Gambit-Hexagon Overview Transcript

(Winston Churchill)
From Stettin on the Baltic to Trieste in the Adriatic, an iron curtain has descended across the continent. Behind that line lie all the capitals of the ancient states of central and Eastern Europe.

(narrator)
Late in 1954, President Eisenhower directed the office of defense mobilization to conduct a threat analysis of a surprise attack from the Soviet Union.

The report strongly recommended development of new capabilities for overhead collection.

American scientists thought a reconnaissance spacecraft high in orbit, could overcome the limitations of balloons and aircraft and provide wide area search of the Soviet Union and China.

In July 1955, at the summit in Geneva, President Eisenhower proposed to the Soviet delegation a reciprocal reconnaissance over flight agreement called "open skies".

It was rejected.

President Eisenhower wanted to know...

What are their capabilities?

What are their intentions?

(narrator)
In 1958, with presidential authorization, the Air Force and the CIA began working on a top secret program to develop systems to collect intelligence from space.

This required inventing brand new technologies and operations.

At first progress was slow.

In the meantime, the recently developed U-2 was used sparingly to photograph specific targets such as airfields, radar installations, and missile test and launch sites.

On the first attempt to cross the Soviet Union, border-to-border, the U-2 piloted by Francis Gary Powers was brought down by a missile.

(President Dwight D. Eisenhower)
No one wants another Pearl Harbor. This means that we must have knowledge of military forces and preparations, around the world, especially those capable of massive surprise attack. Secrecy in the Soviet Union makes this essential. In most of the world, no large scale attack could be prepared in secret, but in the Soviet Union there is a fetish of secrecy and concealment. This is a major cause of international tension and uneasiness today.

(narrator)
On 10 august 1960, three months after the U-2 shoot down, the U.S. launched the thirteenth attempt to successfully test a satellite imagery collection system. The U.S. retrieved a return capsule from the nation's first imagery satellite program, code-named Corona. With this success, the U.S. began 50 years of imagery collection from space.

For the next twelve years, Corona provided the much needed look into the vast, denied areas of the communist bloc.

(narrator)
Meanwhile, development teams worked hard to improve the program, and three years after Corona's first successful launch, the second generation reconnaissance satellite, Gambit-1, was on orbit.

It was essentially a powerful reflecting telescope camera in space, also called KH-7 it had three times the focal length of Corona, and provided an average of a thousand photographs per mission of high resolution imagery, answering many of the questions posed by the intelligence community.

Three years from the first gambit launch, a more advanced imagery capability arose with the introduction of Gambit-cubed. Also known as KH-8, this new system boasted advanced capabilities including a focal length over seven times that of Corona and a larger film payload made possible by thinner film, only 1.5 mil thick.

KH-8 averaged about 9,000 frames per mission, with some missions as high as 24,000.

Another innovation was the "roll joint" section between the payload and the agena vehicle.

The "roll joint" allowed the camera unit to swing from target to target while the agena kept everything stable and on course.

The KH-8 images were extraordinarily sharp and detailed.

The field of view was very narrow, not unlike looking through a straw at a wall-sized map.

Together, Corona and Gambit provided complimentary reconnaissance capabilities.

Corona performed the wide area, "search-and-locate" function and Gambit focused in close for the technical details.

With the success of Corona and Gambit, intelligence analysts were convinced that what the country really needed was the area coverage of corona and the resolution of Gambit, within a single system.

In 1971, the NRO launched its next generation wide area search imagery spacecraft.

Hexagon, or KH-9, was much larger than Corona, or either of the Gambits. At 60 feet long and 10 feet in diameter, the payload vehicle had significantly more capacity and capability.

The primary camera system was panoramic with a pair of counter-rotating, stereoscopic cameras, one looking forward and one looking toward the rear.

It could photograph with black and white, infrared false color, and natural color film.

A second camera system, specifically tasked with terrain mapping and geodesy, was mounted up front on some missions complete with its own film supply and recovery vehicle.

Because of Hexagon's increased capabilities, longer missions and increased photography were possible.

One of the last hexagon missions completed 271 days on orbit and captured 1,722 images.

From the first successful Corona mission in 1960 to the last successful Hexagon mission in 1984,film return satellites provided extremely valuable intelligence, which proved essential in:

Assessing the development and deployment of Soviet and Chinese ICBM's;

Assessing the Soviets' ground order-of-battle for central Europe and the Sino-Soviet border;

Monitoring the Salt-1 treaty;

Monitoring of Soviet defense industrial complex and specific weapon systems;

Assessing the Soviet effort to land a man on the moon;

Monitoring nuclear weapons programs in the USSR, China and others;

Assessing Soviet denial & deception;

Photo-mapping denied areas with extreme accuracy;

and monitoring Soviet export shipments of weapons to others

Corona, Gambit, and Hexagon all proved remarkable achievements, but remember this, these highly complex and unique systems were conceived, invented, and developed in the 1950's, and were first flown and operated in 1960.

Think about the state of technology in daily life back in the fifties and sixties.

This technology was so advanced it remained unmatched for decades.