise to limit negotiators' expectations. They would not seek to disarm, but try to limit the growth rate of military arsenals in the U.S. and the U.S.S.R. The notion of "arms control," as opposed to disarmament, can be traced to a book published in 1961 by Thomas Schelling and Morton Halperin.<sup>39</sup> Its conclusions were adopted by the newly established Arms Control and Disarmament Agency and became official policy.

Deemed less risky for national security than a full-blown disarmament treaty, arms control could rely on a less strict verification regime. Negotiated at the U.N., the Partial Nuclear Test-Ban Treaty of 1963 and the Non-Proliferation Treaty of 1968 do not rely on on-site inspections, but on "National Technical Means" (NTM) of verification. These designate the systems that each country can deploy to do its own verification from a distance. They must remain within the boundaries of international law— airplane reconnaissance missions, for instance, must be authorized by the country being flown over. Thus, NTM primarily points to satellite observation systems.

The bilateral SALT and ABM negotiations started in 1969. Both signed in 1972, the SALT I treaty limited the growth of Intercontinental Ballistic Missiles (ICBMs) and Submarine Launched Ballistic Missiles (SLBMs) in both countries, while the ABM agreement limited the number of anti-ballistic missile sites that each country can deploy. The SALT I treaty was a five-year agreement. The subsequent treaty, SALT II, was signed in 1979, but due to increasing tensions between the two countries, was never ratified by the U.S. Congress.

The SALT and ABM agreements constitute a case study of the verification of compliance to a treaty through space observation. The verification regime relied on NTM and a Standing Consultative Commission (SCC). The works of the Commission were well documented by private sources as well as by official U.S. sources.<sup>40</sup>

Verification procedures for SALT and ABM worked satisfactorily during the timeframe of the first SALT treaty (1973–1978). Thanks to its satellite-based NTM, the U.S. spotted a number of problems in the application of the Treaties by the Soviets. It reported such problems to the SCC. Each complaint or question presented to the Commission between 1973 and 1977 received a favorable answer on the Soviet side.

For instance, in July of 1974, the U.S. delegation to the Commission mentioned that some Soviet anti-ballistic missiles had not been dismantled, as they should have, but only deactivated. The Soviets apologized and thereafter mentioned such problems in advance. Again, in 1974, the U.S. side mentioned that the level of encryption of Soviet tests was higher than allowed by the ABM agreement. The year after, the level had been reduced to accepted levels.

It is important to note that Soviet remarks, based on information gained by their own NTM, were met with equal obedience on the American side. Compliance to the treaty and agreement seems to have been perfect. During a time, satellite observation and open discussion of its finding by the Commission ensured correct behavior by each country. A mutual space Panopticon worked.

However, disputes and the impossibility to resolve them occurred after 1978. The 1979 Soviet invasion of Afghanistan, followed by the institution of Martial Law in Poland in 1981, signaled a new era of Cold War tensions between the two countries.

The 1970s détente was over. As political tensions grew, U.S.-Soviet dialogue began to deteriorate and the SALT process stalled. The SALT II Treaty, signed by both countries in 1979, was never ratified by the U.S. Senate.

In 1983, President Reagan commissioned an assessment of Soviet deceptions in the application of SALT I, ABM, and other binding documents.<sup>41</sup> Although it could not find fault with the Soviet attitude during the application of SALT I, the 1983 report accused the Soviet Union of building a new ABM radar in Krasnoyarsk. U.S. reconnaissance satellites had discovered the facility in Siberia. The Soviet Union denied all accusations and sent a memorandum to the U.S. Department of States listing U.S. alleged deceptions in its application of international treaties, including SALT I and ABM. The memo was also published in the Soviet newspaper *Izvestia*.<sup>42</sup> Disputes then pending at the SCC were never solved, and the Commission never met again.

Smooth running of an international agreement will ultimately depend on political factors. As long as political goodwill reigned between the two nations, the U.S.S.R. complied with U.S. claims made through the SCC. As soon as tension and hostility prevailed, the SCC dialogue stalled. At the end of the 1970s, American and Soviet space observation were not used to dissuade and persuade peacefully, but rather to provide knowledge for accusations.

The SALT/ABM process from 1972 to after 1978 shows the political use of satellite observation by the U.S. It enforced discipline on the Soviet side. But the questionable facilities or problems noticed by satellites were later used to accuse and condemn the Soviet Union. The type of power enforced by satellite observation had by then switched to a mode more aggressive than contemporary power. As such, a U.S. Panopticon had no predetermined effect. Rather, it must be defined as an efficient tool, applicable to different policy choices.

### **Space Observation and Allied Countries**

U.S. observation satellites played a different role in the relationship with allied countries. Until 1986, when Europe launched the Spot satellite, the U.S. was the only country in the West to operate observation satellites. The U.S. had exclusive control of satellite-based data. It often decided to share data with friends and allies,

but they had to take the intelligence at face value. Did the U.S. use information derived from satellite observation to exert political pressures on allied countries? Was the information provided with a particular bias that could very well deter them or compel them to adopt a given policy? Withholding information in times of crisis would also be a powerful option for the U.S.

NATO, UK during the Falkland war, France during the 1980s Chad wars, and Israel during the Yom Kippur war, constitute a series of revealing case studies. These countries received satellite information that they could not counter-check. It appears however that the Panopticon met with serious limitations. More often than not, allied countries either did not accept the information as genuine, or tried to manipulate their U.S. sources into providing more information than was initially proposed. The apparently weaker parties to the exchange always exerted a counter-power, and they sometimes were successful.

### *U.S. Defense of Its Satellite Observation Monopoly*

An important issue to consider before assessing satellite information transfers between the U.S. and allied countries is that the former did not share satellite observation technologies with the latter. This is worthy of notice, since at the same time, some technological transfers and cooperation programs were promoted by the U.S. in other areas of importance.

For instance, a small number of cooperation programs were started on nuclear technologies, including military know-how. Since nuclear weapons were the epicenter of the Cold War's defense posture, close friends of the U.S. often asked for help in building their own systems. The U.S. sometimes found it difficult to refuse help on such a vital topic. There also was the need to ensure that major allies would know enough about nuclear technologies to participate in military operations in case of war. U.S.-UK nuclear cooperation was endorsed many times at the highest level, for instance at the Nassau Conference in 1962.<sup>43</sup> It was recently revealed that even France had received some limited help from the U.S. after 1973 to upgrade its nuclear weapon systems.<sup>44</sup>

Likewise, a large number of civilian space cooperation projects were started by the National Aeronautics and Space

Administration (NASA). International cooperation was actually mentioned in the charter of 1958 that established NASA.<sup>45</sup> NASA launched foreign satellites and sounding rockets, carrying experimental payloads in communication, meteorology, and scientific exploration.

Space cooperation served U.S. interests. A 1964 report by the Department of State lists some precise goals it pursued: sharing prestige with friends and allies to reinforce friendships and alliances; receiving advantages such as the establishment of ground segments in far-away parts of the world; and monitoring the technical progress of foreign powers.<sup>46</sup>

Cooperating countries also benefited. The programs conducted with NASA enabled many allied countries to start their own space effort. France is one such case. At the beginning of the 1960s, French engineers routinely spent one year in the U.S., where they would learn and network. Numerous projects were also conducted thanks to U.S. help. This proved invaluable for the French national space agency, the *Centre National d'Etudes Spatiales* (CNES), in the early years.<sup>47</sup>

In comparison, cooperation in military space was almost nonexistent. The abundance of civilian cooperation projects and the very strict classification of all military space programs made the absence of cooperation in that area less noticeable. U.S. refusals of foreign requests was therefore less damaging politically. Cooperation programs on launcher and ballistic technologies were indeed very limited. In the 1950s, the U.S. engaged briefly in cooperation on the British Blue Streak Missile. But the program proved too costly for the UK and was dropped in 1960. Instead, the UK opted to buy U.S.-manufactured Thor and Polaris missiles, with little to no technological transfer. A request by France to be helped on a launcher's program was flatly refused in 1962.<sup>48</sup> Technologies related to observation sensors were not shared either.<sup>49</sup>

Space information dominance was recognized as key by the U.S. government from the 1960s. While limited nuclear cooperation with close allies was allowed and civil space cooperation was strongly encouraged, the U.S. refused to share ballistic and observation technologies. This ensured a lasting monopoly of access to space and satellite reconnaissance systems. This monopoly allowed U.S. intelligence superiority.

*Transfers of Space-Based Intelligence to Allied Countries*

A few case studies tend to show that counter-powers to the dominant space Panopticon were always at work and sometimes efficient.

Information transfers within NATO are issues easily dealt with. This main security alliance of the U.S. during the Cold War did not have extensive means of information gathering and relies on what the member countries were ready to provide.<sup>50</sup> Information dispatched to NATO is shared by all members of the alliance. NATO was therefore never a major forum of exchange for sensitive information.

Space imagery, in particular, was too sensitive to be part of such an open system. Rather, the U.S. supplied sensitive satellite information on a bilateral basis. Information sharing was generally decided on a case-by-case basis, except with the UK with which it was routine.

During World War II, the UK proved an excellent supplier of information through its grasp of human and signal intelligence. After the war, the U.K.–U.S.A. secret Treaty consolidated cooperation ties in the intelligence area.<sup>51</sup> It is well established that U.S. satellite imagery was routinely shown at the British Embassy in Washington, as well as in London.<sup>52</sup> UK Intelligence officers as well as high authorities within the Foreign and Commonwealth Office or Prime Minister Office could access such documents.

Based on history, language, and culture, the political and defense relationship between the two countries was very close and there was a high level of respect on the American side for their British counterparts. In fact, this often made it impossible for the U.S. to disregard British opinion. Henry Kissinger recalls that, in the 1960s, the influence of the British Embassy was so high that U.K. diplomats there had succeeded in putting into place “a consultation framework so natural and so intimate that it became psychologically impossible not to take the British opinion into account . . . autonomous U.S. action would have seemed to violate the rules of the game.”<sup>53</sup>

This closeness was reflected in the very friendship that often existed between intelligence officers of the two countries. U.S. information dominance had to adapt to this particular power relation. A 1996 book by a retired British intelligence officer mentions a very interesting case.<sup>54</sup> At some point before the 1980s, the U.S. disagreed with British politics in a matter of foreign policy.

The highest U.S. authorities demanded to their intelligence services that they restrict routine information sharing with their British partners at that time. But the order was disregarded by the agency in charge, which went on sending as much information as before."<sup>55</sup> The close friendship between intelligence officers meant that loyalty between the two countries had become stronger than hierarchical links.

A second case is the Falkland War of 1982. During that war between the UK and Argentina over possession of an island off the coast of Argentina, the U.S. had to choose between two of its allies. Making a choice was politically difficult, and while the Argentinean invasion occurred in March, the U.S. did not choose the British side until April. In the meantime, satellite imagery was not made available to British intelligence agencies, for "technical reasons."<sup>56</sup> Information transfers resumed thereafter.

The British successfully exerted a control of information exchanges when these were routinely established. They had had time to establish personal relationships excellent enough that the U.S. officers would rather disobey orders than betray the friendship. In particular situations, such as the Falkland War, however, it was easier to ensure that non-routine transfers were put on hold. The U.K. example provides a first instance of a successful counter-power to the U.S. Panopticon.

By comparison, U.S. links with France were not as close and it naturally ensued that information sharing was more limited. The events in Chad in the 1980s provide an interesting insight into French and U.S. attitudes regarding transfer of U.S. space imagery to France.

Libya had maintained a military presence in the North of Chad since 1979. The U.S. was opposed to any extension of Libyan power, a country strongly suspected of training terrorists. It hoped that the former colonial power in Chad, France, would do something to drive Libyan forces back. In May of 1983, hostilities intensified and Libya made threatening progress on Chad's territory. In August of 1983, France eventually sent troops and drove Libyan forces back. An agreement between Chad and Libya was signed in September of 1984.

The U.S. had been pushing for a French intervention since June of 1983.<sup>57</sup> President Reagan wrote to President Mitterrand on July 16th to express his hope that France would intervene. On

August 5th, U.S. diplomat Vernon Walters met with Mitterrand, asking again for a French intervention, with U.S. military support if need be.<sup>58</sup> He produced space imagery of the region showing the extent of Libyan troop deployments in northern Chad. These images were also shown to some French news media at the time.

General Fricaud-Chagnaud, then president of the Foundation for National Defense Studies (FEDN), claims that the images shown that day actually dated from a previous time, when Libyan deployments were more important than they were in the summer of 1983.<sup>59</sup> He claims that the French government and media were victims of a political manipulation by U.S. highest authorities. He goes on to state that such manipulation did not influence French decision-making. "Operation Manta" was limited and did not include American weapons or troops.

The truth of the General's claims is difficult to assess. Sources indicate that France conducted routine air reconnaissance flights over the region.<sup>60</sup> French intelligence agencies would have easily noticed the difference between their aerial images and those shown by Walters. It is hard to believe that the U.S. would have taken the risk of being exposed.

While the accusation may not be true after all, expressing it served another purpose. The very possibility of political manipulation through information monopoly was unacceptable for French authorities. A high-level group, in which General Fricaud-Chagnaud participated, met in 1985 and decided to launch a French military observation system. The first Hélios satellite was launched in 1994. Questioning the genuineness of the U.S. images of Chad certainly played a role in the decision.

A second military campaign in Chad was launched in February of 1986. "Operation Epervier" was again meant to drive Libyan forces back to the frontier. It culminated with the bombing of the Libyan military base of Ouadi-Doum on February 16th. Libyan forces eventually withdrew in 1987. This time there was no need for the U.S. to persuade the French into action. France's decision had been taken early on and the U.S. could only support it.

U.S. intelligence agencies provided two sorts of information products derived from satellites.<sup>61</sup> For the duration of the crisis, the U.S. Ambassador to France sent weekly reports based on data from satellites to the French Ministry of Defense. Additionally,

U.S. imagery was actually brought to the Ministry of Defense to help prepare special interventions, such as the bombing of Ouadi-Doum. A U.S. intelligence officer would bring the images, have them studied by French intelligence officers for a few hours, and then take them away again.

Since the two countries were in complete agreement over what was to be done in Chad, providing U.S. intelligence was a matter of course. The Chad case study shows that intelligence sharing depends ultimately on the accordance of political goals between countries. There was no problem in 1986 because the countries agreed on a course of action. On the contrary, strong U.S. political pressures in 1983 led to accusations of political manipulation.

The 1973 Yom Kippur War constitutes a last instance of the resilience of the weaker party in a power relation. On October 6, 1973, Egypt and Syria launched a surprise-attack on Israel. During the first week or so, Israel seemed to be on the brink of defeat, but thanks to U.S. military support, Israel eventually drove the Arab forces back. U.N. resolutions, on October 22 and 26 marked the end of military operations.

Although direct down-link systems on observation satellites were not available in 1973, satellite information was probably available throughout the crisis. Routine reconnaissance was a matter of fact before the attack. Due to timely returns of film capsules to Earth, new images of the region may have been on the desk of U.S. decision-makers within twenty-four hours during the crisis.<sup>62</sup> This may make the Yom Kippur War one of the first instances of a tactical use for space imagery.<sup>63</sup>

Serious cooperation between the Central Intelligence Agency (CIA) and the Israeli secret service had been set up after the Suez crisis in 1956. It was reinforced by a strong political alliance engaged in by President Kennedy and Israeli Prime Minister Golda Meir in 1962. But there is a debate on the quantity of information provided by the U.S. to Israel. Officially, intelligence transfers from the U.S. to Israel during the war were extensive. The National Security Advisor and Secretary of State Henry Kissinger reportedly told his NSC deputy Brent Scowcroft to "give them every bit of information we have."<sup>64</sup>

However, U.S. policy choices at the time may tell a different story. At the beginning of the 1970s, the U.S. Administration was

keen to resume peace talks between Arab countries and Israel. Following the Arab military defeats of 1947, 1956, and 1967, Israel was in a very strong position and was not willing to negotiate without an explicit recognition of Israel's sovereignty and right to exist among the Arab states. Some felt that only a military initiative by Arab countries would force Israel to negotiate without these preconditions. In 1972, Egypt had switched allegiance from the Soviet Union to the U.S. in the hope that it would support such action.

Kissinger's claims aside, independent sources claim that Kissinger deliberately withheld information from Israel in order to weaken the latter's military posture.<sup>65</sup> In the weeks preceding the invasion, the Soviets had sent cargo planes to Egypt to fly back all remaining Soviet personal left there after 1972. The CIA allegedly did not report this to the Israelis, so that they could not foresee the surprise attack. Similarly, the Arab armies crossing the Suez Canal at dawn on October 6th also may not have been immediately reported to Israel. Israeli Minister of Defense Moshe Dayan stated that he was not told "until the last minute."<sup>66</sup> Prime Minister Golda Meir later claimed that the Israeli secret services had not received all necessary information from the U.S.<sup>67</sup>

During the conflict, U.S. information may have been provided on the basis of U.S. interests. Those could have been to get Arab forces far enough into Israeli territory and then keeping Israelis from gaining too much territory once they had regained the upper hand. This could have been meant to make Israel more willing to negotiate in the aftermath of the crisis. The opening of Israeli and U.S. archives will hopefully shed some light on this issue in the years to come.

In any case, the internal intelligence failures of 1973 prompted Israel to request more intelligence from the U.S. in order to ensure its security.<sup>68</sup> These demands culminated in the 1980s with the request that a direct link be established between a U.S. high-resolution KH-11 satellite and a ground station in Israel. Successive administrations have more or less complied with these requests. CIA director William Casey did send imagery at the beginning of the 1980s. Subsequently, the Israeli bombing of the Iraqi nuclear reactor of Osiraq in 1981 led to a limitation of U.S. information transfers. The direct link, for instance, was never established. On the whole, the U.S. has never complied with all demands, and

the Israelis eventually deployed their own reconnaissance system called the *Offeq*.

Similar to the French case, the main lesson from the Yom Kippur War is that perception of limited or biased information transfer leads a country to develop their own information means. Whatever the extent of U.S. manipulations through satellite intelligence, allied countries always preserved a capacity of reaction. They either doubted the genuineness of the information, tried to obtain more of it, or plainly chose to ignore it. As long as the U.S. entertained a monopoly over satellite information, a power relation between the U.S. and its closest allies was very much active in that area. The space Panopticon project met counter-powers everywhere.

### **Conclusions**

The use of space observation by the U.S. during the Cold War illustrates the limitations met by the American power at that time. It seems that the U.S. was only able to use the disciplining influence of space observation vis-à-vis the U.S.S.R. in times of relative détente and not in times of strong East-West tension. Therefore, it did not really work. Meanwhile, in its interactions with allied countries, the power of intelligence often met with effective counter-powers. At the end of the day, the use of satellite observation did not give overwhelming influence to the U.S. Just as the U.S. leadership was not all-powerful, the Panopticon met with serious limitations. Other important issues can also be reassessed in the light of this study. This includes the fact that technology is not neutral and that counter-powers exist even in an era of information dominance by the U.S.

The analysis of the effects of satellite observation on the relationship between the U.S. and the Soviet Union leads essentially to questioning the influence of technology on policy and strategy choices. Technology is supposed to be politically neutral. Its effects are not predetermined in political terms. Does this mean that technology can be manipulated to suit political ends without exception? Analysis of targeting, early warning and verification capacities on flexible response, MAD, and arms control points to some answers. Space observation can meet numerous political objectives depending on the goal of the government. It can foster

either friendly or aggressive attitudes. It is by no means exclusively suited to a “contemporary power” project.

However, early warning systems, which are linked to automatic retaliation postures, had to be put on hold as long as such a posture was not required by national security strategy. When automatic retaliation became desirable in the context of MAD, early warning systems were deployed. Also, space observation as an instrument of power is conditioned by technological factors, such as possession or lack of similar technological means by the other actors, and by general political factors, like at times of détente or tension. Space observation technologies are therefore not flexible to all political uses.

Information dominance finds limits when applied in “real world” settings. During the Cold War, the U.S. and the Soviet Union each enjoyed a space observation monopoly over their allies. The exclusivity of access to space systems was key to the credibility of their informational power. If other actors lack access to the technology, information can be kept secret and deceptive intelligence can be circulated without running the risk of being caught.

Reality shows that such exclusivity of knowledge was almost never achieved, at least in the West. A single contradictory piece of information here was enough for the power in place to be questioned. What is lacking now is an assessment of the workings of satellite intelligence sharing between Warsaw Pact countries. Smaller countries or dissidents did not have as much leeway as their Western counterparts. Actually, the impossibility of challenging a government on the information it provides may be a defining element of a totalitarian regime. As noted in Foucault’s analyses however, an apparently absolute power is never without an opposition. Case studies in the West show that this is true in the field of information. Individual citizens always retain the capacity to exercise counter-powers. This finding may help democracies, non-state actors, and individuals to better face the challenges of the information age.

Finally, while U.S. international actions are no longer checked by the existence of the Soviet peer enemy, the U.S. has encountered direct challenges and must now address global terrorism. This is reflected in new types of uses for satellite observation systems. The 1990–1991 Gulf War inaugurated a direct military use of observation satellites, which strengthened tactical operations on the

ground. This trend has continued in subsequent military operations, such as in Iraq toady with Operation Iraqi Freedom, where munitions in use are mostly satellite (Global Positioning System) guided.

Another use of satellite systems has emerged in the framework of the homeland security mission created after September 11, 2001. It is characterized by the use of several intelligence and communication satellite systems linked together to achieve global security on the U.S. mainland. Making a different choice from the Eisenhower administration, the current Bush Administration now seeks to protect its fleet of satellites with a range of defensive and offensive counter space weapons.<sup>69</sup>

As a result of all this, space observation has moved away from long-term uses towards daily uses. If satellite-supported tactical missions fit into war-fighting policy choices, anti-terrorism and homeland-protection missions are of a more defensive tone. Hopefully the latter can still fit in a “contemporary power” type of government, where self-discipline is enforced by surveillance rather than force.

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