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Photo Intelligence and the Cuban Missile Crisis

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Background

The Cuban Missile Crisis served as a prime example of the importance of photointelligence in the successful management of an international crisis. President Kennedy was provided with excellent, but not faultless, intelligence through the use of photointelligence. Kennedy used photointelligence to decide upon his policy of quarantine. The quarantine and subsequent diplomatic efforts led to a successful resolution of the missile crisis, with a minimum loss to American interests. During the Crisis, Kennedy followed the example of President Eisenhower in using photointelligence to make foreign policy decisions.

President Eisenhower set the precedent for the collection and use of photoreconnaissance. In 1954, President Eisenhower allocated \$22 million for the CIA to develop a high altitude reconnaissance airplane. Lockheed accepted the contract and produced the U-2 prototype. Allen Dulles, director of the Central Intelligence Agency (CIA) and President Eisenhower agreed to fund the development of the plane. The CIA would be responsible for refining the photographs into meaningful intelligence. Less than three months later the first U-2 prototype was ready for testing.¹

¹ Dino A. Brugioni. *EyeBall to EyeBall: The Inside Story of the Cuban missile Crisis*. (New York: Random House, 1991) 18-19. Hereafter

Dino Brugioni calls the U-2 “the biggest intelligence bargain in history”.² Brugioni, a senior photointerpreter, makes this assertion because the U-2 gave the CIA unmatched access to strategic intelligence within the Soviet Union. Within two years the bargain began to pay off. U-2 photography provided much needed data regarding strategic weapons development within the Soviet Union. Human intelligence sources were unable to provide comprehensive data on the Soviet strategic weapons. The CIA began to fly U-2 photointelligence missions over the Soviet Union began on 4 July, 1956. Over flights of the Soviet Union ended in 1960, after Gary Powers was shot down near Sverdlovsk. These missions proved that the Khrushchev was exaggerating the number of nuclear missiles and bombers that the Soviet Union could deploy. The U-2 also provided vital information on the status of the Soviet space program. Finally, U-2 photographs were used to compile lists of important targets for the air force, in the event of war.³

Eisenhower used the U-2 to obtain intelligence during the Suez crisis of 1956. In many ways this crisis mirrors the Cuban Missile Crisis. During the Suez crisis U-2s provided indisputable intelligence. The photointelligence gave Eisenhower advance notice of military action against Egypt. U-2 missions uncovered preparations for a joint Anglo-French and Israeli strike against the Sinai desert. U-2s also monitored the shipment of arms to Israel. During the

cited as EtE. Prototype completed in three months: Michael R. Beschloss. *Mayday: Eisenhower, Khrushchev and the U-2 Affair*. (New York: Harper & Row Publishers, 1986) 365. Hereafter cited as *Mayday*.

² Brugioni. *EtE*. 18.

³ Beschloss. *Mayday*. 121,363-366

crisis U-2 photography revealed that Israel was receiving advanced aircraft from France. During the crisis Eisenhower objected to the Israeli deception concerning the number of French aircraft received. The Israeli government claimed that had received only twenty-four jet bombers from France. Photointelligence revealed sixty bombers in the Israeli Air Force paint scheme.⁴

Following the 1960 election, John F. Kennedy became the President. Eisenhower directed senior intelligence officers to brief the incoming president on the collection and usage of photographic intelligence. During these briefings President Eisenhower recounted how useful the intelligence had been, and provided Kennedy with examples of the intelligence. President Eisenhower also informed Kennedy of the various intelligence sharing agreements with the United Kingdom. Kennedy, just like Eisenhower before him, came to value photointelligence as a primary source for information on Soviet military events.⁵

Fidel Castro overthrew the Batista government of Cuba in late 1958. After assuming office Castro ordered the kidnapping of U.S. nationals and taxation of American businesses on the island; both of these acts earned him the enmity of the American government. Castro was decidedly anti-American, but he had not yet declared himself as a Communist. Initially, the Soviet Union relied on foreign newspapers to monitor the situation in Havana. Within a few months the Soviet Union was able to establish diplomatic relations with Castro's government. When Castro

declared his solidarity with the Soviet bloc, the CIA immediately began covert operations, including sabotage and psychological operations, designed to remove him from power. These operations culminated in the Bay of Pigs invasion.⁶

On 17 April, 1961 1,400 Cuban exiles assaulted the Bay of Pigs in a US sponsored invasion. The security surrounding the planning for the invasion had been severely breached in the months prior to the invasion. Castro was able to position his forces on the exact beaches the invaders landed on. President Kennedy, only partially committed to the plan, refused to provide American air support. This incident severely tarnished Kennedy's reputation at home and abroad. Kennedy believed that the Bay of Pigs invasion was the largest mistake of his presidency.⁷

Arms Buildup in Cuba

The American failure at the Bay of Pigs pushed Castro closer to the Soviet Union. Castro feared that the United States would attempt another invasion, with more men and resources. In the months following the Bay of Pigs, Castro consulted with Soviet emissaries about upgrading the Cuban armed

⁴ Brugioni. *EtE*. 33-34. Beschloss. *Mayday*. 136-139.

⁵ Brugioni, *EtE*. 56-57.

⁶ Castro's victory and anti-American activities recounted in James B. Nathan. *Anatomy of the Cuban Missile Crisis*. (Westport, Connecticut: Greenwood Press, 2001.) Hereafter cited as *Anatomy* 22-25. Lack of Soviet connection with Castro in Nikita S. Khrushchev. *Khrushchev Remembers*. (Boston, Little, Brown, & Company, 1970) 488-489. Hereafter cited as *KR*

⁷ Nathan. *Anatomy*. 46-50; Thomas G. Patterson and William J. Brophy. "October Missiles and November Elections: The Cuban Missile Crisis and American Politics, 1962" *The Journal of American History*, Vol. 73, No. 1 (June, 1986) 94.

forces. Eventually, Castro asked the Soviet Union for shipments of advanced weaponry for the Cuban armed forces.⁸ Premier Khrushchev agreed to Castro's request for weapons. Khrushchev states that he armed the Cubans in order to protect Cuba from American aggression. Some weapons had been sent to Cuba before the Bay of Pigs invasion, after the invasion, the Soviets sharply increased their arms shipments. Tanks, artillery, small arms and anti-aircraft guns were the primary weapons sent to Cuba.⁹

As Khrushchev considered the problem of American intentions toward Cuba, he became convinced that conventional weapons might not be enough of a deterrent. During a state visit to Bulgaria, Khrushchev decided to deploy medium range ballistic missiles (MRBM) to Cuba in conjunction with a group of Soviet forces. The introduction of nuclear missiles in Cuba would deter the Americans from attempting another invasion of Cuba. Additionally, stationing these forces in Cuba would help to correct the strategic balance of power between the Soviet Union and the Americans.¹⁰

Secrecy was vital to Khrushchev's plan. Khrushchev had planned to announce the missiles only after they were in position and operational. This announcement would force the Americans to accept a Communist government in Cuba, and would leave the Americans with no chances for a successful attack against the island. However, if the missiles were discovered before they were fully deployed; the Soviets would be in a very vulnerable and disadvantageous position. With the construction of the missile sites

uncovered, the United States could remove the missiles through military or diplomatic force. If the missiles were discovered before they could be made operational, Khrushchev's plan would be ruined.¹¹

During the crisis that followed, President Kennedy made extensive use of photointelligence. This became the most important source of intelligence with regards to Cuba. The use of photointelligence took three distinct phases during the Cuban Missile Crisis. Starting in late July of 1962 U-2 missions were used to monitor the flow of Soviet arms in to Cuba. Photography from the 14 October mission revealed Soviet ballistic missiles in Cuba. When President Kennedy was informed of this development, he ordered all knowledge of the missiles classified until he could decide on a course of action. After 21 October, 1962, the President Kennedy used photointelligence to inform the public of the Soviet missile threat. This publicity established credibility for the quarantine. During the last days of the crisis photointelligence was used for verification of Soviet compliance with the removal agreement. In order to understand the contribution of photointelligence, the problem must be studied from its beginnings.

The situation in Cuba became more serious during the late part of July in 1962. From July through mid-October the United States used photointelligence to monitor the shipment of Soviet arms into Cuba. Between August and the beginning of October, 1962, the CIA averaged three U-2 missions per month over Cuba. After the discovery of ballistic missiles, the frequency of U-2 missions greatly increased. In the week following the

⁸ Nathan. *Anatomy*. 55.

⁹ Khrushchev. *KR*. 491-492.

¹⁰ *Ibid*.

¹¹ *Ibid*. 439-494.

initial discovery, there were seventeen over flights of Cuba.¹²

The CIA integrated many different types of intelligence to track the Soviet build up in Cuba. Cuban refugees were a source of information regarding Soviet deployments in Cuba. Refugees were interviewed at a facility located at the Opa-Locka Air Force Base, in Florida. The CIA was dissatisfied with the refugee reports, because they produced a contradictory and unclear picture of Soviet forces within Cuba. None of the refugee reports of nuclear missiles could be verified. Signals and electronic intelligence would also be used in supporting roles during the crisis. Aerial photointelligence was selected as the primary means of gathering intelligence regarding Cuba.¹³

The CIA first observed large arms shipments in late July. During this time there was not an effective air defense network over the island, so U-2s flew over the entire length of the island twice on each flight. These flight plans covered almost the entire island of Cuba. These missions produced vertical photographs, in which the U-2 flies directly over the target area. Photointerpreters judge this type of photography produced as the most

useful, because of the low degree of angular distortion.¹⁴

The CIA analysts concluded that the Soviets were using a standard strategy for sending arms to Cuba. Under this approach conventional weapons, such as rifles and machine guns, would be sent the Cuba in the initial shipments. Heavier weapons, such as tanks and artillery, would be sent next. Finally, the Soviets would send advanced anti-aircraft defenses; namely the SA-2 surface to air missile (SAM). This pattern had been demonstrated in other Soviet client states, such as Egypt and Syria.¹⁵

During the 29 August flight August a U-2 mission discovered several surface to air missile sites in Cuba. This discovery seemed to prove the analysts right, about the Soviet arms delivery strategy in Cuba. These sites were equipped with the SA-2 missile system, referred to as "GUIDELINE" in US intelligence. One of these missiles had shot down Gary Powers' U-2 over the Soviet Union, in 1960. These missiles were designed to handle single targets, as opposed to large groups of aircraft. If linked together in a network, these missiles could make over flights of Cuba dangerous. Such a defense network could completely prevent U-2 over flights.¹⁶

Following the discovery of SA-2 sites, the Kennedy administration ordered greater caution for U-2 over flights of Cuba. The CIA was ordered to stop direct over flights of the island.

¹² Document 1-"Maps of Cuban over flights" in, Central Intelligence Agency. *The Secret Cuban Missile Crisis Documents*. (Washington D.C., Brassey's (US), 1994. 1-3. Hereafter cited as *CIA Documents*.

¹³ Raymond L. Garthoff. "US Intelligence in the Cuban Missile Crisis" in James G. Blight and David A. Welch, eds. *Intelligence and the Cuban Missile Crisis*. (London, Frank Cass: 1998) 22-23. Hereafter cited as *Intelligence.*; Patterson and. Brophy. "October Missiles and November Elections:" *The Journal of American History*, Vol. 73, No. 1 (June, 1986) 98.

¹⁴ Document 1-"Maps of Cuban over flights"; Document 2- "Timetable of Soviet Military Buildup in Cuba" in *CIA Documents* 1-8.

¹⁵ Brugioni. *EtE.* 62-63.

¹⁶ Discovery of SA-2 sites Doc. 2 "Timetable of Soviet Military Buildup in Cuba" in *CIA Documents*, 7. SA-2 Data from Federation of American Scientists.

New missions would have to be flown around the perimeter of the island at a twenty-five mile range, keeping the planes outside the range of the anti-aircraft missiles. These new missions would produce oblique photography instead of vertical photography. Oblique photography would have lower quality than vertical photography, but would still be of use to the CIA. This was deemed to be an acceptable trade off in order to reduce the risks associated with the flights.¹⁷

The mission on 14 October 1962 would completely change the nature of the crisis. A U-2 flown by Major Richard Heyser flew over San Cristobal, near Havana. This site was selected for over flight because there were indications of ballistic missile activities at the site. These indications included signals intelligence that pointed to ballistic missile deployment in the area. Refugee reports of suspicious convoys and construction also drew the attention of the route planners.¹⁸

Major Heyser's flight produced the first tangible evidence of Soviet nuclear missiles in Cuba. A series of transporters for the SS-4 missile were photographed, along with support equipment. These forces were located near the town of San Cristobal. Poor weather had delayed Major Heyser's flight several times in the preceding days. In retrospect these delays proved to be beneficial to the mission. The Soviets had only moved the missiles and

support equipment into the area a few days before. Without these delays there would have been no activity to observe at San Cristobal. The next series of flights would not have been scheduled until early November, after the missiles would have been in place and operational.¹⁹

After the film was processed, the photointerpreters realized they were looking at Soviet nuclear missile transporters. The interpreters brought their suspicions to George Lundahl, the director of the National Photointelligence Center (NPIC).

Due to the serious nature of this development, Lundahl asked the interpreters to reexamine their assessment. Later during the evening of the fourteenth, the interpreters confirmed their assessment of the intelligence. The interpreters based their identification on the dimensions of the missile transporters. SS-4 ballistic missiles were approximately seventy feet in length, longer than any other kind of deployed Soviet missile. The length of these missiles had been established during years of photography in and over the Soviet Union. The missile transporters sighted at San Cristobal were between sixty-five and seventy feet in length. Lundahl was satisfied with this confirmation and notified McGeorge Bundy, President Kennedy's special advisor.²⁰

On October the sixteenth President Kennedy was briefed on the discovery over Cuba and shown the U-2

¹⁷ Doc. 45 "U-2 overflights of Cuba" in *CIA Documents*. 127-137.

¹⁸ Description of mission in Brugioni, *EtE*, 181-186.; Signals intelligence mentioned in James Bamford. *The Puzzle Palace: A Report on America's Most Secret Agency* (Boston, Houghton Mifflin Company: 1982) 215; Refugee reports mentioned in Doc. 45 "U-2" overflights of Cuba" in *CIA Documents*, 136.

¹⁹ Brugioni, *EtE*, 181-182, 198-202, 448. Flights over Cuba were generally scheduled twice per month, weather permitting.

²⁰ Dimensions of SS-4 from Federation of American Scientists. Available online at <http://www.fas.org/nuke/guide/russia/theater.r-12.htm>; NPIC activities in Brugioni. *EtE* 199-204

photographs. The president ordered that all information regarding the missiles in Cuba was to be kept secret until the administration had decided on a course of action. Kennedy immediately began debating with his advisors on the best course of action to respond to this threat. Later that day the president formed the Executive Committee (ExComm) of the National Security Council to handle the crisis. The group included Robert Kennedy, the Attorney General; Robert McNamara, the Secretary of Defense and Dean Rusk, the Secretary of State.²¹

At the first meetings of the ExComm an early consensus was reached favoring an air strike on strategic targets in Cuba, possibly followed by an invasion. This option was recommended by the Joint Chiefs of Staff. Initially, President Kennedy favored such a response. The only serious opposition came from Robert Kennedy. Robert Kennedy opposed air strikes on the grounds of the negative publicity that course of action would create, and the precedent for Soviet forces to attack American installations.²² During the next five days President Kennedy and ExComm deliberated over the best course of action toward the Cuban situation. On 16 October 1962 the President issued a “blanket authorization” for U-2 flights over the island. During this period there were seventeen flights over the island. These flights generated much vital intelligence

about the Soviet forces deployed in Cuba.²³

Photointelligence helped shape President Kennedy’s course of action. During this five day period a consensus emerged that favored a naval blockade of Cuba. U-2 over flights produced a tremendous amount of intelligence about the Soviet missile deployment in Cuba. The intelligence flights allowed the CIA to identify several more missile bases in Cuba, including sites for longer range Intermediate Range Ballistic Missiles. Photointelligence also allowed the CIA to monitor the construction of the missile sites. The CIA used this intelligence to estimate that some missile sites could be prepared for operations within a week.²⁴

This deadline gave the strategy deliberations an added sense of urgency. Any strike against the missiles would have to be preformed before the weapons became operational. Such a strike would also have to destroy all the missile sites or risk retaliation from the surviving missiles. The intelligence experts were never positive that they had identified every missile site and informed the president of this opinion. President Kennedy decided to adopt a strategy that would reduce the possibility of armed conflict and use the least offensive show of force. Kennedy ordered the Navy to establish a naval “quarantine” of Cuba.²⁵

During the last week in October the Kennedy administration used photointelligence to establish the

²¹ Doc. 16 “Transcript of the first Executive Committee meeting” in *The Cuban Missile Crisis: A National Security Archives Reader*. Laurence Chang and Peter Kornbluh, eds. (New York, The New Press: 1998) 96.

²² Doc. 16 “Transcript of the first Executive Committee Meeting” in *NSA Reader*. 95-106.

²³ Doc. 45 “U-2 Overflights of Cuba” in *CIA Documents*. 137.; Gen. William Y. Smith. “The View From Washington” in *Operation ANADYR* (Chicago, edition q: 1994) 124.

²⁴ Raymond L. Garthoff. “US Intelligence in the Cuban Missile Crisis” in *Intelligence*. 26-29.

²⁵ Raymond L. Garthoff. “US Intelligence in the Cuban Missile Crisis” in *Intelligence*. 26-29; *Anatomy*. 94.

credibility of the quarantine, at home and abroad. The fiasco at the Bay of Pigs had seriously strained President Kennedy's credibility with regards towards Cuba. If Kennedy's quarantine was to succeed, international and domestic political support would be vital. Photointelligence provided the administration with irrefutable proof of the Soviet missile threat in Cuba. The administration used this proof to secure the support of key allies in Europe and the Western hemisphere.

Crisis and Credibility

President Kennedy decided to disclose the missiles in Cuba on 22 October, 1962. That afternoon the principal allies of the United States were informed of the missiles in Cuba crisis. At 7 P.M., the President informed the American people of the developments in Cuba. In both of these disclosures, domestic and international, photointelligence served as an incontestable confirmation of Soviet missiles in Cuba.

The heads of government of the major Western allies were briefed on the situation in Cuba. The briefings were handled in order of the political power of the nation involved. The British government was informed first, at approximately seven in the morning. A briefing for the French government followed at eleven A.M. The German and Canadian governments were the last to be informed.²⁶ All of the briefings followed the same general format. The

resident ambassadors in each country delivered a letter from President Kennedy, along with a copy of the President's speech that would be delivered later that evening. Each ambassador was accompanied by a CIA officer and copies of the intelligence photographs showing the missile sites in Cuba. The CIA officers would be responsible for the intelligence briefings directed toward the heads of government. These officers would also be responsible for responding to any questions raised by the government officials.²⁷

The CIA briefing notes continued the major topics covered in the presentations. These topics included the reasons for the Soviet missile deployment, descriptions of the arms buildup in Cuba, and descriptions of the offensive weapons and their capabilities. These presentation notes stress that the President's decision is based on high quality intelligence of Soviet activities in Cuba. High and low level photointelligence are cited as the primary, and most reliable, sources of information in this situation.²⁸

Soviet strategic weapons were given a good deal of coverage in the briefing notes. Photointelligence identified ships carrying Il-28 nuclear capable bombers in the early part of October. Further missions allowed the CIA to track the assembly and preparation of these jet bombers. The discovery of these planes prompted the CIA to intensify photointelligence efforts, which led to the uncovering of the ballistic missile bases.²⁹

²⁶ Sherman Kent. *The Cuban Missile Crisis of 1962. :Presenting the Photographic Evidence Abroad.* (1972) Available online at: <http://www.fas.org/irp/imint/cubakent.htm>. Accessed 30 October 2003. 2. Hereafter cited as *Presenting*.

²⁷ Ibid.

²⁸ Document 74-“Soviet Military Buildup in Cuba.” 247-259 in *CIA Documents*.

²⁹ Ibid.

The briefing notes feature detailed information about the status of these missile bases in Cuba. The notes stress that the missiles were identified through comparison between the imagery from missions over Cuba and photography from sources within the Soviet Union, such as parades and field exercises. These notes give an approximate operational date of the first of November for the existing sites in Cuba.³⁰

The CIA officers were instructed to report on the reaction of the foreign officials to this information. As Sherman Kent, a CIA officer during the Crisis, points out any observer can discern the basic details of an aerial photograph. However, it takes a highly trained photointerpreter to distinguish between different classes of missiles. The CIA wanted to assure that their interpretations were readily accepted. In the end, the CIA had no reasons to worry.³¹

British Prime Minister Macmillan only glanced at the photographs. Macmillan readily accepted the CIA's expertise in dealing with photointelligence and Soviet weapons systems. French President de Gaulle also accepted the CIA's interpretation without question. Kent recounts that these men did not question the authenticity of the intelligence, as long as President Kennedy vouched for it. Other senior civil servants, such as the British and French ambassadors, held a similar view.³²

At 7 P.M., on 22 October, President Kennedy made a speech to the American people. In this speech the President informed the nation of the

Soviet offensive weapons in Cuba and the resulting crisis. During this speech he outlined a plan of action to remove the missiles from Cuba. Kennedy's plan was to use the blockade and diplomatic pressure in order to force Khrushchev to remove the missiles without an armed confrontation. President Kennedy also established the justification for an American intervention in the Caribbean. President Kennedy delivered this speech in order to build credibility within the United States and Latin America for his blockade.

During the speech the President made several indirect references to photointelligence and its importance. President Kennedy cited "unmistakable evidence" of Soviet missiles in Cuba. The President also made reference to the "surveillance" of Cuba, and its increase since the discovery of the missiles. The President also offered to defend his position in any international forum of the Soviet's choosing. These strong statements prove that Kennedy believed in the validity the photointelligence.³³

President Kennedy referred to the missiles as a threat against the entire western hemisphere. The president noted that the American people had become accustomed to the threat of Soviet nuclear attack. However, the missiles stationed in Cuba now placed Latin America in danger of nuclear attack. Citing several international agreements, President Kennedy called on the Organization of American States (OAS) to adopt a resolution approving of quarantine by the United States.³⁴

The OAS met on October twenty-third to discuss President Kennedy's request. Delegates from the

³⁰ Ibid.

³¹ Kent. *Presenting*. 2-3.

³² Ibid.

³³ President Kennedy's address to the Nation in: Nathan. *Anatomy*. 171.

³⁴ Ibid, 171-175.

other countries in the OAS were briefed by representatives from the CIA and the State Department. Following this briefing the photointelligence was presented for the delegates to inspect. The photographs convinced the delegates of seriousness of the situation in Cuba. The delegates voted unanimously in support of Kennedy's quarantine. This show of support helped strengthen Kennedy's position in the international arena.³⁵

The United Nations served as the primary diplomatic battleground during the crisis. On 22 October, 1962 Ambassador Stevenson had exchanged remarks with the Soviet Ambassador. He had accused the Soviets of deception in stationing missiles and other strategic forces in Cuba. Stevenson knew that these claims would have to be supported with hard evidence, in the form of photointelligence.

The initial UN briefings were made for ambassadors Europe and Latin America, mostly United States allies. The ambassadors were briefed about the situation in Cuba and then shown briefing boards of the photointelligence. These boards detailed the deployment of the missiles and the preparations of the launch sites. The ambassadors reacted favorably to the photography and agreed with the United States' position. Another briefing later that day included representatives from Cuba as well as Asian and African countries. The Cubans were especially impressed with the photography.³⁶

On the twenty-fifth Ambassador Stevenson confronted the Soviet Ambassador on the floor of the UN Security Council. Stevenson had received authorization to use U-2

photography from Robert Kennedy. When Stevenson made his speech to the council he made extensive use of the photointelligence. Several photography boards showed the progression of the Soviet missile sites. The Soviet ambassador was powerless to counter the claims of the United States in the face of the photographic evidence. While the Council took no direct action, the political victory that evening was enormous. The photography had proven the American claim beyond any doubt.³⁷

During the crisis both sides were on the brink of war. Even the slightest provocation could have produced catastrophe. On the twenty-seventh such a provocation accidentally occurred. A U-2 flying over Cuba was shot down by Soviet forces operating a SA-2 installation. Cuban forces had opened fire on the U-2 with their anti-aircraft guns. These guns did not have the range necessary to strike down the U-2, however. Nearby a Soviet anti-aircraft missile unit heard the firing and assumed that an American invasion had begun. The commander of the missile battery was unable to reach his headquarters and acted on his own initiative. He ordered his men to track and destroy the intruder. The U-2 was shot down and the pilot was killed. This situation did nothing to ease the tensions in the Western Hemisphere and the officer responsible was sharply reprimanded.³⁸

Soviet Withdrawal

The following day Khrushchev announced the withdrawal of Soviet missiles from Cuba. An agreement had been reached which would allow

³⁵ Brugoini. *EtE*. 378-379.

³⁶ *Ibid.* 396-397.

³⁷ *Ibid.* 426-429.

³⁸ Gen. Anatoli I. Gribkov. "The View From Moscow and Havana" in *ANADYR*. 66-68.

Khrushchev to remove the missiles from Cuba in exchange for a United States pledge not to invade the island. A secret clause in the agreement, not revealed until the 1980s, called for the United States to remove similar missiles from Turkey. Shortly after this announcement Soviet forces began dismantling the missile bases and bombers in Cuba.³⁹

Photointelligence planes monitored the Soviet forces during their withdrawal from Cuba. During the early stages of the withdrawal the Soviet forces seemed to be stalling and not removing the equipment. The Joint Chiefs of Staff continued to argue for an attack on the missile sites. However, on 2 November, 1962, U-2 photography showed that missile sites were being disassembled and the missiles prepared for shipping. After this confirmation, photointelligence continued to reassure the Kennedy administration that the Soviet withdrawal was proceeding as agreed.⁴⁰

Soviet ships were monitored by American aircraft throughout the journey from Cuba to the Soviet Union. The Soviet ships stored the ballistic missiles on deck, removing their canvas tarps at the sight of American planes. This measure allowed the Americans to verify the status of the weapons at all times and helped to reduce tensions during the resolution of the crisis.⁴¹

Conclusion and Lessons Learned

Khrushchev was depending on the missiles remaining secret until they were operational. This secrecy was

³⁹ Nathan. *Anatomy*. 98-99.

⁴⁰ Gen. Smith. "The View From Washington" in *ANADYR*. 149.

⁴¹ Gen. Gribkov. "The View From Moscow and Havana" in *ANADYR*. 73

central in his plan to prevent American forces from acting before the missiles were operational. When photointelligence removed this secrecy, Khrushchev was forced to go on the defensive. Eventually Khrushchev was forced to relent to the situation and remove the missiles. Khrushchev himself admits that American photointelligence was a key factor in the peaceful resolution of the crisis.⁴²

Photointelligence showed some limitations during the Cuban Missile Crisis. These limitations are due, in part, to the nature of photointelligence. Photointelligence is designed to provide information about permanent structures, such as buildings and roads. When used against mobile targets, such as troop concentrations, the values of strategic photointelligence is diminished. Photointelligence failed to uncover the presence of 45,000 Soviet troops in Cuba. The CIA estimated that there were fewer than 10,000 Soviet troops on the island. Judging the number of properly hidden ground forces is a difficult task for photointerpreters. Ground troops have less heavy equipment associated with their deployment than missile launchers and nuclear bombers.

Photointelligence also failed to uncover definite proof of Soviet tactical nuclear weapons. These weapons are compact and have very short ranges since they are designed for use on the battlefield. In 1992 former Soviet General Anatoli Gribkov revealed that the Soviets had deployed more than 100 tactical nuclear weapons during the Crisis. Former Secretary of Defense McNamara noted that the use of such weapons against American forces would

⁴² Khrushchev. *KR*. 495.

have provoked retaliation on a similar scale.⁴³

Photointelligence provided irrefutable evidence of the Soviet missiles in Cuba. With this evidence the Kennedy administration was able to secure the support of our key allies, such as Britain and France. Photointelligence also convinced the OAS to support the American quarantine of Cuba. This intelligence proved vital in resolving the crisis through diplomatic means. Without photointelligence it would have been impossible for President Kennedy to take action against the missiles before they were ready to strike.

Abbreviations

Anatomy - Anatomy of the Cuban Missile Crisis

CIA - Central Intelligence Agency

CIA Documents - The Secret Cuban Missile Crisis Documents

EtE - Eyeball to Eyeball: The Inside Story of the Cuban Missile Crisis

Intelligence - Intelligence and the Cuban Missile Crisis

KR - Khrushchev Remembers

Mayday - MAYDAY: Eisenhower, Khrushchev and the U-2 Affair.

NSA Reader - The Cuban Missile Crisis, 1962: A National Security Documents Reader

NPIC - National Photographic Intelligence Center

Presenting - The Cuban Missile Crisis of 1962. Presenting the Photographic Evidence Abroad

OAS - Organization of American States

SAM - Surface to Air Missile

UN - United Nations

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⁴³ Gen. Gribkov. "Thirty Years Later" in *ANADYR*. 165-166.; Gen Smith "looking Back" 174.

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