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21 OCTOBER 1972

DCI ADDRESS FOR  
PROJECT CORONA MUSEUM OPENING  
11:00 A.M., 25 OCTOBER

A POINT IN TIME

FOR A MOMENT, LET US THINK BACK TO A POINT IN TIME--TO OCTOBER 24, 1957, TO BE PRECISE. ON THAT DATE THE PRESIDENT'S BOARD OF CONSULTANTS ON FOREIGN INTELLIGENCE ACTIVITIES SUBMITTED ITS REPORT TO PRESIDENT EISENHOWER ON THE STATUS OF THE INTELLIGENCE COMMUNITY'S COLLECTION CAPABILITIES. WITH STRONG URGING FROM DR. EDWIN LAND, THE BOARD CALLED FOR A RE-ASSESSMENT OF THE AIR FORCE'S SAMOS SATELLITE RECONNAISSANCE SYSTEM THEN UNDER DEVELOPMENT BY THE AIR FORCE. THIS WAS A COMPLICATED SYSTEM BASED ON ELECTRICAL TRANSMISSIONS OF IMAGES FROM SPACE. AT THE SAME TIME, THE A-12 OXCART RECONNAISSANCE AIRCRAFT PROPOSED BY CIA WAS GIVEN A CAREFUL EVALUATION. THE BOARD HELD THAT WHILE BOTH WERE PROMISING PROGRAMS, THE CRITICAL NEED FOR INTELLIGENCE AT THAT POINT IN TIME WARRANTED AN INTERIM PHOTORECONNAISSANCE SYSTEM THAT COULD GET INTO OPERATION EARLIER THAN THE SAMOS COULD BE READY.

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THIS WAS A SIGNIFICANT DECISION, PARTICULARLY FOR THAT ERA. JUST 20 DAYS BEFORE, THE SOVIET UNION HAD ORBITED THE WORLD'S FIRST SATELLITE--SPUTNIK I-- FROM THE TYURATAM RANGE. THE UNITED STATES WAS STILL OVER THREE MONTHS AWAY FROM LAUNCHING ITS FIRST SMALL SATELLITE. BUT THE NEED FOR RELIABLE INTELLIGENCE ON SOVIET MISSILE DEPLOYMENT WAS BECOMING MORE AND MORE URGENT. THE SO-CALLED "MISSILE LAG" DEBATE WAS ALREADY UNDER WAY WITH THE SENATE PREPAREDNESS SUBCOMMITTEE HOLDING HEARINGS ON THIS ISSUE.

THE WHITE HOUSE RESPONDED RAPIDLY TO THE BOARD'S RECOMMENDATION. DR. JAMES KILLIAN, WHO HAD JUST ASSUMED HIS NEW POSITION AS SPECIAL ASSISTANT TO THE PRESIDENT FOR SCIENCE AND TECHNOLOGY, ARRANGED A MEETING FOR THE FIRST WEEK OF DECEMBER BETWEEN THE PRESIDENT, THE DIRECTOR OF CENTRAL INTELLIGENCE, MR. ALLEN DULLES, AND THE DEPUTY SECRETARY OF DEFENSE, MR. DONALD QUARLES.

AT THIS MEETING, ONLY EIGHT WEEKS AFTER SPUTNIK I, THE PRESIDENT DECIDED TO PROCEED WITH A JOINT CIA-AIR FORCE INTERIM PHOTORECONNAISSANCE SATELLITE PROGRAM TO ANSWER THE CRITICAL INTELLIGENCE QUESTIONS ABOUT SOVIET MISSILES. THE SYSTEM WAS TO BE BASED

ON PHYSICAL RECOVERY OF FILM FROM THE SPACE VEHICLE. THIS DECISION MARKED THE BIRTH OF THE REMARKABLE CORONA PROJECT. THE FULL IMPORT OF THE DECISION, HOWEVER, CAN BE COMPREHENDED ONLY IF WE RECALL THE PRIMITIVE NATURE OF OUR UNDERSTANDING OF SPACE TECHNOLOGY, AND THE CRITICAL NEED FOR HARD INTELLIGENCE INFORMATION WHICH EXISTED AT THAT POINT IN TIME.

THE STALWARTS OF THE CORONA MANAGEMENT TEAM WERE DICK BISSELL OF CIA'S DEVELOPMENT PROJECTS STAFF AND OSMOND RITLAND OF THE AIR FORCE'S BALLISTICS MISSILE DEVELOPMENT COMMAND. THE TWO HAD WORKED EFFECTIVELY TOGETHER IN THE CRASH DEVELOPMENT OF THE U-2 SEVERAL YEARS EARLIER. WITHIN ONLY A FEW MONTHS, THEY PUT TOGETHER A PROGRAM OUTLINE FOR PROJECT CORONA WHICH SHOWED REMARKABLE FORESIGHT. ONE VERY CRITICAL DECISION MADE DURING THIS PERIOD CONCERNED MEANS FOR RECOVERING THE FILM FROM THE CORONA VEHICLE. GENERAL ELECTRIC WAS ASSIGNED THE TASK OF DEVELOPING THE WORLD'S FIRST SPACE RECOVERY CAPSULE. THIS RECOVERY DEVICE GAVE THE U.S. A PHOTORECONNAISSANCE CAPABILITY A FULL DECADE BEFORE READOUT SYSTEMS-- WITH WHICH WE ARE STILL HAVING TROUBLE--WERE DEVELOPED. IN SHORT, WITHOUT FILM RECOVERY, HIGH RESOLUTION SEARCH AND SURVEILLANCE WOULD NOT HAVE BEEN POSSIBLE IN THE 1960s.

IT WAS ALSO DECIDED TO IMPLEMENT A RADICALLY NEW PANORAMIC CAMERA DESIGN. THE BASIC CONCEPT HAD BEEN DEVELOPED BY A SPIN OFF GROUP FROM BOSTON UNIVERSITY, WHO HAD FOUNDED A NEW CORPORATION CALLED ITEK. TAKING OFF FROM ITEK'S CONCEPT, LOCKHEED CARRIED THE PROJECT FORWARD BY DEVELOPING A STABILIZED SPACE PLATFORM AND INTEGRATING THE CAMERA AND RE-ENTRY VEHICLE INTO A WORKING PHOTORECONNAISSANCE SATELLITE SYSTEM. THIS WAS THE DESIGN THAT MR. BISSELL PRESENTED TO THE PRESIDENT IN HIS PROJECT OUTLINE OF APRIL 15, 1958. TEN DAYS LATER, ON THE BASIS OF THIS PLAN, THE FIRST CORONA CONTRACT WAS NEGOTIATED BETWEEN CIA AND LOCKHEED. I AM HAPPY TO SEE HERE TODAY SEVERAL OF THE MEN WHO, AS EARLY PROGRAM MANAGERS, PLAYED SUCH KEY ROLES IN MAKING CORONA A SUCCESS.

IT WAS NOT AN EASY SUCCESS, DESPITE THE PROMISING START I HAVE JUST DESCRIBED. THOSE WERE THE DAYS OF THE SPACE PIONEERS, WHERE THE SOLUTION TO LAST MONTH'S FAILURE ONLY SURFACED NEW PROBLEMS FOR WHICH ENGINEERING SOLUTIONS MUST BE FOUND, AND RAPIDLY. THERE JUST WAS NOT TIME FOR LONG DEVELOPMENT SPANS.

WE OF COURSE CONTINUED TO THINK ABOUT AND WORK TOWARD LONG-RANGE SOLUTIONS, BUT MANY OF THE EARLY PROBLEMS HAD TO BE MET WITH YANKEE INGENUITY. FOR EXAMPLE, THERE WAS THE PROBLEM OF AN ON-PAD PAYLOAD COVER. WE HAD A GOOD ONE ON THE DRAWING BOARDS, BUT WE COULD NOT WAIT FOR IT. SO, FOR THE NEXT FLIGHT WE FABRICATED A SHROUD OUT OF SUCH MATERIAL AS PING PONG BALLS, BROWN PAPER AND PIANO WIRE. WE TESTED THIS INTERIM DESIGN, IF I MAY CALL IT THAT, WITH A HIGH SPEED SPORTS CAR ON THE BAYSHORE FREEWAY. UNFORTUNATELY, THE HIGHWAY PATROL RESPONDED WITH A SPEEDING TICKET FOR THE TEST ENGINEER. THIS DESIGN WAS PHASED OUT AFTER ONE FLIGHT.

FOR TWO OF THE KEY DEVELOPMENT PROBLEMS, THE EARLY SOLUTIONS PROVED TO BE FIRST RATE, AND CONTINUED THROUGHOUT THE PROGRAM. ONE OF THESE SOLUTIONS WAS THE USE OF COLD GAS FOR THE CRITICAL REENTRY VEHICLE SPIN SYSTEM. THERE WAS ALSO THE "DRY LEAVES" FILM PROBLEM, WHICH WAS SOLVED BY EASTMAN KODAK'S BREAKTHROUGH IN COATING EMULSION ONTO A MYLAR BASE. THE DEVELOPMENT OF MYLAR BASE FILM WAS ESSENTIAL TO THE SUCCESS OF SPACE RECONNAISSANCE.

DISCOVERER I WAS LAUNCHED IN FEBRUARY 1959. IT WAS A LONG 18 MONTHS, HOWEVER, BEFORE WE SUCCESSFULLY RECOVERED THE FIRST BATCH OF FILM FROM

DISCOVERER XIV IN AUGUST 1960. MEANWHILE, THE MISSILE GAP CONTROVERSY HAD REACHED A BOILING POINT DURING THE PREPARATION OF THE NATIONAL INTELLIGENCE ESTIMATE ON GUIDED MISSILES IN THE FALL OF 1959. THE VARIOUS INTELLIGENCE AGENCIES HELD WIDELY DIVERSE VIEWS ON SOVIET MISSILE STRENGTH, AND THE INFREQUENT U-2 FLIGHTS HAD YET TO PHOTOGRAPH AN OPERATIONAL SOVIET STRATEGIC MISSILE LAUNCH SITE. NINETEEN SIXTY WAS AN ELECTION YEAR IN WHICH THE MISSILE GAP HAD BECOME A GRAVE POLITICAL ISSUE. MOREOVER, THE PRESIDENT WAS SCHEDULED TO MEET WITH SOVIET LEADERS IN SUMMIT TALKS THAT SPRING, WITHOUT, IT APPEARED, THE BENEFIT OF HARD INTELLIGENCE DATA. THEN CAME MAY DAY OF 1960 AND THE TRAGIC LOSS OF THE U-2 OVER SVERDLOVSK. THE SUMMIT TALKS WERE CANCELLED, BUT THE MISSILE GAP DEBATE WENT ON APACE. WE HAD LOST, WITH THE U-2, OUR ONLY CAPABILITY FOR OBTAINING RELIABLE INTELLIGENCE ON SOVIET MISSILE DEPLOYMENT.

THIS CAPABILITY WAS NOT ONLY RESTORED, BUT DRAMATICALLY INCREASED ON AUGUST 19, 1960. ON THAT DAY DISCOVERER XIV SUCCESSFULLY COMPLETED THE WORLD'S FIRST SATELLITE RECONNAISSANCE MISSION--MISSION 9009 AS IT WAS CALLED. THIS SINGLE MISSION GAVE US MORE PHOTOGRAPHIC COVERAGE OF THE SOVIET UNION THAN THE U-2 PROGRAM HAD PROVIDED SINCE ITS INCEPTION IN 1956.

THE SUCCESS OF MISSION 9009, COUPLED WITH THE TECHNICAL DIFFICULTIES OF THE AIR FORCE SAMOS AND THE AGENCY'S OXCART PROGRAMS I HAVE ALREADY MENTIONED, SIGNALLED AN EXTENSION FOR CORONA, AND A FIRM REALIZATION OF THE IMPORTANCE OF THIS EXCEPTIONAL INTELLIGENCE ASSET. WE SOON IMPROVED THE CAMERA DESIGN, AND THEN ADDED A STEREO CAPABILITY. THE SINGLE RECOVERY CAPSULE WAS REPLACED BY TWO, AND FINALLY BOTH CAMERA AND SYSTEM WERE UPGRADED IN WHAT WAS CALLED THE J-3 PAYLOAD.

I THINK IT IS MOST IMPORTANT TO REMEMBER THAT IN THE FINAL ANALYSIS, IT WAS "THE PEOPLE"--AIR FORCE, AGENCY, AND CONTRACTOR--WHO WERE THE KEY TO THE SUCCESS OF THIS PROGRAM. THE EARLY CORONA SUCCESSSES CAME BEFORE THE AGENCY BEGAN ITS AWARDS PROGRAM, BUT SEVERAL KEY OSP OFFICERS RECEIVED THE INTELLIGENCE MEDAL OF MERIT FOR THEIR OUTSTANDING CONTRIBUTIONS TO THE EARLY FLIGHTS.

THERE WERE NO ELABORATE FACILITIES. THE WORK WAS DONE IN A DAIRY FARM BUILDING IN BOSTON, AN A & P WAREHOUSE IN PHILADELPHIA, AND A SKUNK WORKS SECTION OF A [REDACTED] PLANT IN PALO ALTO, CALIFORNIA. THE FUNDS WERE LIMITED; LESS THAN [REDACTED] [REDACTED] WAS SPENT ON THE PROGRAM FROM APRIL 1958

TO AUGUST 1960. EVEN HAD THE COST BEEN LARGER, THE SAVINGS WOULD HAVE BEEN GREATER. WITHOUT CORONA THE MISSILE GAP CONTROVERSY MIGHT WELL HAVE CONTINUED THROUGH THE DECADE, WITH THE DEFENSE BUDGET BASED ON FEAR RATHER THAN ON KNOWLEDGE.

WE ARE WELL INTO THE SPACE AGE NOW. MAN HAS BEEN TO THE MOON AND BACK. WHEN HE WENT, HOWEVER, HE TOOK WITH HIM A REPACKAGED VERSION OF THE CORONA CAMERAS WITH WHICH TO MAP THE SURFACE OF THE MOON. AND WHEN HE CAME BACK, HE WAS RECOVERED FROM ORBIT BY THE SAME TECHNOLOGY AND PROCEDURES DEVELOPED FOR PROJECT CORONA.

THE LIST OF FIRSTS FOR THIS PROGRAM IS A LONG ONE. THE WORLD'S FIRST RECOVERY FROM SPACE; THE WORLD'S FIRST AERIAL RECOVERY; THE FIRST MULTIPLE RECOVERY SYSTEM. THE 165 SUCCESSFUL RECOVERIES ARE MORE THAN THE TOTAL OF ALL THE OTHER UNITED STATES PROGRAMS COMBINED. THERE WERE ALSO FIRSTS IN SPACE-CRAFT CONTROLS AND, CERTAINLY NOT LEAST, IN PHOTOGRAPHY FROM SPACE. CORONA PROVIDED PHOTOGRAPHIC COVERAGE OF OVER 500,000,000 SQUARE MILES OF THE EARTH'S SURFACE, A DRAMATIC ACHIEVEMENT IN ITSELF. BUT THE TRUE IMPORTANCE TO NATIONAL SECURITY WAS THE INTELLIGENCE PRODUCED BY LIFTING THE CURTAIN

OF SECRECY THAT SURROUNDED THE SOVIET UNION. IN CONTRAST TO THE FRUSTRATION WHICH EXISTED IN THE INTELLIGENCE COMMUNITY AT THE POINT IN TIME THAT CORONA WAS UNDERTAKEN IN 1957, WE HAD BY 1964 PHOTOGRAPHED ALL OF THE SOVIET ICBM COMPLEXES THEN IN EXISTENCE. THE VALUE OF THE PROGRAM TO THE UNITED STATES INTELLIGENCE EFFORT IS GIVEN DIMENSION BY THIS STATEMENT IN THE AGENCY'S 1968 REPORT: "NO NEW ICBM COMPLEXES HAVE BEEN ESTABLISHED IN THE USSR DURING THE PAST YEAR." SUCH AN UNEQUIVOCAL STATEMENT COULD BE MADE ONLY BECAUSE OF THE CONFIDENCE HELD BY THE ANALYSTS THAT IF THE MISSILE SITES WERE THERE, CORONA PHOTOGRAPHY WOULD HAVE DISCLOSED THEM.

IT WAS CONFIDENCE IN THE ABILITY OF INTELLIGENCE TO MONITOR SOVIET COMPLIANCE WITH THE COMMITMENTS THAT ENABLED PRESIDENT NIXON TO ENTER INTO THE STRATEGIC ARMS LIMITATION TALKS AND TO SIGN THE ARMS LIMITATION TREATY. MUCH--BUT BY NO MEANS ALL--OF THE INTELLIGENCE NECESSARY TO VERIFY SOVIET COMPLIANCE WITH SALT WILL COME FROM PHOTORECONNAISSANCE SATELLITES. CORONA, THE PROGRAM WHICH PIONEERED THE WAY IN SATELLITE RECONNAISSANCE, DESERVES THE PLACE IN HISTORY WHICH WE ARE PRESERVING THROUGH THIS SMALL MUSEUM DISPLAY.

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"A DECADE OF GLORY," AS THE DISPLAY IS ENTITLED, MUST FOR THE PRESENT REMAIN CLASSIFIED. WE HOPE, HOWEVER, THAT AS THE WORLD GROWS TO ACCEPT SATELLITE RECONNAISSANCE, IT CAN BE TRANSFERRED TO THE SMITHSONIAN INSTITUTION. THEN THE AMERICAN PUBLIC CAN VIEW THIS WORK, AND THEN THE MEN OF CORONA, LIKE THE WRIGHT BROTHERS, CAN BE RECOGNIZED FOR THE ROLE THEY PLAYED IN THE SHAPING OF HISTORY.

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