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ATIC History

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FOREWORD
TO THE HISTORY OF
THE AIR TECHNICAL INTELLIGENCE CENTER

For the Period
1 January 1956 - 30 June 1956

This edition of the History of the Air Technical Intelligence Center reflects the progress made in the development of objectives, policies, and concepts for the management of the Center subsequent to the reorganization completed during the previous reporting period. Manning the new organization presented a major problem to management.

Important activities of the Center are presented in separate chapters covering various management and production activities. Production activities reflect the degree to which requirements for intelligence implicit to the mission of ATIC were met.

Footnotes, if any, are listed at the end of Section I and each chapter within Section II.

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SECTION I

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ORGANIZATION AND FUNCTIONS

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CHAPTER 1

ORGANIZATION AND FUNCTIONS

During this period the Deputy for Acquisition eliminated the Technical Training Division.¹ The USAF Technical Intelligence School was placed on standby status and the majority of personnel assigned to other offices. The Deputy for Acquisition retained the functions of establishing training and debriefing requirements; and transferred ATILO administrative functions to the Personnel and Management Office, including responsibility for scheduling ATILO's for initial training, debriefing, and reorientation. The flight operations functions of the Technical Training Division were transferred to a new organization, Flight Services Office, under the Deputy for Material Support.² The Deputy for Acquisition reassigned the Photographic Branch from the Technical Training Division to Operations Division.³ (Uncl)

This reorganization separated staff and operations responsibilities and improved the span of management by combining functions with related functions of other established components. (Uncl)

The Office of the Adjutant assumed responsibility for administrative control and logistical services to the Western Office, operational coordination, and action by ATIC on Western Office requirements. Transfer of this responsibility from the Deputy for Acquisition separated advisory staff functions and functions of staff-support services. (Uncl)

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SECTION II

ATIC

ACTIVITIES

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CHAPTER 2

PROBLEMS

The reviewed period was a time for directing attention to implementation of the organizational doctrine developed at the time of reorganization in August 1955. To interrelate responsibilities within the Center properly, there was some clarification required of interpretations placed on functional assignments. (Uncl)

A situation requiring clarification of position confronted the Deputy for Science and Components with regard to respective responsibilities for production of intelligence on missile guidance and control. With no amendment of previously stated responsibilities, mutual understanding was reached in conference. The result was agreement that the Deputy for Air Weapon Systems is responsible for over-all guidance-system intelligence; and that the Deputy for Science and Components is responsible for the electronic, mechanical, and component sub-systems intelligence, including analysis of individual electronic elements and their association with each other as an electronic sub-system. (Uncl)

Other problems concerning organization and functions remained unresolved at the close of this reporting period. One, an internal matter, concerned clarification of responsibilities for the Program Planning Office and Personnel and Management Office, to prevent overlap in the area of administrative management matters. (Uncl)

The other problem concerned conflicting statements of responsibilities for the ELINT Program in a Directorate of Intelligence Office Memorandum and in ATIC functional statements. Discrepancies pertained

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to the establishment of ELINT requirements, scope of program evaluation, and respective technical assistance responsibilities. This was considered a major problem confronting the Center at the close of this period. It prevented positive interrelationship of responsibilities for ELINT within the Air Force. (Uncl)

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CHAPTER 3

PERSONNEL

The following changes were made in key personnel assigned to the Air Technical Intelligence Center between 1 January 1956 and 30 June 1956. (Uncl)

Colonel George R. Weinbrenner, Deputy Director, Deputy for Acquisition, replaced Colonel Malcolm D. Seashore, Director. Colonel Weinbrenner became Acting Director, Deputy for Acquisition, in January 1956;⁵ and Director, Deputy for Acquisition, on 17 February 1956.⁶ (Uncl)

Lieutenant Colonel Ralph S. Jordan, who had been assigned as Director, was designated Acting Director, Deputy for ELINT, on 29 March 1956. (Uncl)

Lieutenant Colonel Chester H. Long assumed the duties of Executive Officer on 19 June 1956, replacing Colonel Dane F. Justice, Senior.⁸ (Uncl)

Colonel William O. Farrior was appointed Acting Director, Deputy for Air Weapon Systems on 11 April 1956.⁹ He replaced Colonel Ray W. McDuffee who was assigned to duty as Assistant Air Attache, London, England. (Uncl)

Colonel Gordon C. Hoffman was assigned duty as Acting Director, Deputy for Science and Components in January 1956.¹⁰ (Uncl)

Major John W. Barton was assigned Chief, Security Office, on 2 April 1956.¹¹ Captain Franklin D. Wheeler reverted to the position of Assistant Security Officer. (Uncl)

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Key personnel of the Center as of 30 June 1956 were:

✓ Brigadier General Harold E. Watson	Commander
✓ Colonel John G. Eriksen	Deputy Commander
✓ Mr. A. Francis Arcier	Scientific Advisor
✓ Lt Col Chester H. Long	Executive
✓ Major Thomas J. Connair, Jr.	Adjutant
— Major Alec H. Lester	Chief, Personnel and Management Office
✓ Colonel John A. O'Mara	Comptroller
✓ Major John W. Barton	Chief, Security Office
✓ Mr. Spencer Whedon	Chief, Air Intelligence Office
✓ Colonel Eugene G. Cook	Chief, Program Planning Office
✓ Colonel George R. Weinbrenner	Director, Deputy for Acquisition
✓ Colonel Morris H. Shedd	Director, Deputy for Material Support
— Lt Col Ralph S. Jordan	Acting Director, Deputy for ELINT
✓ Mr. I. Herman	Director, Deputy for Engineering Support
— Colonel Gordon C. Hoffman	Acting Director, Deputy for Science and Components
— Colonel William O. Farrior	Acting Director, Deputy for Air Weapon Systems
✓ Colonel Earl J. McFarland, Jr.	OIC Detachment 1

1. 1125th USAF FAG (HEDCOM USAF), GO #7, 16 March 1956

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2. 1125th USAF FAG (HEDCOM USAF), GO #4, 25 January 1956
3. 1125th USAF FAG (HEDCOM USAF), GO #3, 11 January 1956
4. 1125th FAG, ATIC, Daily Bulletin, 27 Feb 56
5. 1125th USAF FAG (HEDCOM USAF), GO #1, 4 January 1956
6. 1125th USAF FAG (HEDCOM USAF), GO #6, 21 February 1956
7. 1125th USAF FAG (HEDCOM USAF), GO #9, 29 March 1956
8. 1125th USAF FAG (HEDCOM USAF), GO #12, 21 June 1956
9. PERAM NR 20, 11 June 1956, paragraph 1
10. PERAM NR 2, 11 January 1956, paragraph 1
11. PERAM NR 12, 23 March 1956, paragraph 3

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CHAPTER 4

RELATIONSHIPSSCIENTIFIC ADVISORY BOARD (SAB):

The Air Technical Intelligence Center proposed early in 1956 the establishment of positive relationships between the SAB and ATIC, and direct liaison between SAB panel membership and the Scientific Advisory Group (SAG) of ATIC.¹ These relationships were proposed to provide mutual advantages and combined support to long-range plans for research and development.² (~~CONFIDENTIAL~~) (u)

As design and development techniques for new weapon systems advanced,³ the counsel and scientific advice of the SAB became of increasing importance to ATIC in estimating foreign capabilities in scientific and technological areas. At the same time, intelligence estimates of ATIC promised reciprocal assistance to the Board in the evaluation of long-range research and development plans, adequacy of facilities, and scientific and technical personnel standards. These estimates concerned foreign capabilities in specific fields of interest to SAB Panel groups. (~~CONFIDENTIAL~~) (u)

Statements on these proposed relationships were presented to the SAB Executive Committee and to individual panels of the Board. Background information pertinent to determining the character of the proposed liaison and establishing procedural arrangements supporting these relationships, was included. This information

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pertained to the purpose, organization, and functions of the permanent and ad hoc groups of the ATIC-SAG. This ATIC advisory body had been set up to insure that programs conformed to applicable Intelligence Advisory Committee objectives and priorities and that funding was compatible with changing priorities. ⁴ ~~(CONFIDENTIAL)~~ (u)

ATIC proposed that SAB-SAG relationships be kept as informal as possible and that individual members exchange visits and attend meetings as warranted by need for information. It was further proposed that arrangements concerning these relationships be handled between the Secretariat of SAB and the Chairman of SAG to prevent the imposition of unnecessary or duplicative requirements. ~~(CONFIDENTIAL)~~ (u)

One problem area required some discussion and amplification of statements. This concerned the matter of security and the possible denial of information on collection methods and sources in the course of SAB-SAG exchanges. ATIC stressed the use of collateral as a substitute for methods and sources, and pointed out that SAB's opinion on the logic used in applying collaterals for purposes of analysis was a useful feature of the proposed liaison. ~~(CONFIDENTIAL)~~ (u)

The proposed plan was endorsed by the Executive Committee ⁵ and approved by SAB panels, either individually or by the respective Chairman at the Executive Committee Meeting, as follows: Aero-medical, Aircraft, Electronics and Communications, Explosives and Armament, Fuels and Propulsion, Geophysical Research, and Nuclear Propulsion. Separate informal agreements were reached for future cooperative effort. ~~(CONFIDENTIAL)~~ (u)

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Circumstances in the case of the Reconnaissance Panel were different. The Air Staff Liaison Officer to this Panel agreed to effect the desired ATIC-SAG liaison and keep ATIC informed of the situation through reports of meetings. It was also agreed that a SAG representative would be available if and when required.

~~(CONFIDENTIAL)~~ (u)

Proposed relationships were mutually considered in full effect as of 30 June 1956. There remained only the formalities of official confirmation of the understanding reached in conference. ~~(CONFIDENTIAL)~~ (u)

INDUSTRY:

Industrialists, in true American tradition, make and strive to maintain their own competitive position in industry; this requires information about what their competitors are doing. Defense contractors are no exception; however in the design of weapon systems adequate to equal or better weapons systems of a potential enemy, they have a different competitor from the domestic competitor in nondefense production. In this situation, the Air Technical Intelligence Center is challenged to provide information on what the real competitor, the Soviet Union, is doing. ~~(CONFIDENTIAL)~~ (u)

To meet this challenge, ATIC faced two basic problems:

(1) the development of procedures for informing defense contractors of technical intelligence on the Soviet Union, and (2) the provision of a system for allowing contractors to take advantage of foreign scientific and technical developments that may be more

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advanced than in the United States. ~~(CONFIDENTIAL)~~ (u)

ATIC met the new year with a plan for solution of problems, a program in partial operation, and work on details of operation well under way. ~~(CONFIDENTIAL)~~ (u)

The ATIC program was based on the premise that the development and production of weapon systems can be handled best as a cooperative endeavor by the military and industry. Relationships were established between ATIC and representatives of industry, and channels set up for release of ATIC products to meet technical requirements of future Weapon System Study Groups within industry on a "need-to-know" basis as determined by ARDC and AMC under their contracts. ~~(CONFIDENTIAL)~~ (u)

The Center's program provided for reciprocal advantages to ATIC in needed support capabilities for identification of significant areas within a specific technical field under study by ATIC, development of new acquisition methods if required, and the use of added support facilities available through ARDC or AMC contractors in that specialty. ~~(CONFIDENTIAL)~~ (u)

Specific advantages of the program to ATIC included sensitivity analyses by contractors which would enable the Center to narrow estimates in terms of time. Without these bits of vital information, ATIC could not pinpoint those of highest potential value for the particular intelligence field or concentrate efforts on devising collection schemes for obtaining the needed information. ~~(CONFIDENTIAL)~~ (u)

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Mutual benefits to the contractors and to ATIC were demonstrated during the trial testing of this program. The close of FY 56 found this program awaiting Air Force and Department of Defense approval prior to working out details of funding and operation. (~~CONFIDENTIAL~~) (u)

SIGNIFICANT BRIEFINGS AND VISITS:

General Chidlaw and a group of his key people from Thompson Products Corporation visited ATIC in January 1956 to discuss metallurgical progress of the USSR. (~~CONFIDENTIAL~~) (u)

Twelve officials of the Central Intelligence Agency visited the Center in February for a comprehensive briefing on the functions and activities of ATIC and to inspect the devices and equipment for obtaining electronics intelligence. (~~CONFIDENTIAL~~) (u)

Early in February, General Watson and a group of ATIC personnel visited Hq SAC, Offutt AFB, and received a briefing on the SAC mission and operations. (Uncl)

On the occasion of ARDC Day, General Watson addressed commanders and staffs of all ARDC Centers and key industrial personnel at Hq ARDC, Baltimore. He covered the essentials of our knowledge concerning the scientific and technical capabilities of the Soviets. Later in February, he appeared before a symposium sponsored by ARDC and held in Chicago. The briefing on Soviet technical capabilities was given before about 500 members of the electronic and communications industry. (Uncl)

Representatives of the Director of Intelligence, Headquarters, Royal Canadian Air Force (RCAF) visited ATIC during February to

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observe the operations and study the organization preliminary to establishing an RCAF technical-intelligence organization. (Uncl)

A USAF representative of the British Deputy Director of Intelligence, Technical (DDI Tech), visited the Center early in 1956 for discussions on matters of joint US/UK interest. (Uncl)

The ATIC staff presented a briefing on Y3-Y0 project to the Technical Advisory Panel on Electronics, Office of the Assistant Secretary of Defense (Research and Development). ~~(SECRET)~~ (U)

Other noteworthy visitors to ATIC during this period included Lt Gen Anderson, Director of the Weapon Systems Evaluation Group, Office of the Secretary of Defense, and his party, members of the Purcell Group; and Colonel Rogers who was scheduled for assignment as Deputy Chief of Staff/Intelligence, Hq USAFE. (Uncl)

ATIC continued to meet the specific requirements of AMC for intelligence affecting the USAF logistics mission, including weekly intelligence briefings of the AMC staff. (Uncl)

General Watson briefed General Twining, Chief of Staff, USAF, before his departure for the USSR on priority objectives, opportunities and itinerary, problem areas, personalities, and debriefing procedures. ~~(SECRET)~~ (U)

1. Memo to Maj Gen Sanford from Brig Gen Watson dtd 23 Mar 56.
2. Memo thru Lt Gen Putt to Mr. Doolittle, Chairman, SAB, from Maj Gen Sanford, dtd 27 Mar 56.
3. Statement of Proposed D/I Relationships with SAB, dtd 10 Apr 56.
4. ATIC Office Instr Nr 14-7, dtd 2 Apr 56.
5. Statement of Proposed D/I Relationships with SAB, dtd 10 Apr 56.

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CHAPTER 5
PLANS AND PROGRAMS

NATIONAL AND AIR FORCE PROGRAMS:

The Air Technical Intelligence Center participated in broad National and Air Force Programs for the production of intelligence during the period from 1 January 1956 to 30 June 1956. ATIC made contributions to National Intelligence Estimates as follows:

NIE-11-4-56, "Soviet Capabilities and Probable Courses of Action Through 1961", and

NIE-11-6-56, "Capabilities and Trends of Soviet Science and Technology."

~~(CONFIDENTIAL)~~ (u)

ATIC participated in the National Intelligence Survey Program which schedules revision of estimates for each country according to changes in the basic capability to develop air weapons. ATIC contributed to surveys of Czechoslovakia, The Netherlands, Turkey, China, and Norway during this period. ~~(CONFIDENTIAL)~~ (u)

The study known as "Soviet Technical Capabilities, JIC 603", which the Joint Technical Intelligence Subcommittee sponsored for the past few years, was terminated; and a new program, "Over-all Intelligence Estimate for Planning, JIC 636," was initiated. ATIC completed its first contribution to this new program in March 1956.

~~(CONFIDENTIAL)~~ (u)

The Center completed a revision of Appendix B to Force Air Intelligence Study 2-3, "Soviet Tactical Aviation." Revision of Appendix B to FAIS 2-2/2, "Soviet Bloc Air Defense System,"

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tentatively scheduled for 1 March 1956, was postponed indefinitely.

~~(SECRET)~~(U)

ATIC made two contributions to the Air Intelligence Study (AIS) Program sponsored by the D/I, USAF, for the production of air capability studies, current and future, on the more advanced foreign countries outside the Soviet orbit. AIS studies by ATIC concerned Sweden and the United Kingdom. ~~(CONFIDENTIAL)~~(U)

ATIC participated in the determination of USAF objectives for the improvement of AF intelligence world-wide during this period. The D/I initiated this requirement and specified National Intelligence Objectives as the starting point. Air Force objectives were planned for application to organization and functions, personnel, fiscal, operations, and doctrine and policy; and to cover short-term, mid-term, and long-term periods. ~~(SECRET)~~(U)

The Center developed assumptions in consideration of order of battle, imminence, and targetting; and developed patterns of procedure for establishing objectives. These patterns of procedure related to methods of originating and refining objectives and ways of getting the thinking of various people. (Uncl)

These objectives were expected to lay a foundation for planning comprehensive programs which bridge the gap between what now exists and what is desired. They were regarded as a basis for more specific objectives to be formulated for ATIC. Anticipated results included an improved understanding of intelligence-management concepts and interrelationships, uniform guide-lines to daily intelligence

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activities, and attainment of a professional status for intelligence personnel. (~~CONFIDENTIAL~~) (U)

At the close of this period, statements of need and of problems had been collected from which AF objectives could be determined.

(Uncl)

ATIC CONTRACTUAL-ASSISTANCE PROGRAM:

The Center took positive steps to accelerate the above program for contractual assistance in February 1956 by expediting the negotiation of special contracts with North American, Northrop, CONVAIR, Boeing, Lockheed, and Sylvania. ATIC presented the over-all contract concept to the contractors and obtained proposals from them. Contract work of the Center proceeded, using conventional one-time work statements applicable to individual contracts. (~~CONFIDENTIAL~~) (U)

The WHITE STORK contract was renegotiated. Use of the technical intelligence files at WHITE STORK by other contractors supporting the ATIC effort increased during this period. (~~CONFIDENTIAL~~) (U)

The Center proposed a policy for using the dollar-a-year contract only in those cases where absolutely necessary and justified by individual circumstances. (Uncl)

ATIC served as a major contributor to the National program for the exploitation of foreign language literature, assuming responsibility for the abstracting of 23 Soviet scientific and technical periodicals. The Central Intelligence Agency (CIA), until recently an active contributor to this program, discontinued abstracting support because of over-commitments in other areas. The extent of future participation in this program by ATIC was not settled.

(~~CONFIDENTIAL~~) (U)

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The translation contractors for FY-55 were unsatisfactory. One failed in translation obligations and concluded the contract in May 1956 with approximately 60 documents returned untranslated. The other was unsatisfactory qualitatively and quantitatively, although this agency continued to accomplish ATIC translations through 30 June 1955. (~~CONFIDENTIAL~~)(U)

The translation contractor for FY-56 assumed abstracting as a contractual stipulation. The program continued satisfactorily although redirection was necessary to insure expeditious handling of urgent translations. (~~CONFIDENTIAL~~)(U)

A sole-source translation contract was determined to be the solution to the problem and the only positive means of formulating an effective foreign language exploitation program. In this manner ATIC translation requirements could be met uninterrupted. (~~CONFIDENTIAL~~)(U)

During this period, ATIC contracted with Sperry Rand for an ATIC Russian-English Glossary of 30,000 aeronautical and related technical terms and expressions. (Uncl)

ATIC let contracts for recording and measuring systems of assistance in the ATILO Program. One was for a data-recording ground-camera system. The other was for a ground stereo-photogrammetric system; acquisition of this system will enable ATILO's to provide measurement data on items of materiel more easily. (Uncl)

Plans were made for negotiating a separate contract for infrared search and tracking equipment. (~~SECRET~~)(U)

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Contracts initiated by AFIC during this period included the following:

Unattended infra-red FBS radiometer to provide a device for measurement of the radiation of missiles and aircraft.

Infra-red scanning camera to obtain pictures of aircraft, ICBM, and missiles under covert conditions.

Infra-red camera trigger to provide a passive means of operating cameras in unattended locations.

Infra-red pulsed-ranging device to record exact ranging at the time photographs are taken, yet emitting no divulging radar signals.

~~(SECRET)~~ (U)

AFIC let a contract with Production Research Corporation (PRC) for two special versions of a crystal video receiver, and later amended the contract to provide for only one type of package different from that of the first operating version of the QRC-34. The PRC version was delivered to Rome Air Development Center (RADC). ~~(SECRET)~~ (U)

The Center established several dollar-a-year contracts with industry for consultation on aircraft vulnerability to support evaluations and estimates of Soviet armament capabilities. These contracts were placed with Armour Research Foundation, Hughes Aircraft Corporation, Institute for Air Weapons Research, and the Institute for Cooperative Research (ICR). The contract with the ICR at Johns Hopkins University provided AFIC specialists with information on the facilities available there for analysis work.

~~(CONFIDENTIAL)~~ (U)

AFIC initiated a program, determined scientific areas requiring study, and let a contract with General Dynamics Corporation, Convair

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Division, for assessment of feasibility and value of exploiting Soviet scientific literature as an aid toward determining ICBM capability of the USSR. ~~(SECRET)~~(U)

Required reprogramming of some science and components activities proposed for FY-57 and 58 affected all technical areas generally, and specifically affected the decision to utilize contractual assistance to a greater degree in most areas. The Air-Weapon Sciences Program utilized scientific and technical specialists as consultants and members of assessment panels. The Materials and Technologies Program contracted for the conduct of studies in selected technical areas. The Components and Component-Systems Program required industrial, research, and academic organizations under separate contracts to conduct studies of air-weapon components and related technologies. ~~(SECRET)~~(U)

Other contracts were let for configuration of a special long focal lens, and fabrication of a periscopic camera. (Uncl)

ATIC PLANS AND PROGRAMS:

Efforts to establish a programming concept for ATIC continued during the early part of the year. An interim concept was devised in April 1956 and a series of programs developed under it which was based on existing and planned projects. Programming was undertaken on the following:

Offensive Guided-Missile Program
Defensive Guided-Missile Program

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Bomber Aircraft Program
Fighter Aircraft Program
Support Aircraft Program
Anti-Aircraft Artillery Program
ELINT Program
Ground Electronics Program
Materials and Technologies Program
Basic Sciences of Significance to Air Weapons Program
Estimates Program
Acquisition Program
Documentation Program
Management Program
Support Program

All programming was completed except for Management and Support Programs. The direction that future programming effort would take was not determined. (~~CONFIDENTIAL~~)(u)

SCIENTIFIC PROGRAMS:

The expanding development of Soviet Air Sciences and Technologies had an extended effect upon interest areas, specific scientific and technical fields, and related program planning. Air sciences are categorized generally into the mathematical, geophysical or general science groups, and aerial phenomena. Scientific programs in the areas of terrestrial magnetism, meteor research, aurora and night-sky radiations, and celestial mechanics continued during this period. Studies of Soviet capabilities in Astronomy and Astrophysics progressed steadily. (~~SECRET~~)(u)

ATIC initiated two new scientific programs during the first half of 1956. A program concerned with Soviet activity in the areas of geodesy and gravimetry was launched in January 1956. A program was initiated in March 1956 for the survey of Arctic scientific

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activities. ~~(SECRET)~~ (U)

Of reports on unidentified flying objects (UFO) and aerial phenomena that were received during this period, 88.6% were identified or explainable and 11.6% contained insufficient information to permit evaluation. The problem of a rising percentage of the "insufficient information" and "unknowns" became apparent in April. The problem was attacked jointly by the Air Intelligence Service Squadrons (AISS), Ground Observer Corps (GOC), and ATIC.¹ Guidance material, identification aids, and improved techniques were agreed upon and adopted for UFO investigation. ~~(CONFIDENTIAL)~~ (U)

During the first half of 1956, ATIC promoted a program for exchange of scientific personnel of the USSR during the International Geophysical Year.² Accomplishments included the exchange of communications between US and Soviet scientists and the acceptance of an invitation by a US professor to visit the USSR and deliver a series of lectures. Working relationships were established by ATIC with the Intelligence Advisory Committee (IAC), Standing Committee on Delegation Exchanges between the US and USSR. ~~(CONFIDENTIAL)~~ (U)

TECHNICAL PROGRAMS:

The development and applications of acoustic-collection technology continued during the first half of 1956.³ This is a means by which aircraft and guided-missile propulsion-unit characteristics are identified by fine-line analysis of sound recordings. ATIC made plans for intelligence products of significance from operational

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reporting data on Soviet aircraft; and for inclusion of additional elements of information. Preliminary efforts were made to apply this technology to recordings of guided-missile power plants. The US and UK exchanged respective technologies in this area and developed tentative plans for establishment of a joint US-UK project. (~~SECRET~~) (U)

Development of plans for specialized receiving systems to cover the low and very low frequency spectrum continued. (~~CONFIDENTIAL~~) (U)

Research by ATIC continued in the photogrammetric problems of a stereo-ranging system. (~~SECRET~~) (U)

ATIC conducted research on precise measuring devices to provide additional equipment for increasing the photo-analysis capabilities of the Center. (Uncl)

ATIC SUPPORT PROGRAMS:

Facilities programming for ATIC included a plan for in-house capability to accomplish all the photographic services needed by the Center short of making dup-negatives of motion picture photography. (~~CONFIDENTIAL~~) (U)

Teletype equipment was installed and became operational in January 1956. The communications network includes message traffic with CIA, D/I Hq USAF, USAFSS, SAC, WHITE STORK. ATIC undertook negotiations for additional on-line cryptographic operations between ATIC and Detachment 2 (Western Office), Pasadena; Los Angeles Air Procurement District (APD); Rome Air Development Center; Griffiss AFB; Air Research and Development Command, Baltimore; Continental

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Air Defense Command, Ent AFB; Air Proving Ground Command, Eglin AFB. (Uncl)

ATIC planned the replacement of present manual intelligence data-handling methods with mechanized methods of input and retrieval of information. (~~CONFIDENTIAL~~)(u)

The Bureau of the Budget approved funds for construction of the new building for the Center in May 1956. (Uncl)

INTERNAL INFORMATION PROGRAMS:

ATIC re-evaluated D/I displays early in February 1954. These static displays were limited to hardware items, actual equipment acquired by the Center or used by the Center in its work. ATIC planned displays of wider interest to include graphic presentations of technical analyses results, or of situations in a particular technological field. This type of display included planned use of aircraft and weapons drawings, models of systems; portrayal of methods used in making analyses, and of processes used by ATIC to produce finished intelligence. (Uncl)

In January 1956 ATIC designed a Technical Situations Room which was completed 30 June 1956. Here displays of important detailed intelligence information will appear. Displays were planned to depict complex studies of the potential of foreign air-warfare systems. (~~CONFIDENTIAL~~)(u)

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1. Travel Report, Project 10073, 13 June 1956
 2. ATIC Participation in the International Geophysical Year (IGY)
 3. MELPAR Project

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CHAPTER 6

REQUIREMENTS

Circumstances beyond Air Force control generated specific and substantial additional requirements for air technical intelligence early in 1956. There were three major factors involved in these requirements implicit to the mission of ATIC. (Uncl)

First, there was the acute concern at the highest levels with the technical capabilities of the Soviets, a concern greatly intensified by the closing of the gap between Soviet capabilities and our own. The Congress, the Department of Defense, the Secretary of the Air Force, and major staffs translated this concern into specific requirements imposed on ATIC. (~~CONFIDENTIAL~~)(u)

Second, the rapidly expanding development of air sciences and technology in the Soviet Union increased tremendously the scope and complexity of the areas ATIC must analyze. The swift and consistent follow-through from a state of pure science to an advanced technological application further complicated the situation and increased the urgency for timely intelligence to warn of new threats to our technological superiority. (~~CONFIDENTIAL~~)(u)

The third set of circumstances was favorable, but dependent upon money and manpower. New scientific and technical developments were potentially available to provide the means of getting timely factual data heretofore impossible to acquire. (~~CONFIDENTIAL~~)(u)

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The ATIC capability of minimizing technological surprise was tested. New requirements made demands upon existing resources; they put on trial the effectiveness and usefulness of air technical intelligence; they established the need for greater refinement and timeliness of estimates, and for the expanded use of new collection techniques. ~~(CONFIDENTIAL)~~(u)

As a result of the coordination meeting called by the Director of Requirements, Hq USAF, late in January, ATIC proceeded to follow the approach recommended to meet the requirement in the area of radar-search. Air Proving Ground Command conducted a modified mission-profile test to determine the control and range capability of the MXQ-1 radar in conjunction with the QB-17 drone. ATIC submitted to Headquarters AMC separate Class V modification requests for the RB-506 and DB-17 aircraft. ~~(SECRET)~~(u)

The Center accomplished revision of ATI general stipulations for the new edition of Basic Air Intelligence Requirements, guidance material that provides pertinent clues, indicators, and current requirements in the fields of nuclear energy, guided missiles, and intelligence coverage of scientific and industrial fairs. ~~(CONFIDENTIAL)~~(u)

ATIC received a new type of requirement in January 1956. This was to help justify a budget increase for USAF research and development by comparisons between Soviet and US rates of technological advance. ~~(SECRET)~~(u)

ATIC prepared pertinent intelligence in several packages to meet the demands of the Secretary of Defense and DOD planners.

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These products covered the subjects of Soviet Surface-to-Surface and Surface-to-Air Guided Missiles, Soviet Bomber and Fighter Aircraft, and the Relative Position of Soviet Air Weapons. ~~(SECRET)~~(U)

ATIC representatives presented the same estimates, with minor changes, to a symposium at Wright-Patterson Air Force Base, to members of the Sandia Corporation, and to the Air Forces Scientific Working Committee (AFSWC) at Sandia Air Force Base. ~~(CONFIDENTIAL)~~(U)

A requirement for briefing the Aircraft Study Group of the Department of Defense was placed on ATIC in May 1956. Subjects included decision-making and control in Soviet weapon-systems development. This briefing covered the significant aspects of Soviet organization for air-weapon development. Another described the place of intelligence in Air Force weapons planning. This briefing outlined the process by which intelligence is applied to weapons planning, starting at defense-planning-objective (DPO) level and continuing through the applications and operational planning levels of air-weapon-system management. ~~(CONFIDENTIAL)~~(U)

One of ATIC's biggest and fastest growing programs was the support to ARDC's Weapon System Project Offices and their contractors. Many monitors of major weapon-system projects requested technical intelligence on the effectiveness of Soviet strategic, tactical, and defense weapon systems. ATIC provided formal and informal briefings, pointed directly to ARDC requirements, and supplied data to contractor personnel which contributed to the planning, designing, and modification of our own future air weapon

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systems. ATIC also aided in the planning of new US Weapons associated with the strategic reconnaissance program and specific systems, including those of strategic bombing (chemical and nuclear), tactical bombing, penetration, bomber-defense missiles, fighter-bombers, advance reconnaissance, anti-radiation missiles, and decoys. ~~(SECRET)~~(U)

ATIC set up an Ad Hoc Committee for Guided Missiles Collection Requirements during the reporting period and scheduled the first report covering the Surface-to-Surface Ballistic Missile requirement for early FY-57. (Uncl)

Briefings were given on Soviet guided-missile capabilities to the Department of Defense and other governmental groups. Included were the National Security Agency, the United States Air Force Security Service, the Secretary of the Air Force and Staff, the Commander and Staff of Wright Air Development Center, and the Secretary of Defense. A briefing on the "Soviet Air-to-Surface Guided-Missile Capabilities" was presented to the Guided Missile Evaluation Group in Washington. A briefing on "Soviet Surface-to-Air Guided Missiles" was presented to the Joint US/UK Electronics Conference in April 1956. ~~(CONFIDENTIAL)~~(U)

Briefings on the capabilities of current and future Soviet aircraft were made to satisfy the requirements of numerous industrial, defense, and governmental agencies, as well as other nations. Groups included the ARDC-sponsored Industry Aircraft and Propulsion Symposium, personnel of the Sandia Corporation, the Armed Forces

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Special Weapons Command (AFSWC), and the Air Staff of the Royal Canadian Air Force. ~~(CONFIDENTIAL)~~ (u)

During the months from February to May, four briefings were given on project ASSERTION (Secret). These were presented to the Ad Hoc Committee of the Scientific Advisory Board of the Office of the Secretary of the Air Force for Research and Development; US Army personnel in Washington; the Commander of the 6901 Gp., USAFSS, Landsburg, Germany; and the Commander of WADC. ~~(SECRET)~~ (u)

The relative position of Soviet and US air weapons was another subject of prime concern to air-technical-intelligence users during this period. Briefed on this subject were personnel of Sandia Corporation and the AFSWC at Sandia AFB. ~~(SECRET)~~ (u)

The potential capability of Soviet glider transports became a promising area of interest during this period. Consultations were held with the Secretary of the Scientific Advisory Board (SAB) in May and ATIC plans made for estimating the influence of inexpensive gliders on the Soviet troop/cargo transport capability. ~~(CONFIDENTIAL)~~ (u)

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CHAPTER 7

WEAPON-SYSTEMS ESTIMATES

The vital need for an expanded ATIC capability in weapon-systems-environment estimates became more pronounced during the first half of 1956. ATIC launched a program to promote a fuller utilization of technical-intelligence support to research and development agencies and the air industry. (Uncl)

The possibilities of intelligence assistance to USAF weapon-development projects were explored in meetings of ATIC personnel with representatives of industry concerned with the development of specific bombing systems. Initial briefings were given on Soviet counterweapons capabilities. (Uncl)

Early in April, the Commander expressed his concern with the nature and accuracy of the intelligence data used in establishing the environmental conditions that proposed USAF weapon systems would encounter in performing a wartime mission. In correspondence between ATIC and the Commander, WADC, it was mutually agreed that realistic intelligence would aid US research and development in meeting threats posed by Soviet counterweapons.¹ (~~CONFIDENTIAL~~)(U)

The relationship between ATIC and ARDC at that time included working in the General Operational Requirements (GOR) area on weapon systems. The GOR's, together with the Development Planning Objectives (DPO) state the need for a weapon system and prescribe^d its desired operational capabilities. An operational relationship with the Systems Directorate of ARDC promised worthwhile results including a probable basis for agreement between WADC and ATIC. (Uncl)

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WADC requirements were met in several ways. ATIC studies and reports were distributed to WADC components; pertinent intelligence reports were forwarded to them without evaluation by ATIC. Individual and collective conferences were held frequently between the specialists of each Center. WADC components received the ATIC Bulletin and ATIC-WADC Briefer weekly. There remained only the problem of augmenting and improving this support. (Uncl)

The first briefings were at the weapon-system level. Presentations were made in May 1956 on Soviet aircraft, guided missiles, and general air-weapons position.² These briefings pointed out several areas of vulnerability for which countermeasures must be devised. They demonstrated these areas of mutual interest in which it is the ATIC job to inform WADC of Soviet threats, and the WADC job to find and develop the weapons to match or surpass them. (~~CONFIDENTIAL~~) (u)

It was agreed that a free exchange of information was desirable between technical specialists of the two Centers, and a single point of contact for integrated technical-intelligence estimates was agreed upon to facilitate the program. (Uncl)

May Day and Tushino rehearsals and fly-bys at Moscow, as well as the displays at the Zurich Air Show, provided ATIC with additional data on the BISON, BADGER, FARMER, FLASHLIGHT, and CAMEL. First photographs were made of a number of new Soviet aircraft, including delta-wing, supersonic fighters. (~~SECRET~~) (u)

Eight new aircraft were photographed and tentatively identified: Delta A, Delta B, Delta C, new turbo-prop transport, two new pointed-nose versions of FLASHLIGHT, an improved version of FARMER, and BLOWLAMP, a new jet light bomber. The last is the only one for which a designation

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was approved during this period. From photographs, ATIC obtained additional construction details of BISON and BADGER, revised drawings of the FLASHLIGHT and FARMER aircraft, completed drawings on CAMEL, and prepared preliminary estimates for BLOWLAMP. Revisions were made in weight and balance estimates and internal arrangement of CAMEL. ~~(SECRET)~~(U)

The performance and characteristics of FARMER required re-evaluation, especially regarding critical factors such as "spillage drag." This re-evaluation indicated that FARMER is smaller than previously estimated. ATIC re-evaluated the performance and characteristics of FLASHLIGHT in the light of additional intelligence information and new photographs. Re-evaluation showed FLASHLIGHT to be smaller in size than previously estimated, but resulted in only slight changes of performance. Discrepancies in original estimates concerned dimensions, configuration, and thrust for FARMER and FLASHLIGHT. ATIC revised the weight estimates to conform to revisions of dimensions and engines. ~~(SECRET)~~(U)

Re-evaluation of FLASHLIGHT and FARMER performance characteristics, and review of Soviet progress in the state-of-the-art, resulted in refinement of technical estimates on the future development of Soviet fighter aircraft during the period from 1956-1966. Soviet fighter capabilities were revised upward. ~~(SECRET)~~(U)

During the first six months of 1956, extensive information on PRESCO became available and ATIC started evaluation of these data. (Uncl)

The Center analyzed performance of the BEAR aircraft, based on estimated development of the "K" turbo-prop engine. This improved BEAR is estimated to be available for service in 1957. ~~(SECRET)~~(U)

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Good photography on the BISON nose probe, obtained during this period, served as a better basis for analysis than was previously possible. ~~(SECRET)~~ (U)

ATIC reviewed and refined its estimates of Soviet bomber aircraft for the period 1956-1966. New performance calculations were made of two new aircraft, a 1962 nuclear-powered bomber and 1961 supersonic-dash medium bomber. These data were incorporated into "Estimated Characteristics of Soviet Air Weapons." ~~(SECRET)~~ (U)

ATIC completed its design estimates of the Supersonic-Dash Medium Bomber in April 1956. This work involved investigation of several designs and resulted in a final aircraft configuration and performance summary. The requirements for dash speed were lowered to Mach 1.5, and the dash radius was made flexible, with the radius capability shown as a function of dash radius. ~~(SECRET)~~ (U)

In May, the Center initiated design studies on an estimated 1962 nuclear-powered subsonic bomber and obtained some preliminary results. ~~(SECRET)~~ (U)

In connection with a study by Lockheed Aircraft Corporation, ATIC defined areas of concern in the evaluation of the effectiveness of Soviet bombers against the US continental air defense system. Benefits which should accrue to ATIC as a result of this study are in the areas of threat identification, its countermeasure and susceptibility, and intelligence weaknesses and gaps. ~~(CONFIDENTIAL)~~ (U)

A detailed SRI on the Soviet jet-transport aircraft CAMEL met with a quick response when the Soviets flew the CAMEL to London on a

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diplomatic flight. This, coupled with information from air-show displays and Soviet-published accounts, initiated revision of estimates on this aircraft. ~~(SECRET)~~(U)

In January 1956, ATIC began a study of performance and characteristics of the Soviet transport GRATE. ~~(SECRET)~~(U)

In May 1956, ATIC began a study on the Soviet twin-rotor helicopter HORSE, four of which have been reported. Soviet releases have provided information on a claimed-range distance and altitude-with-load records. Analysis of the rotor speed indicates the installation of the same type engine as used in the GRATE transport. Estimates were completed and agreement between the US and UK on dimensions was established. ~~(CONFIDENTIAL)~~(U)

Analysis of HOUND helicopter was 90% complete by 30 June 1956. A Soviet announcement claimed that HOUND exceeded the altitude record reported to have been established by HORSE and confirmed by the Federation Aeronautique Internationale. (Uncl)

Problems of site acquisition, facilities construction, and timely shipments of equipment held ATIC's attention in the area of high-power long-range radar. At a meeting of the High-Power Long-Range Radar Advisory Group in January 1956, a recommendation was made for location of the KW-3 site in the Scandinavian area. In February the consolidated recommendations of ATIC, Rand Corporation, and General Electric Company were presented in a briefing to the Director of Intelligence. Responsibility was assigned to Collection Operations Division, D/I, for securing required governmental approvals in connection with site selection.

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Revision of estimates continued to be made during this period on Soviet-Bloc surface-to-air guided missile launching sites, including study of the most probable guidance system. Other studies continued on surface-to-surface and air-to-surface guided missiles, surface-to-air guided-missile control capabilities, and air-to-ship missile-guidance capabilities. ~~(CONFIDENTIAL)~~ (U)

A study was requested by the B-58 Weapon System Project Office early in 1956 on "Soviet Air-Defense Effectiveness Against the B-58." The primary objective was to determine the effectiveness of the Soviet defense system used against the B-58 aircraft; but a secondary objective was to evaluate the effectiveness of technical-intelligence inputs used in weapon-effectiveness analyses. Work was well under way at the close of this reporting period. ~~(CONFIDENTIAL)~~ (U)

A study was requested by TAG in April on the feasibility of low-level high-speed attacks against Soviet-Bloc targets. This problem was approached and programmed in three parts: ~~(CONFIDENTIAL)~~ (U)

Part I - A thorough delineation of the components of the Soviet air defense weapon system and their respective capabilities to provide a suitable background and basic foundation for future analysis.

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Part II - A weapon-system effectiveness analysis of the Soviet air defense weapon system to provide conclusions necessary to determine the feasibility of such an operation and guidance for the selection of effective tactics. ~~(CONFIDENTIAL)~~ (U)

Part III - A sensitivity analysis to determine the relative effect

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of variations in completeness and refinement of the technical-intelligence inputs on the conclusions of Part II. ~~(CONFIDENTIAL)~~ (U)

ATIC contributed to the Intelligence Appendix of the Development Planning Objective (DPO) on "Defense Against the Intercontinental Ballistic Missile." (Uncl)

Estimates were completed on the Soviet Air Defense System covering the period 1960-1965 in response to numerous requests from ARDC project offices. The requesters are concerned with "Penetration System No. 1 Decoys" and "Anti-Radar Missiles and Strategic Bombing System 125A." ~~(SECRET)~~ (U)

ATIC entered the operational phase of WILD WAVES, which is a world-wide effort to monitor and analyze the portion of the radio-frequency spectrum between 10 and 500 kilocycles. A primary objective was to obtain data on Soviet long-range navigation systems. Four intercept sites were in limited operation. ATIC made recommendations for data-handling and analysis techniques for use at Intermediate Processing Centers. Problems remained, due to high density of signal activity in this portion of the radio-frequency spectrum, lack of adequate direction-finding equipment, and unreliability of available reference material. ~~(SECRET)~~ (U)

Significant contributions were made to the study phases of Project CROSS BOW, a countermeasure against Soviet TOKEN radar. Statistical studies of airborne intercepts were made to serve as a basis for establishing the operating limits of these Soviet TOKEN radars. ~~(SECRET)~~ (U)

SAC, ARDC, and ATIC agreed to equip an RB-50G for flying against single and multiple TOKEN complexes. This operation would feed back results to ATIC for study. The Center furnished models of complexes

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and intelligence information in support of this undertaking. ~~(SECRET)~~ (U)

The Center developed and tested on a limited scale a modified airborne instantaneous direction-finder system and completed evaluation tests on the intercept equipment on the RB-47H. ATIC performed the film readout and determined the signal parameters in support of the WADC project for modifying the APD-4(XA-1) for installation in an F-34. A system to permit a significant reduction in the time and effort required to readout signal data from recordings was initially studied by ATIC and Rome Air Development Center. The purpose was to determine the feasibility of mechanically or electrically editing the film prior to readout. ~~(SECRET)~~ (U)

ATIC prepared specific target requirements for the USAFSS operations and recommended procedures to insure maximum derivation of intelligence from these operations. ~~(SECRET)~~ (U)

The Center completed plans for intercept systems designed primarily for Electronic Order of Battle operations, rather than for gathering intelligence data. ~~(SECRET)~~ (U)

Analysis was completed of data obtained by the ERB-29, a special ferret aircraft, and recommendations made for changes in procedures, techniques, and equipment to improve the ELINT collection capability. ~~(SECRET)~~ (U)

Three receivers for special intercept requirements were built and tested. Analysis consoles and associated equipment was provided for Intermediate Processing Centers in Europe and Japan. ~~(SECRET)~~ (U)

During the first six months of 1956, ten new electronic project plans were initiated. Two general projects, touching all broad areas

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of electronics and of wide use throughout the intelligence community, included publication of lists of the more important Soviet electronics institutions and basic studies of Soviet capabilities in radar, communications, and navigation. ~~(SECRET)~~ (U)

The field of radar provided subjects for two new undertakings, a basic study by General Electric Company on Soviet ground and airborne radar capabilities--background material for basic radar studies of ATIC--and a study of the YO YO association with the Moscow missile-complex. Another undertaking was initiated to determine the extent to which the Soviets employ doppler radar techniques for navigational purposes. ~~(SECRET)~~ (U)

Publication of a booklet, "Handbook of Soviet and Satellite Communication Equipment", provided information on Soviet-Bloc air/ground communications equipment. ~~(CONFIDENTIAL)~~ (U)

In March, ATIC started study of the Soviet capability to develop and launch an earth-satellite vehicle with military applications such as reconnaissance, surveillance and damage assessment. ~~(SECRET)~~ (U)

Material and data on the Soviet capability in aircraft structural design continued to be collected during this period, although research was at a standstill. ~~(CONFIDENTIAL)~~ (U)

The Center explored the possibility of assistance from the Institute for Cooperative Research (ICR), designers and manufacturers of the photoelectric-engagement simulator and Analog Computer, for estimating aircraft-kill probabilities, and engaged in preliminary negotiations to obtain studies of Soviet aircraft vulnerability to US air-to-air and surface-to-air projectiles and missiles. ~~(CONFIDENTIAL)~~ (U)

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During this period the extensive program of Soviet technical literature evaluation continued. Significant subjects included Soviet development of a new high-temperature alloy, extensive scope of Soviet fundamental research in metallurgy; unique application of high-temperature alloy developments to supersonic aircraft, nuclear propulsion and ICBM's; Soviet leadership in continuous-casting of steel ingots, use of radio-active isotopes in metallurgical research, and physical metallurgy of titanium. (~~SECRET~~) (U)

During this period, projects were initiated to establish capabilities and trends of Western European countries in basic and applied metallurgical research and development, and to ascertain the status of high-temperature-alloy development in the USSR. (~~SECRET~~) (U)

Projects pertaining to nonmetallic materials included assessment of Soviet-Bloc R&D capabilities in the fields of ceramics, rubber, and plastics. (~~CONFIDENTIAL~~) (U)

The Center completed analyses of Soviet airborne intercommunications equipment currently used in two-place military aircraft, as well as video and decimeter communication equipment, of concern in the assessment of the Soviet air-defense communications system. (~~CONFIDENTIAL~~) (U)

A new project was started in April 1956 on the capability of the Soviets in the field of radio wave-scatter propagation and its use in extending the useful range of so-called line-of-sight radio frequencies. (~~CONFIDENTIAL~~) (U)

ATIS electronics specialists stepped-up study of Soviet ECM capabilities during this period. Briefings were presented on three occasions to high-level groups. Technical specialists participated in

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numerous informal conferences with representatives of AMC, WADC, and contractor personnel. Sufficient information was received to extend the study of Soviet electronic measurements to include Soviet-Satellite capabilities. Plans were made to contract for intelligence evaluation of Soviet-Bloc equipment and Soviet capability to develop and manufacture carcinotrons. ~~(CONFIDENTIAL)~~ (U)

ATIC armament specialists prepared estimates of the characteristics and performance of the range-only radar installed in the FACOT/PRESCO nose section, and initiated work to determine the present status of Soviet bomber-defense development. From these estimates, possible future designs in this field can be extrapolated. These specialists also revised estimates pertaining to delivery of munitions for chemical and biological warfare, and compared US and UK revolver-type weapons for determination of interchangeability. ~~(CONFIDENTIAL)~~ (U)

ATIC studies in the field of industrial engineering covered specific producibility analyses of BISCH, BEAR, FARMER, and FLASHLIGHT. A manufacturing analysis of CAMEL was undertaken in April 1956. ATIC specialists made initial calculations with some assistance by Boeing Aircraft Company. Producibility of a Soviet inter-continental ballistic missile (ICBM) was a subject for attention during this period. Convair Division of General Dynamics Corporation participated in the study. Other studies of Soviet industrial technology concerned critical production aspects of guided-missile guidance and control systems, the producibility of Soviet rocket-propulsion units; and studies of precision equipment including an automatic bearing-race setting machine, a milling machine, and an engine lathe. ~~(CONFIDENTIAL)~~ (U)

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There was significant expansion of the program for technical intelligence in the fields of air-weapon propulsion and fuel technology. This involved establishment of sixteen new projects, twelve of which required extensive use of industry under contract. Subjects covered included developing a capability to estimate turbojet-engine altitude performance, Soviet capability to develop a turbojet engine for a Mach 2.2 to 3.0 aircraft by 1960; and a turbo-prop engine for a high-speed subsonic aircraft for long-range cargo and bomber missions by 1960.

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The ATIC program included studies on Soviet capability to develop ICBM and Satellite rocket powerplants, a nuclear propulsion system; and a supersonic propeller and control system for extreme altitudes and high subsonic flight speeds for heavy bomber, tanker, or ~~o~~^g-aircraft application. ~~(CONFIDENTIAL)~~ (u)

New projects of ATIC utilized contractor services to determine significant developments in fundamental research, use of propeller performance-calculating procedures, petroleum processing and conversion techniques; and the production, refinement, and end use of boron-containing materials. ATIC presented a briefing before the NACA Subcommittee on Aircraft Fuels and to the Economic Defense Intelligence Committee on some aspects of the Soviet solid-propellant technology.

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1. Ltr Brig Gen Harold E. Watson, Commander ATIC, to Brig Gen T. L. Bryan, Jr.

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2. Agenda, ATIC Briefings for WADC, 8 May 1956, "Major Soviet Air Weapons"

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CHAPTER 8

PRODUCTION-SUPPORT SYSTEMS

DOCUMENTATION SYSTEM:

A major problem of the Center at the beginning of 1956 was associated with document processing and utilization. The Commander appointed a committee on 21 February 1956 to study existing deficiencies and to recommend solutions acceptable to document users as well as management. The committee knew that the present system encompassing manual intelligence data-handling methods must be superseded eventually by mechanized methods of information input and retrieval to match those being evolved by AFOIN and other branches of the intelligence community through mini-card.

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The committee recommended interim measures, which presented no radical departure from existing procedures with one exception: utilization of technically qualified Center specialists as members of a Reading Panel. Under this system, these specialists would receive intelligence information in respective fields of interest as soon as it was received in ATIC. They would indicate abstracts or extracts needed for their files, code intelligence information, prepare evaluations, and indicate discards. Documents would be miniaturized to facilitate retention. Mechanized processing would be introduced as ATIC personnel became indoctrinated in all aspects of document processing. A library of collateral material of domestic and other background material would provide quick reference service. ~~(CONFIDENTIAL)~~(u)

Other improvements in the area of document processing and utilization

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included specific applications of better methods and improved procedures for ATIC and participation in revision of systems used by higher echelons. (Uncl)

ATIC specialists assisted in revisions to the CIA Subject Intelligence Code in the 500 and 600 sections for use by the D/I in the mini-card operation now in test status. ~~(CONFIDENTIAL)~~(U)

A new method was devised for color coding cross-reference-file cards by year. This facilitated review of files for destruction. (Uncl)

Document-flow operations were put on an assembly line basis. ATIC modified Electric IBM typewriters used in a former operation to fit the document-flow system. Time was appreciably reduced for performing routine operations of stamping folders, placing documents in folders, assigning ATIC numbers, etc. (Uncl)

The Center revised ATIC Form 124, "Document Request and Transmittal Form", to add certain information previously typed and to delete unessential information. A new ATIC Form was devised to accomplish follow-up to outside agencies on previous requests. This eliminated use of forms for each follow-up. (Uncl)

MACHINE PROCESSING METHODS:

The use of machine processing methods was expanded during the past six months; e.g., the IBM Intercept Card Storage System, was expanded to cover all USAF ferret intercepts from 1 January 1955 to the present time. These cards, which provide a record of the finished signal information, may be used either for screening signal data for unusual intercepts or for compiling detailed signal data for special analysis. Machine sorting

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techniques increased the rapidity with which operations of this type were accomplished. ~~(CONFIDENTIAL)~~ (U)

Methods of categorizing signal data for more effective use required study during this period. The purpose was to integrate new signal data with prior intercepts to permit instant recognition of changes or trends in each category and to help in determining requirements for additional data in making statistical comparisons. ~~(CONFIDENTIAL)~~ (U)

Attention was given to improvement of methods of reporting unusual ELINT information on a periodic basis. ATIC considered processing signals as groups, rather than singly, to eliminate unnecessary work in analyzing isolated signals caused by malfunctions, spurious responses and transmitting errors. ~~(CONFIDENTIAL)~~ (U)

Major problems associated with data analysis were associated with training of personnel, establishment of an adequate reference file of signals, and the build-up of machine methods for signal analysis and identification. ATIC continued to analyze electronic intercepts from USAF standard ferret missions; unusual signals of the USAF Security Service, Army, and Navy; and material from other agencies. The objective was to detect modifications of existing types of unfriendly noncommunications equipments. ~~(SECRET)~~ (U)

Major problems concerned with analysis of Army reports pertained to loss of time before the data was received by ATIC, and the need for an improved means of identifying the emissions. These data yielded a number of unknown and unidentified signals. Screening and analysis of special Army reports of unidentified electronic radiations from sensitive

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areas continued. These reports are a primary source of information concerning new or modified radars which may become operational equipments of the USSR at a later date. ~~(CONFIDENTIAL)~~ (U)

An IBM suspense file of all unidentified and unusual signals intercepted by US intelligence agencies was initiated in January 1956.

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During the past six months, the Readix Digital Computer serviced the Center both in the data reduction and statistical fields. It provided engine-performance analysis and guided-missile performance criteria. ATIC re-evaluated fixed-radar-search data and established a method for utilizing the Readix Computer for analysis of these data. ATIC routinely made installed-engine-performance calculations, coded and programmed the problem for the computer, and reduced two engines from uninstalled to installed conditions. (Uncl)

ATIC initiated an IBM index system which permits specialists to index data in a minimum time by means of a check list. Documentary information on subjects and areas of use for trip briefs was obtained more quickly from the Repository. ATIC started the integration of maps and SRI's into a rapid search and selection system. This permits quick selection by machine-search methods of subjects, locations, and current SRI's pertaining to any selected travel route. ~~(CONFIDENTIAL)~~ (U)

The Center developed methods for utilizing the Ansler Integrator in establishing the basic geometry of complex wing planforms. The American Machine and Foundry Company began work on an ATIC study to determine the feasibility of constructing a universal analyzer for all

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types of antiaircraft weapons, including guns, unguided rockets, and guided missiles. The study indicated the feasibility of this type analyzer and showed that the IBM 650 computer, currently installed at SAC Headquarters, could be used. (~~CONFIDENTIAL~~)(U)

ATIC used the Univac computer at AMC Headquarters to meet the requirement for construction of AAA Fire Unit Analyzers for use in flak-analysis by SAC and TAG. The information was presented graphically to the Commander. (~~CONFIDENTIAL~~)(U)

ATIC developed a method for determining range and altitude of known aircraft from a sequence of moving picture film and developed routines to perform several phases of the photo-analysis problem on the Readix Computer. This method was applied to photography of CAMEL to assist in the analysis of tail-pipe radiations. (~~CONFIDENTIAL~~)(U)

PHOTOGRAPHIC SERVICES: A new processing laboratory was put in operation in March 1956. This laboratory was equipped with special photographic reconnaissance equipment. Approximately 8,000 feet of test film was processed. During April, May, and June, film exposed during 20 May Day and Tushino Fly-Bys were processed and printed on a "Crash" basis. In addition to the regular requirements of this project, ATIC accomplished the processing, production printing, and duplication of K-24 film formerly completed by WADC Technical Services Laboratory. (~~SECRET~~)(U)

REPRODUCTION SERVICES:

Conversion to automatic typing equipment became a necessity because of ever-increasing demands for critical technical-intelligence information from planning officials outside ATIC. The Congressional Joint Committee on Printing approved the ATIC request for Justewriter equipment the last

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of June 1956. (Uncl)

Three new multilith machines enabled ATIC to produce legal-size reports, and increase the timeliness of intelligence dissemination. An ozalid automatic dry-process machine helped to absorb the increased reproduction requirements of the Center. (Uncl)

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CHAPTER 9

MANPOWER MANAGEMENT

Priority effort was devoted to establishing manpower requirements during the first six months of 1956. These requirements were measured against long-range plans of ATIC. The resulting estimates indicated that by 1958 manpower requirements would increase at a ratio of 1.6 to 1 for civilians and 1.3 to 1 for officers and airmen. This represented an estimated 46% increase over the 1956 total authorization of 684. (Uncl)

Redistribution of the total 684 spaces, based upon assigned strength, stabilized the manning within the Center. This assigned strength provided the basis for projected future requirements, and the 46% increase served as the maximum growth indicator, resulting in the projected increase of 270 civilian, 59 officer and 33 airman authorizations. (Uncl)

Plans for programming of additional authorizations were compatible with inhiring, training, classification, and general administrative capabilities. Programming of the total civilian requirements was phased at the rate of 15 per month for the first six months and 10 per month for the next eighteen months. Projected programming of additional officer authorizations was at the rate of five per month, beginning 1 July 1957. Eighteen airman spaces covered overages; the other 15 airman spaces were set up to follow July 1957. Authorized increases as of 30 June 1956 covered the requirements as projected and programmed through September 1956. (Uncl)

As of 27 June 1956, total ATIC strength, zone of interior and overseas, was 197 officers, 101 airmen, and 417 civilians. Civilian authorized strength of 417 included 397 General Schedule and 20 Wage Board

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authorizations. The assigned strength was 201 officers, 128 airmen, and 367 civilians. Positive recruitment was in progress for the 417 established positions. (Uncl)

Total manpower authorizations were distributed to organizational elements of the Air Technical Intelligence Center as follows:

	<u>Civilians</u>	<u>Officers</u>	<u>Airmen</u>	<u>Total</u>
Office of the Commander	5	4	2	11
Office of the Adjutant	23	5	6	34
Personnel & Management Office	16	4	7	27
Comptroller	11	4	0	15
Security Office	2	2	2	6
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Deputy for Science & Components	73	23	1	97
Deputy for Air Weapons Systems	40	25	3	68
ATILO	23	47	24	94
ZATILO	0	4	1	5
Detachment Nr 1 (SMITIG)	20	5	1	26
Detachment Nr 2 (Western Office)	1	2	1	4
TOTALS	417	197	101	715 (CONFIDENTIAL)

Applied Research, Incorporated, provided a research director, thirteen professional persons, and four clerical employees to augment the ELINT staff under terms of a negotiated contract for professional services. (Uncl)

An unresolved problem at the close of this reporting period was associated with conversion of civilian positions overseas to the competitive service. All clerical personnel of AFIC ^{were} converted as of 1 April 1956, but negotiations between AFIC and Hq USAF, pertaining to technical personnel in the Excepted Service, were not concluded. (Uncl)

The Civilian Personnel Office (CPO), which was established the latter

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part of 1955¹, developed into a going organization with full recognition during the first half of 1956. It functioned satisfactorily under the provisions of the joint AMC, WADC, ATIC agreement and no changes or modifications of the agreement were required. Sufficient flexibility under the agreement permits independent operation by ATIC, yet provides assistance when required. (Uncl)

The new CPO operated a complete Air Force Civilian Personnel program, including the functions of Classification and Wage Administration, Records Administration, Placement and Employee Relations, and Training. (Uncl)

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GLOSSARY

AFSWC	Air Forces Scientific Working Committee
AGARD	Advisory Group for Air Research and Development (NATO Committee)
AI	Airborne Intercept ✓
AMC	Air Materiel Command ✓ - AMA - AFD
APGC	Air Proving Ground Command ✓
ARDC	Air Research and Development Command ✓
ARI	Applied Research, Incorporated
ATILO	Air Technical Intelligence Liaison Officer ✓
CIA	Central Intelligence Agency ✓
DDI (Tech)	Deputy Director of Intelligence, Technical (Great Britain) ✓
DOD	Department of Defense
DPO	Development Planning Objectives
ECM	Electronic Countermeasures
EDIC	Economic Defense Intelligence Committee
ELINT	Electronic Intelligence
FY	Fiscal Year
GOC	Ground Observer Corps
GOR	General Operational Requirements
IAC	Intelligence Advisory Committee
IAMR	Institute for Air Weapons Research (University of Chicago)
ICBM	Intercontinental Ballistic Missile
ICR	Institute for Cooperative Research (Johns Hopkins University)
NACA	National Advisory Committee for Aeronautics
PRC	Production Research Corporation
RADC	Rome Air Development Center

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RCAP Royal Canadian Air Force
SAB Scientific Advisory Board (Air Force)
SAC Strategic Air Command
SAG Scientific Advisory Group (ATIC)
TAC Tactical Air Command
USAFSS United States Air Force Security Service
WADC Wright Air Development Center

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