

Secret

*CIA Internal Use Only
Access Controlled by
CIA History
Staff and DD/S&T*



NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

THE YEARS OF PROJECT HTAUTOMAT, 1956 - 1958

VOLUME II

by



25X1

Secret

NPIC 3
December 1974
Copy 1 of 2

PERMANENT HISTORICAL DOCUMENT
DO NOT DESTROY

SECRET

Access Controlled by CIA History Staff and DD/S&T

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER
THE YEARS OF PROJECT HTAUTOMAT, 1956 - 1958

VOLUME II

by



25X1

Copies:

#1 - CIA-HS

#2 - DD/S&T

SECRET

SECRET

Contents

Volume I

	<u>Page</u>
Foreword	iii
I. The First Looks Behind the Iron Curtain.	1
A. The Anatomy of HTA	3
1. Office of the Chief.	4
2. Special Projects Branch.	4
3. Industrial and Geographic Branches	6
4. Technical Intelligence Branch.	8
5. Support Staff.	10
6. Administrative Staff	12
7. Statistical Branch, OCR.	12
8. Military Liaison Components.	14
9. Central Branch	16
B. The First Eight Missions Dominate Events of July and August	18
1. The Eight Missions and Their Objectives.	20
2. Immediate Exploitation of the First Eight Missions.	21
3. Detailed Exploitation During July and August 1956	24
4. Technical Support.	27

SECRET

	<u>Page</u>
5. Support Activities	29
6. OCR Statistical Branch Charges Forward	30
7. Walker's Task Force: Headquarters Outpost	34
8. Return from Europe	35
II. The Middle East Crisis	45
A. U-2s Assume a Tactical Role.	45
B. HTA and the PARAMOUNT Committee.	47
C. Functioning of the PARAMOUNT Committee . .	54
E. HTA Continues Work on the First Eight Missions.	58
F. A Stirring Giant	60
G. PI Training.	67
H. Looking Back	69
III. Back on Course	72
A. 	74
B. Organizational Incongruity	75
C. Briefing-Aid Books	77
D. Soviet Long-Range Airfields.	80
E. Mozhaysk	84
F. Testing. . . Testing	100
G. Signs of Drought	105

25X1

25X1

SECRET

SECRET

	<u>Page</u>
IV. Reorganization and Renewal	109
A. Training and Orientation	110
B. Training and Orientation Offered by HTA.	121
C. New Tools for Eager Hands.	122
D. Familiar Tasks	132
E. Reorganization and Reassignment.	148
V. On to Greater Accomplishments.	159
A. First Aerial Coverage of Russian Scientific and Technical Installations.	159
B. Rejuvenation and Resumption of Discoveries	162
1. Changing Faces and Responsibilities.	163
2. New Discoveries Dominate Work at HTA	166
C. Other Mouths to Feed	171
D. New Administrative Procedures.	178
E. Specter of a Job Freeze.	182

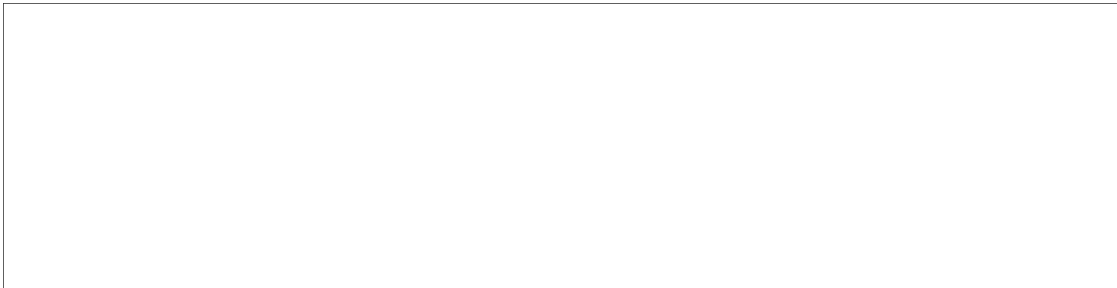
Volume II

VI. JAM SESSION Steals the Show.	184
A. Establishment of JAM SESSION	184
C. GMIC Targets	203
1. The Tyura Tam Missile Test Center and Test Range.	208
2. The Kapustin Yar Missile Test Center and Test Range.	217

25X1

SECRET

	<u>Page</u>
3. Good-Bye to GMIC Consultants	240
D. Show and Tell.	242
E. Other PI Exploitation and Reporting.	251
F. Making Equipment Function Better and Getting Better Equipment.	258
G. The HTAUTOMAT Organization Reacts to JAM SESSION	271
VII. Winds of Change.	285



25X1

D. Not by JAM SESSION Alone	320
E. How to Proceed With the Publication of Reports.	327
F. Carpenters, Plumbers, and New Equipment.	334
G. People and Hierarchies	340

Volume III

VIII. HTAUTOMAT Becomes the Photographic Intelligence Center	355
A. The Last Months of JAM SESSION	355
1. COMINT Comes to MSB.	356
2. A Bear by the Tail	357
3. The Show Goes On	366

SECRET

	<u>Page</u>
4. A General on His Knees and PI Keys . . .	376
5. Two Soviet Heavy Water Plants.	386
6. Uranium Mining and Milling Sites . . .	390
B. Keeping Busy	418
C. Operating Procedures for HTA -- and PIC. .	427
D. Automated Mensuration -- With Bugs	438
E. "Playing Footsie" With the Norwegians. . .	446
F. A Center at Last	449

Appendices

A. Index.	457
B. Chronology	477
C. Source References.	482

Volume IV

Figures, No. 1 through No. 39

Volume V

Figures, No. 40 through No. 86

Volume VI

Figures, No. 87 through No. 129

SECRET

SECRET

VOLUME IIVI. JAM SESSION Steals the Show

Detailed exploitation of the SOFT TOUCH materials followed production of ODE reports, without a pause. The photographic smorgasbord of scientific and technical targets invited chaos, however, if left to unbridled intelligence interests and appetites. Something had to be done to establish some priority of work and to provide for orderly and imaginative exploitation of the photography.

A. Establishment of JAM SESSION

The solution adopted was called Project JAM SESSION. A more appropriate name could scarcely have been chosen. Plans called for the convening of experts -- PIs, intelligence analysts, engineers, and scientists -- in working sessions where each could bring his particular brand of expertise to bear on the solution of exploitation problems. Though the experience gained the previous March with Mozhaysk consultants proved useful in conceiving JAM SESSION and setting it up, at least as far as HTA was concerned, the depth and breadth of the undertaking were unprecedented.

SECRET

As of Monday, 23 September 1957, all projects in HTA relating to guided missiles were combined as P-74 and all those dealing with nuclear energy as P-101. 297/ At the same time, exploitation teams consisting of Army, Navy, and CIA photo interpreters were named to work on each of the major high-priority targets. Each team had an appointed leader who was designated chairman. Some of the latter were Army employees, some Navy, and some CIA. 298/ All this high-priority photo interpretation work was placed under the direction of 25X1 chief of the HTA Military-Scientific Branch. Within HTA, all work on these projects, whether photo interpretation or support services, was given top priority. 299/

Support personnel, though not under the direct control of the chief, MSB, worked closely with photo interpreters and their supervisors, but not all support elements were equally involved in JAM SESSION. Those most concerned were personnel engaged in collateral support, mensuration, graphics, and the photo lab. The US Army, whose commitment in the joint effort was second only to that of CIA, contributed a few personnel to augment the mensuration and graphics capability. Aside from these, support personnel were all Agency employees.

- 185 -

SECRET

SECRET

Work on Project JAM SESSION was located in the Steuart Building. At this early date TALENT-cleared areas were few and security controls were tight and restrictive. Moreover, HTA was the prime recipient of the photography. In addition, the HTA drive for more and better equipment, though limited in accomplishment at this point in history, provided the best capability for in-depth exploitation of the photography. That this required others with greater professional pestige than PIs to beat a path to the door of the photo interpreters was not inappropriate. After all, it was the extraordinary nature of the photography that triggered the whole exercise. Though there would be future consultant meetings in the Steuart Building, this was a situation that would not be repeated to the same degree again, as TALENT and subsequent overhead photography became more widely dispersed, as PIs became more knowledgeable, and as analysts outside HTA and its successor organizations sought to reassert their prerogatives as producers of intelligence.

To inform participants of ground rules according to which JAM SESSION would be conducted, on 24 September 1957 a memo was issued over the signature of Lundahl. This memo listed representatives from OSI,

- 186 -

SECRET

SECRET

Army, Navy, Air Force, and the AEC who had been appointed to work with joint Army-Navy-CIA photo interpretation teams on nuclear targets, and representatives from OSI, Army, and Navy who were to be their counterparts in exploiting guided-missile targets. Perhaps the most important feature of the memo, from the HTA point of view, was announcement of a schedule setting hours for work and hours for consultations. From 0830 to 1430 each day, photo interpreters were to work uninterrupted, except for urgent consultations which were to be requested and cleared through chief, MSB. The hours between 1430 and 1700 were reserved for consultations when any of the designated representatives from Intelligence Community agencies could come to HTA without special appointment and discuss with PIs the findings on targets of interest to them and their organizations. Provision was also made for consultations on the initiative of PIs needing assistance at any time during working hours. 300/

25X1

In addition to representatives from the Intelligence Community, plans were made to bring engineers and scientists from Government and industry into the Steuart Building, either in a special capacity or to participate in seminar-type discussions of the evidence from all

- 187 -

SECRET

SECRET

available sources bearing on major facilities at each of the Soviet installations being examined. In most cases, consultations would extend over a few days; in the case of the two Russian missile test centers, however, outside consultants worked in parallel and shoulder-to-shoulder in the Steuart Building with HTA photo interpreters for several successive weeks. In this manner, the full knowledge of those best versed in guided missiles and nuclear energy and weaponry was brought to bear, along with the talents of skilled intelligence analysts and photo interpreters, on the problems of exploitation.

Even given the overall plan for JAM SESSION, much further planning and, in HTA, a great deal of preparation was required. Photo interpreters had to familiarize themselves with details of the installations for which they were responsible, countless measurements had to be made to provide intelligence analysts and industry consultants with information on the size, shape, and height of key facilities, and graphics in the form of annotated photos and mosaics, line drawings, and perspectives had to be prepared to portray the information as vividly as possible for those not skilled in the interpretation of overhead photography.

- 188 -

SECRET

Page Denied

Next 13 Page(s) In Document Denied

SECRET

25X1

C. GMIC Targets

Assignment of the JAM SESSION photo interpretation teams accomplished one objective, at least in the Military-Scientific Branch, that had eluded the grasp of D/GP for several years. The scope of work on JAM SESSION targets coupled with the unremitting pressure to complete work on each of the targets rapidly resulted in a degree of specialization not previously feasible. Whether by choice or accident -- and both were a factor in the initial assignments -- PIs found themselves working exclusively on either nuclear- or missile-related

- 203 -

SECRET

SECRET

targets. The effective specialization was even greater; most were beginning to become acknowledged authorities on the interpretation of a particular target, such as or the Tyura Tam Missile Test Center. Granted their degree of expertise was decidedly limited as yet, they were, nevertheless, cultivating it daily.

25X1

Even while consultations on the Tomsk installation were in progress, PIs and support personnel were working at a feverish pace to prepare for consultations on GMIC targets. Thus, completion of consultations on the Tomsk installation coincided with the virtual completion of preparations for an even greater effort to interpret the photography and evaluate the significance of the Tyura Tam and Kapustin Yar Missile Test Centers. The OCR Statistical Branch monthly report for October 1957 noted that because of the "extreme urgency" of intelligence on guided missiles, GMIC requirements were being given priority over those already scheduled for JAEIC. It added that, during the last half of October, 25 copies of one book of graphics on the Tyura Tam Missile Test Center was prepared for intelligence analysts and consultants as well as an equal number of each of two other books of graphics on the Kapustin Yar Missile Test

- 204 -

SECRET

SECRET

Center for the same purpose. 304/ These were impressive volumes in a 20 by 24 inch format, with perspective sketches, and with annotated line drawings and photographs.

The overriding importance thus attached to work on Russian missile test facilities was not surprising. Earlier in the same month, on 4 October, the USSR had stunned the world by launching the first earth satellite. 305/ The political repercussions resulting from the success of this venture greatly enhanced the already urgent interest stimulated by acquisition of photography of both the Kapustin Yar and the newly established Tyura Tam Missile Test Centers. PIs and intelligence analysts were cautious in preliminary interpretations and assessments, but collateral evidence and the photography left little doubt in their minds that the launch point for Sputnik I was in the Tyura Tam installation. Though there was little concern that a satellite such as this could deliver nuclear or other weapons to targets outside the Soviet Union in the then foreseeable future, there was animated concern about what parts of the United States might be within range of ICBMs launched from pads in these test centers.

- 205 -

SECRET

SECRET

By early November all was in readiness for across-the-board exploitation of photography and collateral intelligence on GMIC targets. Essentially, this meant the Kapustin Yar and Tyura Tam Test Centers. Three more 20 by 24 inch books of graphics were printed in 25 copies each, completing the presentation for KY, as it became familiarly known. All available collateral for which need could be anticipated was assembled. The Minicard room, which was still without the equipment for which it was named, was made ready for use by members of the Special Engineering Analysis Group. These experts from Government and industry were to be based in the Steuart Building -- working and consulting with the PIs, as appropriate, as well as doing their own analysis and evaluation -- until they produced a detailed all-source report on their findings. This work, in turn, would be used by the GMIC Scientific Advisory Panel to produce a brief report consisting of major conclusions and recommendations.

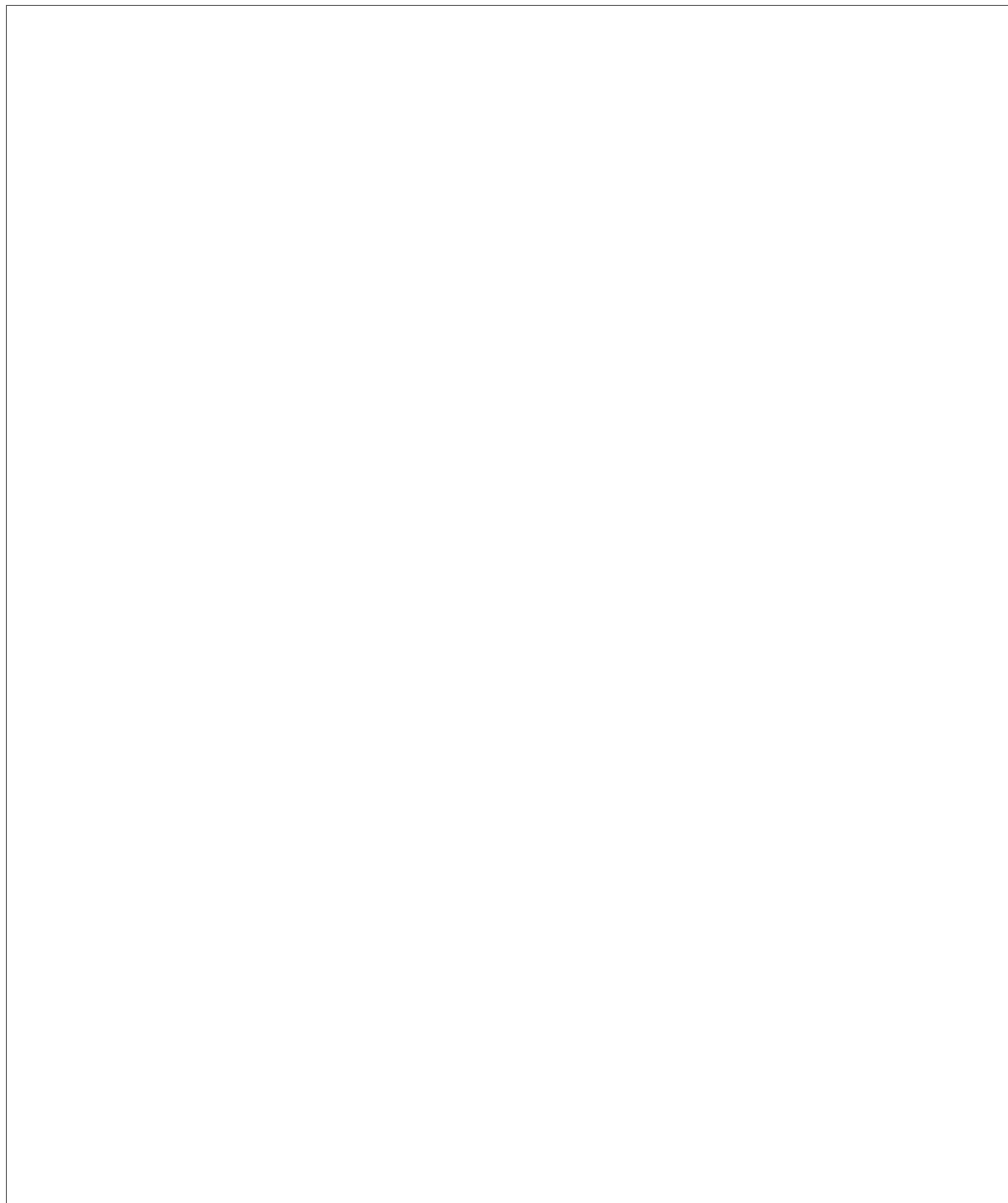
Members of the GMIC Special Engineering Analysis Group arrived in the Steuart Building on Monday, 4 November 1957. Though outranked by the GMIC Scientific Advisory Panel, the members of this group were eminent authorities in their own specialized fields. They

- 206 -

SECRET

SECRET

included the following:



25X1

These consultants worked continuously at HTA through Friday, 29 November 1957. From the distribution of personnel by category of specialization, it is clear

- 207 -

SECRET

SECRET

where the muscle was concentrated -- in the investigation of surface-to-surface missile (SSM) facilities.

Results of their work were published on 27 November, just two days short of four work weeks after they began, in a report consisting of 141 legal-size pages of text and 14 figures which included photos, line drawings, and charts. 306/ Extensive reference was made in this report to graphics in the Tyura Tam (TT) and KY work-books prepared by HTA for the consultants. In addition to the photography, the other main source of information used was COMINT. Availability of the photography provided an opportunity to breathe structural reality into the ghostlike facilities whose presence was indicated by electronic intercepts.

1. The Tyura Tam Missile Test Center and Test Range

The Tyura Tam* facilities, though neither as extensive nor as long developed as those at Kapustin Yar, provided the greatest excitement. After all, how could an installation apparently devoted primarily to the testing of intermediate and medium-range missiles,

* More commonly written as one word, Tyuratom, in subsequent years, Tyura Tam it was to those who first named the test center and exploited the early photography.

SECRET

SECRET

surface-to-air missiles, and air-launched missiles compete for top attention with a facility from which Sputnik I had in all probability been launched and which had a launch platform from which ICBMs could undeniably be launched, either in anger or for testing purposes? Moreover, on 3 November, the day before the Special Engineering Analysis Group convened, the Soviets successfully launched Sputnik II, a whopping 1,120-pound package including a dog, in contrast to the mere 184-pound package of Sputnik I. 307/ The ability of the Russians to put into earth orbit an object weighing over half-a-ton in little more than a month after the first one galvanized the exploitation team and the Intelligence Community into action and threw Tyura Tam facility into bolder relief.

Located in a barren and isolated part of Kazakhstan served by the Aralsk-Tashkent rail line, this installation, with its heavily secured operational components, was obviously the first step in the construction of a permanent Soviet center for the launching of large ballistic missiles with intercontinental, earth-satellite, and space-flight capabilities (Figure 39). Prior to the convening of JAM SESSION consultants, the installation had been covered twice. The first photographic

- 209 -

SECRET

SECRET

mission, flown on 5 August 1957, was planned on the basis of information obtained from [] other sources.

25X1

On this mission the range head appeared well out on the oblique, making interpretation difficult. 308/ On 28 August, a mission planned with the benefit of information gathered on the earlier flight covered the whole installation with vertical and near-vertical photography.* It was the latter photography, of much better interpretability, that was the chief source of information on Tyura Tam produced by PIs engaged in JAM SESSION.**

HTA photo interpreters liked to point out that the installation had roughly the shape of a dumbbell. The support base situated around the rail town of Tyura Tam outlined one bell. The range head, 15 miles to the north, outlined the other. Between the two were a rail line and parallel power and water lines (Figure 40).

* The 5 August mission, planned before HTA had recommended use of the A-2 camera in SOFT TOUCH missions, utilized the B camera, which was not yet functioning without problems. For further information on the A-2 camera, see NPIC-2, referred to in footnote, p. 1, above, p. 174; and p. 262, below. For the B camera, see p. 124, above, and p. 263, below.

** Unless otherwise noted, factual information on the Tyura Tam Missile Test Center and all the graphics used in this description are from JR-4-58, the PI report issued by HTA following JAM SESSION. 309/ Illustrations in this report are virtually the same, however, as those prepared for the consultants months earlier.

- 210 -

SECRET

SECRET

Chief interest in the range head, and indeed the whole installation, was centered on a massive rail-served concrete launching platform overhanging a huge pear-shaped pit (Figure 41). This facility, including related structures, was designated "Launch Area A." The launching platform [redacted] the top of 25X1
 the platform rose [redacted] above the level of the flame 25X1
 deflector plate, at its foot. The pit in front of the platform measured 880 by 550 feet, and at its deepest level, was [redacted] below the surrounding terrain (Figure 42). 25X1
 A servicing tower and two possible collimation towers were identified on the platform. At least nine instrumentation and observation positions were situated around the rim of the pit.

Within a mile or two of the launching platform there was a wide range of servicing facilities and equipment, including unusual rail cars believed used for transporting missiles and missile propellants, rail-served assembly and checkout facilities, a concrete controlbunker, an interferometer-type instrumentation site and adjacent range control center, a power substation, and a water supply system believed capable of supplying quickly three to four million gallons of water during missile firings (Figures 43 and 44).

- 211 -

SECRET

SECRET

The support base, along the through rail line and adjacent to the Syr Darya (River) provided services not immediately involved in the preparation and launching of missiles. Facilities at this location included buildings to house personnel and administrative activities, a plant for water treatment and storage, a power plant, rail transloading and storage facilities, and a small natural-surface airfield (Figure 45). A communications receiving station (Communications Area B) was also situated in the support base area (Figures 46 and 47). It was obvious that the test center was dependent on the railroad for transporting all materials and heavy equipment brought in from outside the area as well as for delivering live missiles from the assembly and checkout facilities to the launching structure.

There were just two important facilities along the rail spur connecting the support base and the range head. One was Communications Area A, the transmitting station for the Tyura Tam installation. The other, which was under construction, was believed to be a propellant production and storage facility (Figure 48). These facilities, along with those at the range head and the support base, constituted the key components of the Tyura Tam Missile Test Center as distinguished from those farther down range.

- 212 -

SECRET

SECRET

In August 1957 there was major construction in virtually all parts of the test center. Since there were two missions over the installation during that month, it was possible to make judgments about the pace of construction, particularly in the support base where the coverage of 5 August had been better than that of the range head. The observations were almost unbelievable. For example, at Communications Area B on the support base, on 5 August there were one double rhombic antenna array, one two-bay fishbone antenna, and one row of three stick masts. On 28 August, there were nine double rhombics, two fishbones, one three-mast array, one four-mast array, and three single masts. In those 23 calendar days, 92 masts had been erected, an astonishing accomplishment.

The feverish pace of construction indicated a crash effort to achieve operational readiness for the Center at the earliest possible date. Though the object of all this haste, whether for military advantage or some spectacular space event, was not apparent late in the summer of 1957, the reason became crystal clear in the next several weeks. By the uninhibited use of a military booster, the Soviets were able to launch the first earth satellite while Werner von Braun and his team at Huntsville were removed from the competition by ideological constraints imposed by the US Government in favor of the floundering non-military Vanguard program.

- 213 -

SECRET

SECRET

Though photography of the presumed test range was limited, instrumentation facilities were covered for approximately 70 miles north and northeast of Launch Area A. The two largest, Sites 28 and 29, were located between 60 and 70 miles to the north and east of the launch point. Their positions were such that a line bisecting the angle formed by imaginary lines passing through each of the sites and the range control center had an azimuth of 40 degrees (Figure 49). This was regarded as the probable primary direction of fire from Launch Area A.

Further photographic evidence supporting this hypothesis, was provided by the discovery of probable terminal range facilities 3,400 miles to the northeast, on the Kamchatka Peninsula. Photography of 19 June 1957 and much better coverage three months later, on 16 September, revealed five apparent terminal-range instrumentation sites near the settlements of Uka and Yelovka (Items A through E, Figure 50). Three of these sites were situated along the Bering Sea coast, suggesting the possible extension of the test range into the Pacific Ocean.

Many months after JAM SESSION was over, an installation under construction was discovered on the September 1957 photography of the Kamchatka Peninsula in the vicinity of Klyuchi. It was belatedly identified as a

SECRET

high-frequency, long-range communications center (Figure 51). Two double rhombic antenna arrays were under construction (Items A and B, Figure 51) and clearing was under way for what were expected to be at least two more (Items C and D, Figure 51). The size and configuration of the two under construction were nearly identical to several in Communications Area B, in the support base at the Tyura Tam installation. Moreover, the azimuth of the great circle defined by the orientation of the two under construction at Klyuchi passed through Tyura Tam. It was believed, therefore, that the Klyuchi communications center was a key component in the Tyura Tam Missile Test Range.

The impressive nature of the Tyura Tam installation, coupled with Russian success in launching the first earth satellite and following it a month later with a much heavier one, caused much speculation and not a little uneasiness about the status of the Soviet ICBM program and possible deployment of operational ICBM launch sites in the USSR. With so little of the Russian heartland covered by up-to-date photography, there was serious concern that operational launching sites might already be under construction or even completed, with missiles available for launching against US targets at the whim of Russian leaders.

- 215 -

SECRET

SECRET

The problem, therefore, was to develop guidelines for use in searching existing photography and in planning further collection efforts. Out of the welter of information and speculation stemming from JAM SESSION, one criterion seemed to have unusual potential for narrowing down the possibilities. It was the fact that Russian long-range missile systems seemed dependent on rail transportation and rail servicing.

This assumption led, during the next several years, to the levying of requirements on HTA and successor organizations to undertake rail searches of all photography covering a broad spectrum of geographic areas in the USSR for evidence of rail spurs servicing possible launch sites completed or under construction. These requirements also involved a search along thousands of miles of the Russian rail net for evidence of sites that might be prepared for use by a rail-mobile missile system.

These searches were productive of little more than the conscious satisfaction of learning that HTA photo interpreters had done the job requested and found no detectable evidence of the presence of deployed ICBM launch sites in the areas examined. The task was a dreary one from the point of view of the PIs and was

- 216 -

SECRET

SECRET

spread out among photo interpreters in both the Geographic and Military-Scientific Branches. This division of responsibility resulted not only in the dubious consolation of spreading out the dog work but also produced occasional embarrassment to the parent organization when differences in interpretation arose between missile specialists in the Military-Scientific Branch and other PIs pressed into service to share the work load.

2. The Kapustin Yar Missile Test Center and Test Range

Concurrently with work on the Tyura Tam installation, the Special Engineering Analysis Group and Military-Scientific Branch PIs were applying the same all-source approach to the exploitation of photography of the Kapustin Yar Missile Test Center. Though Tyura Tam had top billing because of the Sputniks and the impressive nature of Launch Area A, it was but a small upstart compared with the staggering array of facilities at Kapustin Yar, many of which were of much longer standing.

The range head for the Kapustin Yar installation*

* At first, the place-name reference for this installation was only the settlement of Kapustin Yar, and, indeed, this place name or the initials KY continued to be the most familiar usage. As exploitation of photography proceeded, however, (footnote continued on next page)

SECRET

sprawled across approximately 1,600 square miles of Russian steppeland, an area greater than the total for all range heads at US missile test centers in 1957. 310/ At Kapustin Yar, where there was no single facility to compare with the launching platform and huge pit at Tyura Tam, the chief impression was the vastness of the installation, the far-flung arrangement of the facilities, their diverse nature and the breadth of technical development, the long period of growth, and the continuing expansion, presumably to accommodate the testing of new and bigger missiles (Figure 52).

During HTA days, photographic coverage of the Kapustin Yar installation was achieved for the first time on 10 September 1957, by a mission out of Adana. 311/ The flight proceeded from the east, uprange, toward the northern end of the test center, photographing a strip of the downrange area approximately 200 miles long. When the pilot got one good look at the herringbone SAM complex, with its presumed 60 launch points, he banked the U-2 and veered southwestward and crossed the Volga.

(footnote continued from preceding page) JAM SESSION participants were impressed by evidence that some of the facilities around and tributary to the city of Vladimirovka were distinctly different. In recognition of this distinction, the name Kapustin Yar-Vladimirovka Missile Test Center later became the one used when circumstances seemed to require the most precise terminology.

- 218 -
SECRET

SECRET

This maneuver produced only oblique monoscopic coverage of the SAM facilities and nearby SSM complexes. Coverage of most other parts of the test center, which included the most important SSM facilities, yielded coverage of better interpretability, some of it stereoscopic.

There was a substantial amount of collateral information on missile testing in the area around Kapustin Yar, beginning in 1946 or 1947. In addition, there was a large body of information about testing derived from COMINT and RADINT. 312/ All these sources pointed to an impressive growth in the number of programs, in the size and range of missiles being tested, and in the sophistication of range facilities. It was these data, correlated with visible evidence of the numerous testing sites and support facilities captured on U-2 photography, that enhanced the significance of what the PIs were seeing and gave perspective to the development of the test center.

The most extensive and most numerous facilities in the range head were those for testing surface-to-surface missiles, probably in ranges up to 950 nautical miles.*

* Unless otherwise indicated, the source of analytical and descriptive information dealing with the KY Missile Test Center is the report of the Special Engineering Analysis Group and the book of graphics prepared by HTA for the consultants. 313/

SECRET

U-2 photography revealed that complexes for testing this type of missile were positioned along a broad arc some 15 miles in length and lying northeast, east, and southeast of Kapustin Yar. Generally speaking, the SSM facilities to the northeast were for smaller, earlier missile systems, whereas those to the east and southeast were designed for successively newer systems involving progressively longer-range missiles. Moreover, further major construction was under way in the complexes east and southeast of Kapustin Yar, indicating modifications to existing systems and/or the development of still newer systems. Even though the pace of construction could not be estimated because of lack of comparative photographic coverage, it was apparent that the Soviets were pressing ahead vigorously in the field of missile technology.

For purposes of identification and communication, PIs arbitrarily divided the KY range head into areas called zones. In defining the zones associated with operations, an attempt was made to include in each zone all facilities, and only those facilities, common to the preparation and/or launching of one missile system. Each zone was designated by an Arabic number. Zone 6, less than 10 miles from Kapustin Yar, was obviously the oldest

SECRET

SECRET

launch site in the range head and, by 1957, seemed inactive. Moreover, the deployment of later complexes in the line of fire from Zone 6 also suggested that the latter was no longer operable (Figure 52). It was believed that Zone 6 was the site used for launching Russian A-4 rockets reportedly tested on the range as early as 1947.

Zones 4 and 5, somewhat north of the line of fire from Zone 6 and probably added while Zone 6 was still active, were regarded as a logical extension of systems testing initiated at Zone 6 (Figure 53). At all three facilities the launch pads were similar. Moreover, Zones 4 and 5 were road-served from the same support base, suggesting a close relationship between the two. It was thought by JAM SESSION consultants that Zone 4 might be a site for engineering-user tests of the A-4 missile system. On the other hand, Zone 5, which featured three launch pads in a linear pattern, was believed used for training troops in use of the same missile system.

Zone 7, which appeared to have been the next SSM facility constructed at the range head was believed to have been the first site designed specifically for early research and development. The launch area had two main pads served by good paved roads plus up to five small

SECRET

SECRET

pads with several associated revetments. The support area was situated about one-half mile from the launch area (Figure 54).

Turn radii on access roads leading to the main launch pads in Zone 7 as well as the size of the pads indicated a capability to handle missiles up to 60 to 70 feet in length. Distance of the support area from the launch area also suggested that the site was designed to handle missiles larger than the A-4. Since no permanent launch tower was present, it appeared that the system tested would be fully mobile.

Candidates for systems employed were provided by photographs of missiles displayed in the Moscow parade. A trailer-mounted MRBM was the choice for firing from the two main pads (Figure 55). Tank-mounted short-range ballistic missiles exhibited in the same parade were favored by JAM SESSION consultants for firings from the smaller pads at Zone 7 (Figure 56).

Whatever the systems, whether these or some others, the size and complexity of the support facility were judged adequate to handle a major R&D project. Moreover, comparison of Zone 7 with similar US missile testing facilities led analysts to conclude that Zone 7 was capable of accommodating a high rate of firing for either a single system or a combination of systems.

- 222 -

SECRET

SECRET

Zone 8, situated just over a mile south of Zone 7, appeared from the photography to be an R&D launching facility added after the construction of Zone 7. A distinctive feature of Zone 8 was location of the support area right next to the launch area (Figure 57). Indeed, the distance from the main launch pad to the nearest large building was only 600 feet (Figure 54). Though the layout and turn radii on the roads serving the launch pads would permit handling of trailers 60 to 70 feet long, the approach roads to the launch area, which were unimproved, and the closeness of buildings in the support area to the launch pads suggested the testing of small, rather than large, missiles.

Construction in Zone 9, almost due east of Kapustin Yar, was believed to have been started shortly after completion of Zone 8. Compared with earlier facilities in Zones 4 through 8, those in Zone 9 were much more elaborate and clearly intended for launching larger missiles. Indeed, at the time of the photography there was a Thor/Jupiter-size missile erected on one of the pads. The day following the U-2 overflight, a missile was fired from the Kapustin Yar Missile Test Center to the 650-nautical-mile impact area. It was the opinion of those working on JAM SESSION that the missile seen

- 223 -

SECRET

SECRET

on the photography was the one fired the next day.

Facilities at Zone 9 were layed out in the shape of a Y, with the road forming the stem oriented approximately east-west. A large pad was situated at the end of each of the two roads forming the arms of the Y (Figure 58). Separation of the two launch facilities, arbitrarily designated "Launch Area North" and "Launch Area South," was just over two miles (Figure 59). Launch Area South was undergoing modifications at the time of photography; two large hexagonal pads had been added at the ends of service roads leading off the northeast and southwest corners of the original pad. Each of the new hexagonal pads was about 1,000 feet from the original pad, center to center. It was on the original pad at Launch Area South that the Thor/Jupiter-size missile was discovered on the photography. (Figure 60).

A missile checkout facility was situated along each arm of the Y, nearly one-half mile behind the launch pads. Two missile assembly facilities, presumably one for each launch area, were located along the stem of the Y. What was thought to be the control center for Zone 9 was located adjacent to the point where the road forming the stem of the Y bifurcated to head out to the launch areas. Administrative offices for Zone 9

SECRET

SECRET

were located where the road to Zone 9 turned off the main road to Kapustin Yar (Figure 59).

The reason for duplication of facilities at Zone 9 was not immediately apparent. If then current US practices were being followed, the two complete launching and support complexes would be provided to achieve a higher rate of test firing with a given system. An alternative possibility was also considered, namely, that the Russians were engaged in developing and testing two different medium- or intermediate-range missile systems simultaneously. It was generally supposed, therefore, that Zone 9 could be engaged in the launching of 950-mile as well as 650-mile missiles.

Evidence available to JAM SESSION participants led them to conclude that surface-to-surface missile activity was tied to Kapustin Yar, whereas wholly independent facilities for testing cruise missiles, air-to-surface missiles and, possibly, manned space flight were associated with Vladimirovka. Zone 10, which was situated nearly 10 miles south of Zone 9, had all the external appearances of a ballistic missile facility. This created a distinct predisposition in the minds of those analyzing the available evidence to associate Zone 10 with the other surface-to-surface missile facilities at Zones 4 through 9.

- 225 -

SECRET

SECRET

The case was not clear, however. Proximity to Vladimirovka, less than 15 miles to the southwest, as well as the rail connection to that city left room for speculation that the activity at Zone 10 might be administered from Vladimirovka and, in some manner, be associated with space flight. There were, on the other hand, contrary indications that Zone 10 was but another SSM complex in the family of such facilities associated with Kapustin Yar. Thus, Zone 10 was reached from Kapustin Yar by the same road that served Zone 9, and that road was being improved south of Zone 9 at the time of photography. Moreover, assuming that Zones 7, 8, and 9 existed before construction on Zone 10 started, there were just two places to locate the latter, if they were to be placed as close as possible to Kapustin Yar and utilize the existing test range. One place was north of Zone 7 and the other was south of Zone 9 (Figure 52). Placing it south of Zone 9 provided easy access by rail to Vladimirovka. Consultants believed that the manner in which the track terminated in the pad area indicated a rail launch facility as opposed to one simply served by rail.

It was apparent from the photography that Zone 10 would have two launch sites (Figure 61). At the time of

SECRET

SECRET

the U-2 overflight, one of the launch sites was cleaned up, though it was not believed to have been completed. The other was in an early stage of construction. The nearly completed site had a rail-mounted crane or service tower. It also had a control bunker similar to the one at Tyura Tam. Within the launch area were two towers each with a 10-foot object at the top. It was thought possible that these were collimation poles (Figure 62).

25X1

If there was one facility at the test center that could be said to have more than a broad generic resemblance to the launch area at Tyura Tam, it was the launch area at Zone 10. Both were rail-launch facilities. Moreover, Zone 10 had the only launch area at Kapustin Yar with structures resembling the probable collimation towers at Tyura Tam. It was not believed, however, that the Zone 10 missile system -- if it was that -- was the only one at Kapustin Yar that might employ inertial guidance. Likewise, the Tyura Tam-type control bunker was not the only one at the Kapustin Yar Missile Test Center, yet it was another point of resemblance. Then, too, Zone 10, like the launch site at Tyura Tam was judged capable of launching an ICBM; but so was Zone 9.* In

* It was not seriously considered by the consultants, however, that Zone 9 was primarily engaged in test firing ICBMs.

SECRET

spite of these points of resemblance between the launch areas at Zone 10 and at Tyura Tam, the degree of similarity was far short of striking. The launch facility at Zone 10 was by no means as complex, and there was nothing to compare with the huge pad at Tyura Tam.

It must be clear, from the foregoing considerations, that the primary function of Zone 10 seemed, in the minds of those working on JAM SESSION, much less certain than that of any of the other presumed surface-to-surface launch facilities. Perhaps the leading candidate at this point in history, when JAM SESSION was just concluding, was the 950-mile surface-to-surface missile, but the testing of that system could easily have been carried on at Zone 9. Indeed, if the 950-mile range were to have been achieved by reducing the payload of the 650-mile missile from 6,600 pounds to 2,000 pounds, which was regarded by consultants as a distinct possibility, it was believed that the more probable launching area would be Zone 9.

If conclusions about the specific function seemed elusive, even confusing, this was precisely the situation at the close of JAM SESSION. In matching data on missile testing and firings obtained from collateral sources, including electronics and communications intelligence,

SECRET

SECRET

consultants were able to provide plausible candidate missile systems for each of the SSM launch facilities from Zone 4 through Zone 9. At that point, they had exhausted the potential of the supporting information. Moreover, the uncertain administrative subordination of activity at Zone 10, whether to the base at Kapustin Yar or the one at Vladimirovka, added another element of uncertainty. The result was a degree of ambivalence in assigning a possible function to Zone 10 that was not equalled in dealing with any of the acknowledged SSM facilities at Kapustin Yar.

In addition to Zone 10, with its rail connection to Vladimirovka, there were five other zones of activity closer to Vladimirovka that engaged the interest of JAM SESSION participants. Two were along the road and rail line serving Zone 10. A third, near Vladimirovka Airfield, also had rail and road connections with the launch facility at Zone 10.

Zone 11, about 10 miles out of Vladimirovka along the road and rail line to Zone 10, was thought to be some type of missile component manufacturing and test facility. It was rail served (Figure 63). The other facility along the road and railroad serving Zone 10 was closer to Vladimirovka. At the time of overflight, it was under

- 229 -

SECRET

SECRET

construction. Designated Zone 12, it featured a large rail-through building covering an area of nearly 35,000 square feet (Figure 64). JAM SESSION workers thought this might be intended as an assembly and support facility. The third area, Zone 14, was made conspicuous by the presence of a rail-through building, believed, at least by the PIs, to be for assembling missiles. Covering nearly 85,000 square feet, it was the largest building in the Vladimirovka area (Figure 65). It was generally assumed that these three Zones -- 11, 12, and 14 -- supported whatever type of system and vehicle were being tested at Zone 10.

Of the other two areas near Vladimirovka, one, Zone 15, was thought possibly to be a cruise-missile test complex (Figure 66). The other, Zone 13, was much more interesting and revealing. It was an airborne-missile assembly and loading complex connected with Vladimirovka Airfield by concrete taxiways (Figure 65).

The airborne-missile assembly and loading complex was divided into two sections, within each section there was a hangar-type building and a nearby smaller drive-through building (Figure 67). Each section also had what was believed to be a loading pit. The larger pit was in the section with the larger hangar-type building and the

SECRET

SECRET

larger drive-through building (Figure 68). It was apparent from the dimensions of the larger pit that it would accommodate the main landing gear separation on Badger aircraft and permit loading an airborne missile or drone aircraft below the fuselage. The two sections of the airborne-missile assembly and loading complex were separated by a board fence, suggesting a desire to inhibit casual observation of operations associated with two different airborne missile systems.

25X1

 25X1

 25X1

The U-2 coverage of the Vladimirovka area, particularly of Vladimirovka Airfield and Zone 13, provided considerable information on the base of operations. Unfortunately, the limited available coverage of areas to the east yielded no information on the supposed associated test range.

In a more speculative vein, the extent of construction and of facilities in the Vladimirovka area considered in the light of comparable projects then under study in the United States suggested that various stages of research leading to manned satellite and space flight could be carried out from these facilities. There was informed guessing among JAM SESSION consultants and

SECRET

SECRET

others that manned vehicles like the US X-1, X-2, and X-15, launched from bomber-type aircraft, could be supported from the airborne-missile assembly and loading complex and Vladimirovka Airfield. It was further speculated that in a later phase of development a missile booster with a manned final stage might be fired from Zone 10, which had a logistical association with Vladimirovka.

The activity at the other end of the range head, roughly north of Kapustin Yar, was much more obvious. Even though the oblique monoscopic photography severely limited the potential for detailed exploitation, it was clear that this was an area devoted to research and development for the Moscow SA-1 sites. Moreover, JAM SESSION participants were able to state with confidence that the elaborate support and missile fabrication facilities would undoubtedly be used in the future to test new SAM systems.

Photo interpreters divided the SAM facilities imaged on the photography into three zones. Zone 1 consisted of the launch area and close-in operational support facilities (Figure 69). Included were a complete herringbone site with Yo-Yo guidance facility,* a heavily

* See p. 28, above.

SECRET

SECRET

secured area probably used for storage of warheads, and an administration and housing area. Zone 1 also had two smaller launch sites, two probable electronics-type facilities, and unidentified installation thought to be for storage, and a probable test stand for surface-to-air missiles.

Instrumentation and guidance facilities associated with the SAM launch areas were designated Zone 2, though there was necessarily some overlap between Zones 1 and 2 in the vicinity of the launch areas (Figure 70). The success of the PIs and analysts in pinning down these electronics sites with a fair degree of certainty was more a tribute to their familiarity with the Moscow SAM sites and to the completeness of coverage of this small test range than to the interpretability of the photography. The SAM test range was instrumented to a distance of 11 miles from the Yo-Yo radar behind the herringbone. It was believed that good flight data could be obtained for 25 miles downrange, assuming target and missile altitudes above 20,000 feet. Furthermore, the high density of close-in instrumentation sites indicated high interest in obtaining accurate data during the early part of the missile trajectory.

- 233 -

SECRET

SECRET

Zone 3, situated just a few miles outside Kapustin Yar, had a missile assembly and fabrication facility where hand-tooled prototypes could be manufactured, reworked, and checked (Figure 52). Nearby were several static test stands. A small airport, suitable for use by liaison planes, but not by large drone aircraft, was also close at hand. It was believed by those working in JAM SESSION that drones for use in test firings were probably based at Vladimirovka Airfield, where at least 38 Beagle aircraft were counted on the September 1957 photography.

As in the case of the SSM testing facilities, candidates for surface-to-air missiles tested at the SAM area were provided by photographs from the Moscow parade (Figure 71). One was a single-stage missile, another a boosted version. In either case, facilities at Kapustin Yar were judged adequate to handle the testing.

Guidance facilities and range instrumentation for the SSM facilities at Kapustin Yar were difficult -- in some cases impossible -- to identify on U-2 photography. No positive identification of pieces of instrumentation equipment was possible because of the scale of the photography. With the use of other intelligence information sources, such as COMINT, ELINT and RADINT, it was possible, however, to identify some instrumentation and

SECRET

SECRET

guidance sites and to establish some patterns of instrumentation with a reasonable degree of confidence.

The Kapustin Yar range head had the heaviest concentration of instrumentation observed on any photography covering the two Russian missile test centers and their ranges. Indeed, it appeared to JAM SESSION consultants to be as heavily instrumented as any of the US missile test ranges. The pattern of instrumentation facilities observed on photography of the Kapustin Yar installation indicated that each launching area had its own network, located so as to provide optimum coverage for collecting data on the missile system undergoing testing. Many large, permanent structures were built to house instrumentation equipment. In addition, the system of roads through the range head, the small cleared areas along them, the many cable scars connecting these cleared areas, and the large number of van-type vehicles in the motor pools at launch support areas all pointed to use of mobile instrumentation to augment the permanent systems.

Though it was possible to identify some instrumentation or guidance sites associated with most of the SSM launch areas, the obliquity of photography covering Zone 4, which was adjacent to the SAM area, was so

- 235 -

SECRET

SECRET

severe as to preclude identification of any guidance or instrumentation sites associated with it. Unlike facilities in the nearby SAM area, where obliquity was also a limiting factor, this was a missile system with which the PIs had no previous experience.

At Zone 7, the photographic evidence was better. What was described as a "trailerized" installation was located 3,300 feet west of the launch pads (Figure 54). A partially cleared area in front of a "major" trailer provided clear line of sight to both main pads. It was believed that this installation served as a single-point radio guidance station designed for a range on the order of 300 miles. Consultants compared it with that used with the US Corporal system. Forward instrumentation for Zone 7 was set up along two legs 58,000 feet long, with the junction at the Zone 7 support area. Possible instrumentation sites were located at the ends of the legs and near the middle (Figure 72). Orientation of the presumed direction of fire was on an azimuth of 100 degrees.

At Zone 8, buildings in the support area, which immediately adjoined the launch area, blocked any clear line of sight to the rear. Moreover, drive-in roads serving some of the support buildings suggested that they were used as clean rooms for testing precision

SECRET

instruments, such as gyroscopes and accelerometers. This evidence, coupled with the closeness of the support facility to the launch area suggested the testing of inertially guided short-range missiles.

At Zone 9, with its larger, long-range missiles, probably in the first generation of development, instrumentation was more elaborate. The launch control center was connected by cable to forward instrumentation stations in a V-pattern, 58,000 feet on a side (Figure 73). Domed buildings were present at some stations. It was believed by JAM SESSION consultants that a single-point radio guidance was probably provided by "trailerized" sites located 5,260 feet behind each launch area with clear line of sight to the pads. There was some indication from ELINT, however, that a radio-inertial system might be used, with inertial instruments in the missile as part of the guidance system.

Compared with the guidance and instrumentation at any other existing launch site at the Kapustin Yar Missile Test Center or even at Tyura Tam, those at Zone 10 were unique. At the latter, there were two L-shaped instrumentation patterns. One, with the longer baseline, was situated just over 100,000 feet forward from the

SECRET

SECRET

launch site, and the other more than 38,000 feet to the rear of the launch site (Figure 74).

The L to the rear had legs approximately 18,500 feet long. It was oriented with one leg on an azimuth of 100 degrees and the other on an azimuth of 10 degrees. A fenced instrumentation site was located at the vertex of the L, and unfenced instrumentation sites were positioned at the extremities of the legs. Cable scars connected the instrumentation sites forming the L. Other cable scars reached from the L to the vicinity of a radar site in Zone 11 and to two other electronics sites.

The L-shaped instrumentation pattern downrange from the launch site had legs approximately 66,000 feet long, with one leg extending north and the other east from the vertex. Instrumentation sites were located at the vertex and at the ends of the legs. The site at the vertex and the one at the end of the north leg each had three buildings with domes. There was a 34,000-foot extension on the east leg, at the end of which there was another instrumentation site. The presumed direction of firing for the launch sites at Zone 10 bisected the north-south leg. Cable scars extended between the instrumentation sites and reached back to the launch area.

- 238 -

SECRET

SECRET

Aside from the L-shaped instrumentation patterns, there were the two poles with 10-foot objects at the top in the nearly completed launch site in Zone 10. The more easterly of the poles had an azimuth of 110 degrees from the launch point and the other an azimuth of 20 degrees. The great circle thus defined passed through Guryev and south of Tashkent. If these were, in fact, collimation poles, an inertial guidance system was indicated. Failing that, and since no radio guidance sites were identified, it was believed that radio guidance aboard a rail car might be planned for Zone 10.

25X1

If the foregoing account of the highlights of intelligence resulting from all-source exploitation of September 1957 photography covering the Kapustin Yar installation seems lengthy, it should be observed that the length is a reflection of the vastness and complexity of the test center. There was, of course, much more information available from the photography. In addition, there were further details from collateral sources, particularly data obtained by electronic means, that could not be correlated with what was revealed by the photography. Considering the mass of material that was screened and exploited, the accomplishments of the PIs, intelligence

- 239 -

SECRET

SECRET

analysts, and consultants over a period of a few months was extremely impressive.

Though the results and recommendations based on the all-source exploitation were completed and published, attempts to refine and publish the results of the photo interpretation, as such, were not so successful. After the initial effort was over, competition with other commitments coupled with the massive effort needed to assemble and prepare for publication in smooth form such a large body of material first delayed and then precluded publication. No detailed PI report dealing with the Kapustin Yar Missile Test Center, based on the September 1957 photography alone, was ever published by HTA.*

3. Good-Bye to GMIC Consultants

From 2 to 5 December 1957, soon after the publication of the findings of the Special Engineering

* Intermittent efforts to complete the job and publish what would have been the most voluminous detailed HTA PI report ever issued, probably over one hundred 14 by 18 inch pages, resulted in an edited manuscript, complete with graphics, and ready for production work. This manuscript was at last completed and approved for publication by representatives of the Army, Navy, and CIA several days after the Kapustin Yar installation was covered a second time by U-2 photography. Though the latter accomplishment made publication of the manuscript inopportune, the agreed-upon facts and interpretations were indispensable as baseline information.

SECRET

Analysis Group, the GMIC Scientific Advisory Panel met at HTA to examine the evidence and to draft a brief statement of their conclusions and recommendations. 314/ On 2 December, Allen Dulles visited HTA to greet these distinguished visitors and, incidentally, to meet JAEIC consultants who were also in the building at that time. 315/ This occasion is still remembered by senior NPIC personnel as the only time that Dulles came to the Steuart Building.

The interpretations of the PIs, which in general had met with the enthusiastic approval of the engineering consultants, were also endorsed by members of the Scientific Advisory Panel. Every aspect of the work done by HTA photo interpreters and support personnel was warmly praised by all outside participants in JAM SESSION. 316/ writing to Lundahl on 6 December 1957 on behalf of the Special Engineering Analysis Group, emphasized the excellence of the information and responsiveness of the support provided by HTA. 317/ A few weeks later, Herbert Scoville wrote Lundahl in a similar vein, commenting on the excellence of the information and materials produced by HTA and to express his "deep appreciation for the truly superb job you and your people have done." 318/ Some months

25X1

SECRET

SECRET

25X1

later [redacted] chairman of GMIC, wrote belatedly to Lundahl to thank him for the "splendid assistance" rendered by him and his organization in the exploitation of GMIC targets. 319/

These were euphoric days in HTA. At least those most actively engaged in JAM SESSION were filled with a sense of accomplishment, of having played a vitally important role in the production of intelligence of the greatest significance to their country. The eager reception given the photography and intelligence derived from it at the highest levels within the government enhanced this sense of accomplishment and gave impetus to plans for establishing permanently the capability represented in pilot form by Project HTAUTOMAT. Though JAM SESSION was far from over, at least as far as HTA was concerned, these days, late in the fall of 1957, saw the peak of accomplishment and eminence achieved by the CIA PI component up to that time, and one not to be equalled for another five years.

D. Show and Tell

The cycle of briefings based on SOFT TOUCH, initiated late in the summer, continued unabated through the fall. As more top level government officials whose positions entitled them to know about these important and fascinating discoveries heard the news, they joined

- 242 -
SECRET

SECRET

in beating a path to the Steuart Building. Not only was the information electrifying and the photography stunning, but Lundahl, who was rapidly gaining a reputation as one of the most dynamic briefers in the Intelligence Community, regularly left his audience virtually spellbound.

Among the more memorable of these briefings in the Steuart Building were those presented to Adm. Arleigh Burke, USN, then Chief of Naval Operations, and members of his staff and guests on Saturday, 21 September 1957; to Gen. James Doolittle on 17 October; to Adm. Arthur W. Radford, USN, a special Presidential advisor on 29 October 1957; and to Gen. Nathan Twining, USAF, then chairman of the Joint Chiefs of Staff, and his staff assistants on 26 November 1957. In each instance, Lundahl received responses that were far more than perfunctorily polite in expressing appreciation for the briefing and in stressing the highly stimulating nature of the presentation. A letter of appreciation written on behalf of the Chief of Naval Operations after his briefing in September commented at some length on the "superb presentation." 320/

25X1

- 243 -

SECRET

Page Denied

Next 2 Page(s) In Document Denied

SECRET

contribution to the furtherance of the mission of this Agency." 326/

Though the Dulles memo was dated nearly a week after the GMIC Scientific Advisory Panel completed its work and brought to a close the initial phase of JAM SESSION, it was a fitting postscript. Never had the name of Lundahl been known so favorably by so many important persons in the US services, and never had the work of HTA photo interpreters and support personnel been held in such high esteem.

25X1

There were, on the other hand, several European briefings for which some preparations were made but which were never given. In a memorandum to General Cabell dated 31 October 1957, James Q. Reber reported that in response to oral instructions given to him that morning by the general, the Army, Navy and Air Force had agreed ". . . to transmit notification on the arrival at the appointed time of Art Lundahl for presentation of photographs resulting from the recent missions along with an oral briefing." This carefully worded statement was followed by the announcement that representatives of the Army, Navy, and Air Force would meet at HTA the next morning, 1 November, to aid in selecting briefing materials of the greatest interest to their respective

- 247 -

SECRET

SECRET

offices. Reber proposed an itinerary for Lundahl that would include stops in Paris to brief key officials at SHAPE and EUCOM, in Heidelberg, Frankfurt, and Wiesbaden to brief the principals at CINCUSAREUR, CIA Frankfurt Station, and USAFE, and finally in London to include CINCNELM, [redacted] and Army, Navy, and Air Force liaison officers [redacted]

25X1

25X1

[redacted]

The

25X1

memo noted that Lundahl should be instructed to provide technical facts but should avoid making estimates or drawing conclusions from the material displayed. 327/

HTA lost no time in preparing for this ambitious tour, [redacted] The October 1957 monthly report for the OCR Statistical Branch said that numerous slides and 20 by 24 inch briefing books had been prepared in anticipation of the projected briefings by Lundahl of key officials in "SHAPE, EUCOM, USAFE, USAREUR, [redacted], CINCNELM, CINCSOUTH, [redacted]

25X1

25X1

25X1

[redacted]

The Statistical

25X1

Branch monthly reported in a matter of fact manner that after weighing "political considerations," the IAC ruled against the tour. 328/

SECRET

Minutes of the meeting of the Ad Hoc Requirements Committee on Project AQUATONE held on 7 November 1957 noted that the Chairman, James Q. Reber, reported that General Cabell had informed him subsequent to the IAC meeting on 5 November that the projected European briefing tour of Lundahl had been cancelled. Reber gave no reason. 329/

Though the historical significance of these non-briefings, as such, was virtually nil, the elusive reasons for aborting the attempt to carry them out were symptomatic of future problems that would plague HTA, PIC, and NPIC. The admonition, in Reber's 31 October memo, that Lundahl be instructed to stick to the facts and avoid conclusions or estimates was revealing. Similarly, the initial reaction of the military services, who agreed to notify their principals overseas of the appointed time of Lundahl's arrival, was far short of enthusiastic concurrence in the proposal.

At the time when HTA stock was at its zenith, when HTA PIs were working harmoniously and successfully with analysts and others from elsewhere in CIA and from the military services, and when Lundahl was repeatedly briefing VIPs from many parts of the government, there was, nevertheless, a reluctance to permit HTA to encroach

SECRET

SECRET

too far beyond established areas of responsibility. Much of the U-2 photography covering critically important installations was so good that information just popped out of it. Moreover, the dramatic overhead view of an installation with its array of interrelated parts invited informed speculation concerning the functions of the various facilities or the significance and purpose of the overall complex. These were the elements that made the difference between a dull recitation of facts and an animated and stimulating presentation that excited people in the audience and prompted thinking. It also raised questions of responsibilities, competence, and, in the case of HTA's competitors, even survival.

An incident in December 1957 gave further evidence of such concern. In a "Dear Art" letter of 20 December 1957 referring to a briefing given by Lundahl eight days earlier [] of OSI challenged several hypotheses advanced in the course of the briefing on the grounds that they were different from those currently held in OSI. On the TALENT cover sheet for the [] memo, Lundahl noted that he had called [] and thanked him for his constructive suggestions. He stated further that he would add the appropriate qualifying words or phrases to make his remarks "even more conservative." 330/

25X1

25X1

25X1

- 250 -

SECRET

SECRET

He added, somewhat ruefully, that it was his custom to indicate in his briefings that final judgments and conclusions rested ultimately on the decisions of the "substantive experts." This competition between PI and intelligence analyst was something that would ebb and flow over future years and would be an important consideration in making decisions concerning the responsibilities and functioning of NPIC.

E. Other PI Exploitation and Reporting

While PIs in the Military-Scientific Branch were heavily involved in JAM SESSION during the fall of 1957, those in other branches, such as the Geographic Branch, the Central Branch, and the newly named Operations Support Branch were busy on a variety of lower priority tasks.

The Operations Support Branch,* now without was informally structured into three functional groups. One group plotted the photography, another evaluated its quality, and the third performed a variety of more conventional photo interpretation tasks. The latter

25X1

* In spite of organizational changes in the summer of 1957 that resulted in reduced staffing and a new name, branch monthly reports continued to bear the name "Special Projects Branch" until it was officially subordinated to the Technical Services Division with the creation of the CIA Photographic Intelligence Center.

SECRET

group, consisting in the fall of 1957 of [redacted]

25X1

25X1

[redacted]

constituted the photo interpreters who, though oriented to photo interpretation as such, had not attempted to abandon the foundering Special Projects Branch by seeking transfer to one of the two detailed-reporting PI divisions.

A fortunate development, beginning in the fall of 1957 and continuing for several months, provided these interpreters with some very interesting photography for exploitation. The DDP had just succeeded in establishing a channel for obtaining 35-millimeter photography taken with a hand-held camera from an Iranian passenger aircraft flying periodically into the Transcaucasus region of the USSR. When [redacted] of the DDP received the photography, he sought the assistance of HTA in exploiting the material and publishing the results. The task of interpretation fell to OSB and the group of four PIs just named, with [redacted] the senior man, as leader.

25X1

25X1

For each mission, the PIs prepared a list of targets of intelligence interest captured on the film. When coverage of important targets was of good quality, individual, detailed reports were prepared. These were essentially DDP reports on which the editing and production work was done by HTA and differed from other HTA

- 252 -

SECRET

SECRET

reports in format, in cover used, and in the manner in which they were bound. Moreover, the distribution and dissemination of the reports was controlled by DDP. This special arrangement not only enabled DDP to enjoy the convenience of having both exploitation of the photography and production of the PI reports done by an organization with competence in handling such tasks, but it also kept the entire exploitation and production operation, which involved very sensitive materials, in one place and under exceptionally tight security.

There was another bonus that was not publicized. The existence of U-2 coverage over many of the targets exploited on the 35-millimeter photography permitted utilization of the former to confirm details and thus enhance the value of the small format material. It goes without saying, however, that only information plausibly obtainable from the 35-millimeter photography -- albeit through the efforts of exceptionally gifted PIs -- was included in the DDP reports, which were published at the TOP SECRET non-codeword level.

Most significant among things discovered from this photography were several FISHBED, delta-wing, aircraft lined up at the Tblisi Airframe Plant, ready for flyaway. This was the first recorded sighting of the Model B

- 253 -

SECRET

SECRET

FISHBED. This lucky find -- on 35-millimeter photography and without any backstopping by U-2 coverage -- enabled HTA photo interpreters to produce the first detailed description of the aircraft, including measurements. 331/

The fruits of this working arrangement between HTA and the DDP evoked at least one unenthusiastic response. At the Geographic Research Area staff meeting on 25 February 1958, chief of the GRA, commented on the lack of compatibility between one of these DDP reports that came to his attention and other HTA publications. He recommended that D/GP establish "a method of production control over these projects." 332/ Perhaps this critical comment was inspired by tensions engendered by the widening rift that was developing between D/GP components at HTA and its nominal overseers in the Geographic Research Area and in ORR. Though there were no open clashes, D/GP, as the key component in HTA, was functioning in a progressively more independent manner as it proceeded to burst through bonds that had been fashioned in pre-HTA years. The glamour and success of JAM SESSION were significantly accelerating the process already under way.

25X1

- 254 -

SECRET

SECRET

During the fall of 1957, work in the Geographic Branch continued the pattern established in the middle and late summer. By the end of October, PI work on projects utilizing SENSINT photography of the Soviet Arctic and Far East was essentially complete, though several reports were yet to be edited and published. All were disseminated, however, before the end of the calendar year. As in the case of similar reports completed several weeks earlier, the results were of minor significance. Accordingly, analysts lost interest in this source of information and, to some extent, in the geographic areas themselves, with the notable exception of parts of the Soviet Far East.

The brief spate of interest in SENSINT photography during the summer of 1957 begot changes in the system. In a memorandum dated 6 September to General Cabell, Gen. Millard Lewis, Assistant Chief of Staff, Intelligence, USAF, observed that there was continuing increase in the number of persons cleared for SENSINT throughout the Intelligence Community to the point where it threatened to defeat the very purpose of the system. He added that he had taken action in the Air Force to stem the increase, and he requested that Cabell take similar action in CIA. 333/

- 255 -

SECRET

SECRET

In a response dated 29 October 1957, Cabell said that, although the Agency had always implemented SENSINT directives faithfully, he concurred in the expressed desire to curb further expansion of the system. At the same time, he advised Lewis that he was designating Arthur C. Lundahl CIA SENSINT Intelligence Officer. He added that Lundahl had instructions to review personally all future requests for expansion of the system and to make periodic reviews of those authorized access to it, with a view to reducing the number wherever practicable. 334/ On a covering memo attached to a draft of the memo to Lewis prepared for his signature, Cabell added in his own hand a "Memo for Mr. Lundahl: Be very rigid in your implementation. In case of any doubt, consult me." 335/

With the transfer of the center in CIA for authorizing access to the SENSINT system from OCI, where it had previously resided, to HTA, the stage was set for more direct control within the Agency by HTA of this photography. The change was only of minor functional significance, however, because of the rapidly declining interest in SENSINT photography as a source of intelligence information. Success of SOFT TOUCH missions in the summer of 1957 left SENSINT with but a minor supporting role in future photographic intelligence production.

- 256 -

SECRET

SECRET

Geographic Branch PIs were also engaged in the exploitation of U-2 photography during the fall of 1957. Typically, their work consisted of "documenting" the components of numerous Soviet industrial plants for ORR analysts, but they also did a few studies of communications sites and the flow of traffic on selected Russian rail lines. In October they initiated a series of escape and evasion studies based on U-2 photography for areas in Eastern Europe at the request of the ORR Geographic Division. As these projects were drawing to a close in November, work was getting under way on a comprehensive review of available recent photo coverage to correct and update, wherever possible, information being compiled by D/GG to serve as a basis for the preparation of a map of the entire rail net of the USSR. 336/

This mixed bag of work, TALENT and SENSINT, kept Geographic Branch PIs busy through the fall of 1957. The type of targets with which they were dealing and the manner in which they did their work produced a fairly rapid flow of PI facts which were passed on to intelligence analysts either orally or in the form of PI publications. Very little of the information with which they dealt came even close to being esoteric. There was very little analysis or evaluation, and there were no prolonged

- 257 -

SECRET

SECRET

deliberations or conferences with consultants. One result of this mode of operation was a fairly expeditious clearing of the backlog of work. With the virtual stand-down in Russian penetration missions following the brilliant achievements of late summer, the Geographic Branch, by early December 1957, was rapidly approaching the time when some new requirements would be welcome.

As usual, Central Branch was involved in a variety of tasks involving materials and activities outside code-word channels. There was one task, however, that deserved special mention as a harbinger of things to come. In November 1957, Central Branch completed and sent to DDP a memorandum entitled, "Analysis of Four Selected Areas of Indonesia." 337/ The information conveyed to the DDP in the report generated another request for supplemental information on the Sibolga area, situated on a bay on the west coast of Sumatra. 338/ This was but the beginning of D/GP support for the DDP operation in Indonesia.

F. Making Equipment Function Better and Getting Better Equipment

In spite of preoccupation with JAM SESSION during the fall of 1957, HTA personnel found time for making contributions to the solution of technical problems as

- 258 -

SECRET

SECRET

well as for the acceptance and debugging of new equipment. The latter consisted largely of off-the-shelf items; the pace of research and development, which was not yet the sole responsibility of any single organizational component of HTA, was too slow to have produced any great accomplishments at this early date. The technical problems involved the quality and exploitability of photographic inputs and how to improve them.

In order to review and evaluate the performance of collection systems and take corrective action so as to achieve the maximum capability possible for the next collection season, Project HTAUTOMAT headquarters scheduled a "photographic suppliers" meeting at Boston, Massachusetts, on 9 October 1957. In preparation for that meeting, a preliminary conference was planned at HTAUTOMAT a week earlier, on 2 October.

The conference at HTA actually took place a day late, with participants from Project AQUATONE, manufacturers, and HTA -- the same organizations that would be represented later at the Boston meeting. At this preparatory session, held in the Steuart Building, emphasis was placed on the quality of the photography obtained from each of the camera systems. Bausch and Lomb stereo viewers and light tables were set up in the PARAMOUNT

- 259 -

SECRET

SECRET

room on the seventh floor of the Steuart Building, and samples of photography were made available for study and discussion. 339/

The meeting in Boston six days later included representatives from Project AQUATONE, led by Bissell himself, as well as from Eastman Kodak, Hycon, Perkin-Elmer, and Lockheed. Also present were [REDACTED]

25X1

[REDACTED] designer of the B camera.

25X1

As might be expected, the range of topics covered the whole gamut of the collection effort, including many items of no more than peripheral or passing interest to HTA. Among the latter was the observation by Bissell, who chaired the meeting, that the program would continue ". . . at least one more season and possibly longer." Even as late as the fall of 1957, the duration of the program on whose inputs the survival of HTA depended was still uncertain, though hopeful.

Among topics of greatest interest of HTA were the functioning of the camera systems, processing of the film, and, ultimately, quality of the U-2 photography the PIs were exploiting. Each of the three major systems in use, the tracker, the A-2, and the B, was discussed in detail, with special reference to the quality of photography produced by each and malfunctions typical of the

- 260 -

SECRET

SECRET

system. In all these discussions, data produced on a continuing basis by photo evaluation personnel under [redacted] in the former HTA Special Projects Branch -- then the Operations Support Branch -- as well as the sample evidence displayed at the preliminary conference nearly a week earlier in the Steuart Building constituted the source of the information. As a result of the discussions, an action was agreed upon for each specific problem and the responsible person and organization designated.

25X1

In the case of the tracker, banding and loss of definition toward the horizon, with a complete loss of the horizon line, were the chief problems. [redacted]

25X1

[redacted] of Perkin-Elmer suggested that the banding might result from a clutch problem. He also added that most of the tracker material displayed at HTA seemed overexposed. It was agreed that all tracker cameras would be overhauled by the manufacturer, Perkin-Elmer Corp.

25X1

[redacted] of Eastman Kodak suggested that his company undertake tests to see if a change in processing techniques and methods in the field might improve the quality of tracker photography. To this end, arrangements were made to provide Eastman with an "appreciable amount" of exposed but unprocessed tracker film.

25X1

- 261 -

SECRET

SECRET

Other problems involving the tracker camera system included suggestions for a better clock and removal of the level bubble, which obscured part of the format. The HTA representative concurred in both these proposals. He also pressed for consideration of what HTA claimed was excessive scratching, dirt, and grease pencil markings on original tracker negatives received from overseas detachments. [] deputy to Bissell and under whose parent service overseas detachments were run, directed that units be told to revert to the use of duplicate positive film at the sacrifice of a few hours in the timeliness of reporting.

25X1

The A-2 camera produced very good quality photography -- the best obtained from any of the systems at this point in history -- but the quality was not consistent. Main problems involved "soft spots" and blurred fans and frames. [] of Hycon thought these might be caused by vacuum pulsing. It was also suggested that they might result from image displacement caused by auto pilot fluctuation. [] of Lockheed agreed that his company and Hycon, manufacturer of the camera, would investigate this problem. [] also stated that there was a focus problem []

25X1

25X1

25X1

25X1

[] He thought it possible that faulty

25X1

SECRET

SECRET

collimation techniques might be used and/or the length of focus posts was incorrect. Hycon was assigned the task of investigating this problem.

Though the B camera had already been in limited operational use for nearly a year, the photographic results left much to be desired. According to design criteria, the photography should have been much better than that obtained with the A-2. With a foot longer focal length, the nominal scale of vertical photography obtained with the B camera was on the order of 1:23,000 whereas that of the A-2 was about 1:35,000. Moreover, the design of the B camera provided uniform focus throughout the field whereas on the A-2 it fell off at the edges. In spite of superior design, however, much of the B photography was not sharp and crisp, and some was blurred.

At the Boston meeting who designed the B camera,* expressed disappointment in its performance to that date. As he saw it the problem was threefold: reliability, focus, and need for better maintenance techniques. If all three facets of the problem could

25X1

* For further information on the B camera, see p. 124, above, and p. 395, below.

SECRET

SECRET

be solved, he expressed confidence that the superior potential of the B camera could be realized.

[] of Hycon stated that a modified shutter with new bearings and microswitches was currently undergoing bench tests. As of 8 October, the day before the Boston meeting, the shutter had completed 50,000 cycles without a malfunction. In addition to the shutter, McFadden thought that there was a problem of vibration, which could be caused by the image motion compensation mechanism, by the film drive, or by shutter or mirror vibration. It was agreed that all B cameras and shutters would be returned to Hycon for overhaul and for the incorporation of all the latest modifications. Plans were also made for a joint test by Eastman Kodak and Perkin-Elmer of the red and yellow filters used on the B cameras. Finally, Hycon complained that some malfunctions in the feeding of film to the camera was caused by dished flanges on the spools holding the film. Hycon provided Eastman with drawings of internal supports for flanges in the film shipping containers. Project headquarters authorized Eastman to put in a pilot order for 20 of these modified shipping containers. 340/

25X1

This involvement of HTA in technical problems associated with the collection systems was no gratuitous

- 264 -

SECRET

SECRET

excursion into matters that had no detectable relation to exploitation of the photography. On the contrary, the ultimate success of the multimillion dollar collection effort could be measured only in terms of the quality and exploitability of the photography obtained. HTA, as the prime customer and the one having the greatest familiarity with the collection system, was in a key position to assist in evaluating the effectiveness of the effort. Indeed, Project headquarters and the manufacturers depended primarily on feedback in the form of mission photo evaluation reports, produced on a continuing basis by HTA, and on special exhibits, like the one held on 3 October in the Steuart Building, as a source of information to help them correct deficiencies in the functioning of the systems.

In a broader sense, experience to date was demonstrating the wisdom and necessity of close working relationships between the collectors and exploiters in both the planning phase of the collection system and, later, in the operational phase. The extraordinary success of the AQUATONE Project was dramatic proof of the productivity of such an approach. The small size of the AQUATONE effort and the open handed stance taken by both Bissell and Lundahl and their people were doubtlessly

- 265 -

SECRET

SECRET

important factors in the smooth and effective relationships that developed. In the future, as the size of the national effort grew, there would be many occasions on which the need for joint participation and effective communications would be overlooked and, at least for a time, the lessons of the past would be forgotten. In the fall of 1957, however, things were moving along just fine.

The arrival of new equipment affected several components, chiefly those providing support to the photo interpreters. The greater success in procuring this type of equipment was due largely to the fact that it had been developed for other users, whereas the paucity of new PI equipment -- particularly that of a sophisticated nature -- was a reflection of the vanguard position of HTA in the exploitation of photography.

The ALWAC III-E computer, the first electronic computer in the Agency, arrived at the Steuart Building on 17 September 1957. 341/ Although the scheduled time of arrival was 0900 hours, a succession of mishaps made it fortunate that the ALWAC was delivered safely at HTA at all on the appointed day.

The computer came by truck from Cleveland, where it had been on display at a business show. The address

- 266 -

SECRET

SECRET

given the driver was 2430 E Street, Northwest. This was the first mistake. The driver got stuck trying to wind his way around the complex of driveways and parked cars in the area, and after much travail during which he built up a sizable head of steam, he finally offloaded the computer on a mail dock at Que Building and drove off.

In the meantime [] at the Steuart Building, 25X1
was concerned over the whereabouts of this valuable piece of equipment. Once during the day he got a telephone call telling him that a cursing truck driver was attempting to deliver a computer. It was late afternoon, however, before [] discovered where the computer had 25X1
been deposited. Fortunately, he was able to get a GSA moving crew and a truck with a lift gate to get the computer off the mail dock and into the Steuart Building that evening. [] remembers the expressions on the 25X1
faces of the ALWAC engineers, who had been standing by to get the computer in place in the Steuart Building, as they shoved the half-ton main logic cabinet from the bed of the truck onto the lift gate. The gate sagged about six inches in the rear and three inches in the front before it steadied. There was a look of dismay and then relief as it became evident that the cabinet would not topple over and fall on the pavement. It was

- 267 -

SECRET

SECRET

not long thereafter that all three cabinets were safely inside the Steuart Building and out of the rain (Figure 75).

The machine was operational about three days after it was delivered to the Steuart Building. Within about a week after its arrival, one or two useful programs were in operation, thanks to the lapse of a few weeks between the completion of the programming course in New York City by [redacted] and the delivery of the computer. As [redacted] recalls it, the first of these was a scale number computation program to determine the scale at a particular point on a photograph. 342/ This was a noteworthy accomplishment in view of the difficulties to be expected in breaking in such a complex piece of equipment. It was also a most timely beginning, coming as it did during the early stages of work on JAM SESSION.

25X1

25X1

Monthly reports from the Technical Intelligence Services Branch, beginning with the one for October 1957, noted that computation problems were being programmed and solved by the ALWAC. 343/ According to [redacted] during the fall of 1957, the chief uses of the newly acquired computer were (1) the determination of scale at a given point on a photograph in response to specific requests

25X1

- 268 -

SECRET

SECRET

from other photogrammetrists in the branch who, in turn, were providing mensuration data to photo interpreters, and (2) the calculation of settings for the Reed rectifier, a fairly lengthy computation that involved a trial and error approach. Before the fall was over, the computer was producing scale tables for any given angle of obliquity, flying height, and focal length of camera. 344/ These tables, which were later published, made it possible for PIs to make non-critical measurements themselves and free the few photogrammetrists for work on more critical and demanding calculations.

Once HTA acquired the ALWAC, it became a member of the "ALWAC Users Association," a loose confederation of 25 or more owners. HTA, primarily in the person of was quite active in the association from the start. Because of security constraints, HTA gained considerably more from the association than it was able to give. 345/ Monthly reports from the Technical Intelligence Services Branch during the fall of 1957 record visits by to meetings of this association and to other computer meetings and demonstrations. 346/ This was a new and promising field, the goals set in justifying purchase of the ALWAC were ambitious, and HTA was vigorously pressing forward to realize the full potential of the computer.

25X1

25X1

SECRET

SECRET

The fortunate circumstances created by 25X1
suggestion a year earlier, the foresight of HTA supervisors in encouraging him to proceed with the screening of available computers, and the lucky surplus of approximately \$50,000 in the equipment budget that made purchase of the ALWAC possible were of the utmost significance in extending the technical intelligence capabilities of HTA far beyond those of its competitors in the intelligence field. They were also of definitive importance in providing the volume of technical intelligence made available to JAM SESSION participants in the fall of 1957. Whereas it would have been technically possible to do the job using mechanical calculators, since all important SOFT TOUCH missions were flown with the A-2 camera, which did not pose the almost insurmountable metrical problems of horizon-to-horizon photography, it would have been physically impossible to handle the volume of requests in the time available by such means. 347/

Although the ALWAC was by far the most significant and interesting piece of equipment delivered at HTA during the fall of 1957, there was one other that merits mention. In September 1957, the photo lab received its first VG 1 enlarger from the Swiss firm of Wild, where

- 270 -

SECRET

SECRET

25X1

[] had visited and inspected this piece of equipment after the VIII International Congress of Photogrammetry a year earlier. HTA was very proud of this enlarger, then the only one of its kind in the United States. 348/ With excellent optics and the capability to enlarge photography up to seven times in one step, the VG 1 was especially useful in the production of briefing boards. It was also convenient and fast to use, qualities that made it a godsend at a time when JAM SESSION was just beginning. The fact that the original VG 1 and three others purchased subsequently by HTA and its successors are still in use by NPIC is convincing testimony of the excellence of this piece of equipment and the good judgment used in selecting it.

G. The HTAUTOMAT Organization Reacts to JAM SESSION

During the fall of 1957, the seemingly endless struggle to establish and carry out some system of effective project control continued. In November, the Support Staff announced the introduction of a new form for the weekly reporting of progress on projects assigned to the branches. This form provided for the entry of data on the identity of each project assigned to the branch, the name of the responsible analyst, the date the project was assigned, any changes during the

- 271 -

SECRET

SECRET

reporting period in the estimated date of completion, and, for each project, a comparison of the percent of total estimated work accomplished by the end of the previous week and at the end of the current week. The form was designed so that the report for the last week of each calendar month would sum up the project assignments and accomplishments for that month. 349/

The devising of this form was a further step in carrying out the dictum endorsed by Lundahl in his memo of 29 August 1957 that thenceforth each branch should submit a weekly status report on specific projects assigned to it. 350/ Whereas that earlier announcement had exempted not only the so-called continuing projects (i.e., such as those for preparing mission plots, the mission coverage summary for each new mission, and the like) but also projects in support of other HTA components, the latter were in certain cases now being brought into the system with the concurrence of those in charge.

Thus, the December 1957 monthly report of the Support Staff noted that discussions were held between

[redacted] of the Support Staff and

25X1

[redacted] of the Technical Intelligence

25X1

Services Branch to bring work in that branch within the weekly reporting system. It was further stated that

- 272 -

SECRET

SECRET

[redacted] who was chief of the graphics shop, agreed to enter all support projects assigned to his component on the weekly reporting form. Other types of projects in TISB which were no doubt included in the discussion were requests for photogrammetric services, chiefly in support of the PIs, and the varied services of the re-organized Special Projects Branch, now designated in administrative circles by the new name, Operations Support Branch.

25X1

The December 1957 Support Branch monthly report also noted that [redacted] had conferred with [redacted] chief of the unofficially constituted Central Branch, concerning the possibility of bringing the monitoring and reporting of projects in that branch within the weekly reporting system. [redacted] responded favorably and agreed to place all Central Branch projects in the HTA weekly reporting system.

25X1

25X1

During the same month, [redacted] met with [redacted] of the Military-Scientific Branch concerning the weekly reporting on the status of projects assigned to that branch. As a result of the meeting, it was agreed that the Military-Scientific Branch would immediately begin using the new weekly reporting form. In an apparent *quid pro quo*, [redacted] requested and received

25X1

25X1

25X1

SECRET

SECRET

tacit agreement to keep all projects assigned to his branch, though many had been totally inactive during the hectic months of JAM SESSION. 351/ Aside from projects being done in response to the GMIC and JAEIC requirements, MSB monthly reports for October and November 1957 showed only four other projects completed by that branch.

The success achieved by the Support Staff in bringing virtually all project work within the weekly reporting system was an accomplishment of some technical significance. It could hardly be regarded, however, as an enduring solution to attempts by the Support Staff to centralize control of HTA production. Supervisors in the branches were unanimous in their desire to manage their own people and production without encroachment by the Support Staff on their responsibilities as line officers. There is no evidence that higher authority disagreed with this eminently sound position. The Support Staff was getting cooperation in differing degrees and information of varying precision, but could only monitor production. At best, the weekly report provided information for responding to queries by requesters, or to suggest the need for corrective action in cases when the record revealed obvious production problems.

- 274 -

SECRET

SECRET

JAM SESSION also broadened the use of COMINT by photo interpreters. Though all persons working in Project HTAUTOMAT were cleared for Special Intelligence, COMINT information was not permitted in the PI and other work areas. All such documents were held and used in a small vault within a vault in that part of the Steuart Building occupied by the Information Section of the OCR Statistical Branch. Here persons, chiefly PIs, having a need for such information would squeeze into the room, sign the log sheet, and read the pertinent document or documents under the watchful eye of a bleached blonde named

25X1

Not only was access to COMINT materials awkward to the point of almost discouraging their use save in the most urgent circumstances, but no regular dissemination of such documents was made to HTA prior to JAM SESSION. Only those specifically requested were received for use in the Steuart Building. Though inconvenient, this mode of operation had not seriously compromised the effectiveness of operations because of the limited need for such information. With the acquisition of photographic coverage of Russian scientific and technical targets, on which COMINT constituted some of the most important collateral information, the situation changed.

- 275 -

SECRET

SECRET

Exploitation of GMIC targets provided the extra measure of urgency needed to overcome the inevitable resistance to change. The critically important role of COMINT in providing information on installation construction and missile firings at the test centers dramatized for all concerned the need for access to such materials in the exploitation of photography covering those targets. Impetus to change was added by the requirement of the Special Engineering Analysis Group for use of all available COMINT, ELINT, and RADINT in the preparation of their all-source report. Obviously these consultants had to use COMINT materials in their working area, the Minicard Room. This effectively breached the earlier rule that required PIs to consult such materials in the small vault in the OCR Statistical Branch.

The result of these inexorable forces was action. The monthly report of the Support Staff for November 1957 noted that [redacted] of that staff, [redacted] of the HTA security office, and [redacted] of OCI had met to "discuss the transfer of special materials" to HTA. 352/ This statement, which displayed the effects of sanitization for inclusion in a document classified SECRET, was illuminated by the OCR Statistical Branch

25X1

25X1

- 276 -

SECRET

SECRET

status report for October.* For the first time in that series of monthly reports, mention was made of the receipt of COMINT documents. One hundred and twenty-eight such documents were reported to have been received on regular dissemination and 248 more in response to six requirements levied by HTA on the Special Register. 353/

These developments during the fall of 1957 also demonstrated to both HTA and NSA that the limited contacts that had been developing since the inauguration of U-2 operational flights should be greatly expanded. It was obvious that the intelligence to be expected from the joint use of COMINT and TALENT information was far greater than the sum of the component parts. The December 1957 status report of the OCR Statistical Branch noted that plans were being made for closer working relationships between HTA and NSA. It referred to forthcoming briefings at both HTA and NSA to familiarize certain of their analysts with the capabilities and potential contributions of their counterparts. After that, weekly or other periodic meetings were planned to

* Date of issue of the October 1957 Statistical Branch monthly report was 19 November. It was customary to include information, aside from the monthly statistics, down to date of issue. Hence, the reflection of events of early November in the report for October.

SECRET

SECRET

facilitate the exchange of information on a continuing basis. 354/ All-source exploitation was entering a new phase at HTA.

The extraordinary accomplishments during the fall of 1957, the favorable impressions made on people in higher authority, and the thousands of hours of overtime spent on JAM SESSION work by HTA PIs and support personnel were setting the stage for reconsideration of the job freeze announced the previous August, as it applied to the ORR and OCR components in Project HTAUTO-MAT. By the time JAM SESSION was well under way, senior ORR and OCR managers in HTA lost no time in making known, in circles where it would do the most good, that more, not fewer, positions were needed on the T/O.

The first attempt to avoid the August 1957 cut in positions was forwarded to Amory on 23 October 1957 over the signature of Paul Borel. It recommended that the Statistical Branch be reconstituted as a division of OCR and that its strength be raised to 62 positions. This proposal would, in effect, restore the eight positions cut in August and add nine more. It further established an order of priority for the nine new positions. One additional courier would be added, and the number of personnel engaged in the reproduction, dissemination

- 278 -

SECRET

SECRET

control, classification, and research activities would each be augmented by one person. Second priority would be given to additional personnel in reproduction, dissemination control, and reproduction. The photo lab would have third priority.

In justifying this proposal, Borel pointed out the wide-ranging responsibilities acquired by the Statistical Branch, the advisability of freeing the chief, Special Register, from supervision of a branch physically removed from the Special Register and having rather different functions, and his desire to exercise more direct supervision of the OCR operation in the Steuart Building from his own office. As far as the additional positions were concerned, Borel observed that the program developed in response to the realities of the HTA operation were of far greater dimensions than those expected, and he cited numerous statistics showing the enormous volume of materials handled by the Statistical Branch. 355/

Borel's memo was an extensive rewriting of a draft memo prepared in office for Borel's signature. 356/ The draft, dated 26 September, was tangible proof of the alertness and aggressiveness with which Statistical Branch supervisors set and pursued their goals. The proposed augmentation of staff by 17%,

25X1

25X1

- 279 -

SECRET

SECRET

and elevation of the branch to division status, confirmed the fact that they were in no danger of being regarded as timid. It remained to be seen what reaction this expansionary proposal would evoke from higher authority.

The next move in HTA to circumvent the August T/O cut was made by D/GP. In a memo dated 28 October 1957 and directed to DDI Robert Amory, Lundahl recapitulated the August decision that had postulated a reduction of 12 positions in D/GP Table of Organization and the agreement that permitted him to continue with the on-duty staff of 85 persons. He also pointed out that he had made every effort, albeit with a liberal use of overtime, to provide the minimum of services short of jeopardizing Agency responsibilities in the exploitation of U-2 photography. He further called Amory's attention to the deleterious effect on the well-being of HTA employees as well as the considered opinion of his supervisors that overtime work was already beginning to result in decreased productivity.

In consideration of all these unfavorable circumstances, Lundahl made a strong plea for restoration of the 12 positions plus the addition of six more. With the initial 92 positions plus the two military slots in the January 1956 T/O, this would bring to an even 100

- 280 -

SECRET

SECRET

the number of positions in D/GP. Lundahl pointed out that restoration of the 12 positions would reestablish the earlier organizational balance, whereas the six new positions would provide for augmentation of the photogrammetric and graphics capability in response to new requirements.

Lundahl closed with the observation that HTA was, in effect, passing from the pilot stage to a condition of expanded responsibilities contingent on the success of the initial effort. With a fine sense of propriety Lundahl continued, "This is not to say that expansion is inevitable, rather that it might be logically expected if the intelligence effort behind it were successful. I feel certain that I can conservatively assert that this effort has been much more than merely 'successful'."

A note in [] handwriting was appended to a draft of this memo. It was directed to Chief GRA/ORR Brammell, for consideration by him and AD/ORR Guthe.

25X1

[] noted that the attached memo was related to the OCR memo and claimed that the HTA memo had been drafted at the behest of the DDI. [] observed that the memo had not yet been forwarded to the DDI and that it would be rewritten for submission through the chief, GRA, and the

25X1

25X1

- 281 -

SECRET

SECRET

AD/ORR, if they so desired. The document was returned to [] with the notation that it had been shown to Guthe, who said to submit it as drafted. With this perfunctory exchange of civilities, the ties that bound the ORR element in HTA to its parent organization were eased another notch. 357/

25X1

The handling of this situation by Lundahl and his associates in D/GP merits examination. If it were only possible to learn well what history teaches instead of having to relive it, the astute manner in which this situation was handled had the potential for saving much future travail.

First of all, D/GP managers held their fire; they didn't force the issue prematurely. Though the record doesn't reveal whether or not they were prescient about events as they developed during the fall, they waited to build their case. By the time JAM SESSION was well under way and the whole Intelligence Community was agape over the information already available as well as the promise of extraordinary accomplishments to come, it would be hard to imagine circumstances more conducive to sympathetic consideration of the D/GP plea.

Secondly, it is apparent from [] memo to Brammell and Guthe that Lundahl and his people had the DDI on their

25X1

- 282 -

SECRET

SECRET

side. Though it is difficult to discern the extent to which phrasing was intended to intimidate as well as inform Brammell and Guthe, it seems certain beyond reasonable doubt that the subject had been discussed with the DDI on one or more occasions and that his response was encouraging.

25X1

Thirdly, the size of the bite was small. There was no doubt by October that there was far more work than could be handled by the on-board strength, and the request for six additional positions was very modest. Moreover, the purposes for which they were needed left no room for suspicion. The heavy requirements for mensuration on Russian scientific and technical targets and the impressive array of mensural detail being extracted were already known. The need for additional graphics personnel was also an obvious and highly visible need. With so many intelligence analysts and consultants lacking training in the exploitation of overhead photography and relying on the extremely helpful line drawings and perspective sketches being turned out by the small cadre of illustrators, the request for just a few more slots for that activity was a very plausible one. Indeed, the proposal gave evidence of careful planning and suggested prudent management.

- 283 -

SECRET

SECRET

Finally, the allusion to the success of Project HTAUTOMAT and the disclaimer that expansion was inevitable concluded in a persuasive manner. HTA managers had analyzed the situation carefully and presented a proposal that was sound in substance and couched in tactful language. They were certainly entitled to look forward to the outcome with optimism.

- 284 -

SECRET

SECRET

VII. Winds of Change

With the conclusion of the highly successful work on GMIC targets in early December 1957, emphasis on JAM SESSION shifted smoothly back to JAEIC targets. Before Christmas, consultant meetings on two installations of interest to JAEIC were held in the Steuart Building. 358/ No more were held for another two months.

To managers and supervisors, this hiatus brought no easing of the torrid pace set during the fall. To them, this was an opportune time to consider changes in the allocation of space in the Steuart Building, to examine critically the success of the organizational changes made the previous summer, and to develop a proposal for a basic reorganization in response to lessons learned during the fall.

25X1

- 285 -

SECRET

Page Denied

Next 33 Page(s) In Document Denied

SECRET

D. Not by JAM SESSION Alone

Though JAM SESSION dominated all other activities in HTAUTOMAT during the fall of 1957, by early winter it began to wind down. Even so, HTA employees still charged much time to JAM SESSION as work and consultations continued on the remaining installations. Moreover, on those for which consultations were already concluded, HTA was still committed to publish photo intelligence reports. Photo interpreters and their supervisors were well aware that the extension of this effort under the guise of JAM SESSION would provide some insulation from bureaucratic red tape as well as priority support in competition with other less glamorous production work. Thus, JAM SESSION continued through the winter months on a rather broad front.

Though the flow of new discoveries and fresh ideas on JAM SESSION installations was diminishing, Lundahl was still engaged in a heavy schedule of briefing. In spite of the many high-level officials, domestic and foreign, who had been treated to the joint delights of JAM SESSION revelations from U-2 photography and Lundahl's stimulating presentations, there were still others sufficiently well placed to request and get briefings once the word got around. And it did. Among the briefings given

SECRET

SECRET

by Lundahl during that winter, three deserve special mention.

As a shower of accolades fell on Lundahl following his performance he slipped smoothly back into the round of briefings on the Washington circuit. Late in the afternoon of 16 December, he was at Headquarters, in the DCI's briefing room, arranging briefing boards in conspicuous positions against the walls and on the tables. The occasion was the visit to Headquarters of the Vice President of the United States, Richard Nixon, and his good personal friend, William Rogers, the Attorney General.

25X1

Soon, the door from the DCI's office opened. Allen Dulles brought the Vice President and Rogers into the room and introduced them to Lundahl. Without missing a cue, Lundahl led them around the room, among the photographic exhibits, giving the technical characteristics of the system and describing and explaining the factual information imaged on the photography. According to Lundahl, the Vice President displayed high interest in what he was shown and asked Dulles why the United States was not getting more such information. As Lundahl recalls, the DCI responded, "Now, Dick, that's why we've got you here." To Lundahl, the purpose of the presentation seemed crystal clear. 369/

- 321 -

SECRET

SECRET

Another briefing, on 23 December, was notable from the point of view of human interest. On that date, Lundahl briefed Kelly Johnson, designer of the U-2. Though Johnson had previously seen random samples of U-2 photography, particularly during the early days of testing when the aircraft was flown from its base [REDACTED]

25X1

[REDACTED] this was his first formal briefing on U-2 photography by Lundahl. At this time, with the aid of selected photography from SOFT TOUCH missions, Lundahl brought Johnson up to date on recent accomplishments of the collection system in whose creation the latter had played a key role. 370/

25X1

Then, as winter was drawing to a close, on Saturday, 8 March 1958, Lundahl briefed Robert Cutler of the White House Staff, along with [REDACTED]

25X1

[REDACTED] The response to this presentation was relayed in a letter from Cutler to Allen Dulles on the same day. In this letter, which was far from perfunctory, Cutler waxed lyrical about what he characterized as ". . . these great accomplishments which are being carried on under your auspices." Cutler alluded to the briefer, whose name he thought best not to mention, as "the gifted individual" and pronounced him "most extraordinarily qualified." 371/ The Lundahl charisma continued to amplify the visual impact of the stunning photography.

25X1

SECRET

During the winter of 1957 and 1958, while JAM SESSION and related matters were still engaging the efforts of many within HTA and commanding the attention of those outside the Steuart Building, there were many others in the organization engaged in less glamorous tasks. Among the latter were PIs in the Geographic Branch, who were witnessing a progressive widening of the gap between them and their counterparts in the Military-Scientific Branch in terms of type of work as well as in career opportunities and prospects.

By December 1957, [] chief of the Geographic Branch, reported that a continuing lack of specific requirements from Agency components had led the branch to initiate work on urban studies of Omsk, Novosibirsk, and Stalinsk, USSR. He further justified such a course of action by pointing out that the expected identification and reporting of items of intelligence interest in these cities would not only fulfill existing needs in the Intelligence Community but would probably generate further specific requirements as well. 372/ It was apparent that the quick, simple "documentation" of facts from the photography of conventional industrial-type installations was not sufficient to keep upwards of 10 photo interpreters continuously engaged in answering externally generated

25X1

- 323 -

SECRET

SECRET

requirements based on spasmodic inputs of U-2 photography.

By January 1958, there was a further elaboration of the urban studies program. Work was suspended on Stalinsk but initiated on the cities of Chimkent and Stalinabad, whose study was judged to have higher priority. Growing interest in the use of U-2 photography in these studies was reflected in a town plan seminar chaired by and held at HTA on 22 January 1958. At this meeting, requirements, priorities, and town plan programs in the Intelligence Community were discussed. Representatives were present from several Agency components as well as the Air Force, Navy, and Army.

25X1

The month of January also marked the commencement of another self-initiated type of project in the Geographic Branch. This was the production of intelligence overlays for selected World Aeronautical Chart (WAC) areas in the USSR and its Satellites. In this program, the Geographic Branch undertook routinely to provide information on known installations or confirmation of suspected installations of intelligence interest located in the area of the chart. Like the urban studies initiated the previous month, it was hoped that the program would fulfill existing needs and stimulate the levying of requirements for more detailed exploitation of at least some of the installations. 373/

- 324 -

SECRET

SECRET

By the close of February 1958, photo interpreters in the Geographic Branch were spending 50% of their project time on the WAC overlay and urban studies programs. Moreover, the ramifications of the latter were proliferating, though there was as yet no clear indication of its long-range viability. On 12 February, a second town plan seminar was held at HTA to discuss ways of coordinating town plan programs then under way in the Intelligence Community. At this meeting, it was decided that HTA and GRA's Cartography Division would begin work on select urban areas and present sample maps to the Urban Areas Branch (UAB) to provide data for use in making policy decisions concerning sanitization procedures with reference to the use of TALENT photography in town plans. Agency representatives also acceded to the suggestion that CIA initiate correspondence intended to encourage the formal establishment of a joint urban studies group composed of members of all the military services and CIA. 374/

This groping to find productive work and to test the utility and feasibility of using U-2 photography in fields other than military and industrial installations and facilities directly related to strategic threat, was inviting reconsideration of the mission and functions of

SECRET

SECRET

HTA in the light of changing circumstances. It was also raising further question about the desirability of having detailed photo interpretation responsibilities split between two branches.

Aside from the problems being experienced by the Geographic Division, the other noteworthy activities in the winter of 1957-58 involving D/GP photo interpreters took place in the Central Branch. The third in the new series of PI training courses was concluded on 19 December 1957, and the fourth started on 7 January 1958. 375/ These courses were so popular that, upon the conclusion of the latter offering in March 1958, the Central Branch reported that the ORR Administrative Staff advised there was a two-year backlog in prospective students. They added that, were the course to be advertised in the OTR Bulletin, the response would be overwhelming. 376/ Doubtlessly, the furor created by JAM SESSION was augmenting the general interest in photography as a source of intelligence information.

February 1958 was also marked by the issuance of a third photo intelligence memorandum in answer to a DDP requirement on Indonesia. This publication, done on a crash basis, reported on a drop zone. 377/ Though the civil war was well under way by the end of that month, D/GP support was still minimal.

- 326 -

SECRET

SECRET

E. How to Proceed with the Publication of Reports

When 1958 arrived HTA was still without a publications unit. Until that time, manuscripts whose component parts had been produced by the PIs were usually passed on to the Support Staff for editing. During editing, interpreters were consulted about problems and proposed changes in the manuscript, and their approval was obtained for the final version of the manuscript prior to sending it to reproduction. Thus, from the receipt of the manuscript in the Support Staff until it was delivered to reproduction, the initiatives lay largely in the hands of the editors. Moreover, from this point on neither the PIs nor the editors saw the publication again until it was disseminated. Unless the whole mechanism for editing and publishing HTA reports were singularly troubleproof and adaptable, which it was not, this was a facet of operations that could scarcely escape an overhaul.

Two events of the then recent past set the stage for a change. One was the establishment of the graphics shop in the summer of 1957. The other was JAM SESSION.

As a result of the painstakingly detailed exploitation during JAM SESSION, the type of PI reports envisaged for these highly important installations was different from any earlier HTA publication. They would include

SECRET

much interpretive material instead of being merely a readout or a documentation of PI facts. The level of detail was such that many line drawings were needed to convey all the facts. The intense interest by consumers in certain key facilities required their portrayal in perspective sketches. The excellence of the photography invited the use of photographic enlargements. The page size contemplated was 18 by 20 inches. The completed reports were to be what [] deputy director of HTA, in one of his rare meetings with the editors and graphics personnel, alluded to in quite uncharacteristic terminology as "Dago dazzlers."

25X1

The capability to produce such illustrations had, of course, been enhanced by the establishment of a separate graphics shop the previous summer. It was also a dividend derived in part from the hand-in-glove relationship that existed at that time between the chief of the Military-Scientific Branch and the leaders of the new graphics unit, in the establishment of which [] had played a strong supporting role. Moreover, with the increasingly complex task of page composition created by the introduction of so many graphics and the general upgrading of the physical appearance of HTA publications, in which [] the chief of the graphics shop,

25X1

25X1

- 328 -

SECRET

SECRET

exerted a decisive influence, it was apparent that graphics personnel would want much to say about the preparation of materials for reproduction as well as the composition and appearance of the resulting publications. This was also a claim in support of which the graphics shop could expect a strong assist from [] in whose branch all reports would originate.

25X1

Though the foregoing circumstances set the stage for changes in publications procedures, the action that triggered the initial skirmishes in the competition to develop new procedures was the issuance of a Support Staff proposal entitled "Procedures Governing the Establishment, Assignment, Progress Reporting and Final Disposition of HTAUTOMAT Projects." This proposal, which was a further extension of work undertaken by the Support Staff a few months earlier to bring all HTA components under provisions for weekly reporting on the status of projects, was directed to all branch chiefs and circulated by [] who was already functioning as the plant manager.

25X1

This proposal was largely the work of [] who believed in centralized control of all project work. It would have vested in the Support Staff the power to accept or reject requirements submitted to HTA. It would have left the ordering of TALENT coverage of the target

25X1

- 329 -

SECRET

SECRET

as well as the procurement of collateral aerial photography to the Support Staff. Only after receipt of the TALENT coverage would the resulting project be assigned to the appropriate PI branch -- also to be determined by the Support Staff. Moreover, it would have perpetuated the physical control of the manuscript by the editors subsequent to their receiving it as well as the preparation of printing specifications and delivery of the manuscript directly to the OCR reproduction unit. 378/

In a memo of transmittal, [] who obviously smelled trouble, advised the branch chiefs to study the proposal carefully and invited them to submit any revisions that they believed would improve the proposal. He closed with the assurance that their opinions would be given "full consideration" and that they would be contacted personally concerning any suggested revisions. 379/

25X1

The response by [] who challenged all the controversial points mentioned above, was swift and pointed. With a surprising show of conciliation -- presumably because he tacitly conceded that requirements handling was clearly the business of the Support Staff -- he suggested that the acceptance or rejection of requirements submitted to HTA be done by the Support Staff in

25X1

- 330 -

SECRET

SECRET

consultation with the branch concerned. Taking a less compromising view, he firmly insisted that the PI branches should order the TALENT coverage. He emphasized that the effort thus saved could better be spent in improving procurement of collateral aerial photography, a service already provided by the Support Staff. Warming up to the subject, he pointedly criticized the proposed delay in assigning the requirement to the PI branches until after the Support Staff had received the pertinent TALENT photography. With some justification, he averred that this should be done as soon as a copy of the requirement was given to the OCR Information Branch for the procurement of collateral.

Having disposed of the preliminaries, addressed himself to the heart of the matter -- the respective responsibilities of the PIs, graphics personnel, and editors, together with the checks and balances to be employed in controlling those engaged in preparing and processing the emerging manuscript. These he spelled out in a series of 14 steps. Basically, they provided for continuous control of the substance of the report by the photo interpreters and transferred the responsibility for report layout and the preparation of printing specifications from the editors to the graphics unit.

25X1

- 331 -

SECRET

SECRET

They specified that the editors would confine their efforts to changes involving "readability, grammar, organization, punctuation, etc." 380/ The reasonableness and logic of this counterproposal -- at least insofar as it emphasized that substantive responsibility must rest with the PIs -- was somewhat vitiated, however, by the common practice of the photo interpreters to deliver all or any considerable part of a manuscript, whatever its condition, to the Support Staff and then advise their supervisors that the photo interpretation, or even the project, was completed.

In an apparent attempt by to ensure that all MSB projects were handled as he wished, at least until uniform HTA procedures were agreed upon and issued, he addressed a memo to all MSB personnel and military participants engaged in joint work on projects. In much more explicit language than that used in the response to he specified just how he wanted work on MSB projects handled. He attached a cover sheet with the names of each photo interpreter and supervisor in MSB and directed that each read and initial the memo to indicate that he had seen it. further provided that it be returned to him for filing. He also asked that it be shown to all service PIs working on joint

25X1

25X1

25X1

SECRET

SECRET

projects and that they, too, be requested to read and initial it.

Further, to monitor implementation of the rules as well as to ensure that liaison with other components was handled in a businesslike manner, at least for the interim, the memo announced establishment of the position of production assistant in MSB and named [] to fill the job. It was [] duty to arrange for consultations between PIs on the one hand and editors and graphics personnel on the other. It was also his duty to receive and transmit graphics and manuscripts between MSB and support components. In discharging his duties [] was likewise obliged to initial, along with the PI, the acceptance or approval of work done in other components. 381/

25X1

25X1

25X1

Though no other comments or counterproposals to the Support Staff proposal can be found, the other branches were not unsympathetic to the firm position taken by [] in defense of the supremacy of the PIs in substantive matters. The aggressive position taken by [] foreclosed the possibility that the Support Staff proposal would be adopted without substantial revision. In the meantime, the operations and products of other branches were not critically affected by a continuation of the status quo. Though it was apparent that

25X1

25X1

SECRET

the ultimate decision was at least a few months away, everyone could wait.

F. Carpenters, Plumbers, and New Equipment

Experiences of the first year or more in the Steuart Building revealed a need for certain changes in physical accommodations. The longest standing need was for vaulting of the Support Staff working area on the fifth floor. At first, this unvaulted area just across from the elevator seemed ideal for the Support Staff, which would not be directly involved in the exploitation of sensitive materials and, additionally, would have many contacts with persons outside the building. Before long, it was quite apparent that the handling of requirements, many of which contained highly sensitive background information, and the editing of manuscripts, which included TS CODEWORD text and graphics, made it awkward to work in an area where all sensitive materials had to be loaded on carts and wheeled into the adjoining OCR vault at night. Also, all such materials not in immediate use had to be stored in the vault.

Another and somewhat different space problem involved briefings. The rapidly growing demand for briefings following the SOFT TOUCH missions and JAM SESSION could only be held at the expense of intrusions in

SECRET

areas needed for production work. It was clear that HTA needed a briefing room. The decision was made to carve this space out of the Support Staff quarters.

The solution to both problems was achieved in the course of renovations during the winter of 1957-58. By December work was already well advanced, and completion of vaulting the Support Staff work area and partitioning of the briefing room was expected early in January. 382/

Construction was also under way at the same time in OCR work areas, on the fourth and fifth floors. Additional space was provided for the photo lab, reproduction machinery, and the assembling of publications. 383/ By February most of this new construction had been completed. 384/

New lab equipment included a LogEtronic continuous strip printer, a second eight-compartment processor for use in processing film, and the HEICO dessicant drier. The LogEtronic continuous strip printer arrived in December 1957. 385/ This printer combined the automatic dodging which was the hallmark of LogEtronic equipment with the ability to handle roll materials, thus giving the lab a continuous printing capability. This printer was used mostly for the making of duplicate positive copies on film which were beginning to be popular with

- 335 -

SECRET

SECRET

the PIs. It could also be used to make paper prints.

Procurement of another processor, which was installed in February 1958, provided the capability to process both film and paper prints simultaneously. 386/ A closely related piece of equipment, the HEICO drier, was received in the same month and made possible the drying of roll film or paper prints that had been exposed in the LogEtronic printer and developed and washed in the processor. Completion of the installation and use of the HEICO was delayed several weeks, however, until PEPCO provided additional electrical power to satisfy the rapidly expanding demands of the new equipment. 387/

December 1957 also marked the arrival of the IBM Model 519 Reproducer and the Model 079 Collater. Prior to this, the OCR unit had on hand a keypunch and verifier. 388/ With the arrival of the new pieces of equipment, it was now possible to reproduce IBM cards already punched and to sort them. It was still necessary, however, to take the cards to the Riverside Stadium facility to print a listing. Thus, in the winter of 1957-58, HTA still lacked the capability to automate the preparation of highly formatted publications, such as first- and second-phase PI reports, but it was moving closer to the day when this pioneering step would be possible.

- 336 -

SECRET

SECRET

In February 1958, the long-awaited Minicard equipment arrived. It consisted of a copying camera, a film processor, a film conditioner, a film cutter, an inspection viewer, and several analysis viewers. 389/ The December 1957 monthly report for the OCR component reported that, based on several two-to-three week tests that had been conducted in the previous summer and fall, the equipment was judged to be acceptable and arrangements would soon be made to move it to Washington. 390/ Completion of the installation of this equipment was delayed a few weeks, however, by the need for special plumbing for the processor. 391/

After installation of the Minicard was completed in March 1958, sample prints of U-2 photography were made and shown to Bissell. These included materials that had been photographed at a 20-times reduction and then printed at a 20-times enlargement. Others had been reduced by a factor of five and then printed at 20X. The monthly report for the Statistical Division stated that Bissell was pleased with what were called "excellent results." 392/

Even though Bissell was pleased, there is no indication that the PIs shared the enthusiasm imputed to Bissell by the Statistical Division monthly report. Having narrowly avoided, nearly two years earlier, the

SECRET

SECRET

pitfall of being tied to an unproven system as well as the disadvantage of using third or fourth generation photography, the PIs were sitting on their hands. The two years that had elapsed had provided ample opportunity to establish more conventional procedures for storing and retrieving less degraded imagery. They had also demonstrated the crucial importance, in many instances, of having the very best imagery for exploitation. Indeed, it had been proven in several instances during the exacting technical exploitation of SOFT TOUCH materials that image enhancement techniques, such as density cuts, were needed to extract all the desired information from the photography. By the time Minicard arrived, any chance that it might have had in the competition to store and retrieve photography for use by the PIs was already foreclosed.

The other noteworthy piece of equipment delivered in the winter of 1957-58 was the Model 2066 Addressograph Multigraph offset press, which arrived in January. 393/ This press accommodated sheets up to 18 by 20 inches. It made possible the transfer of reproduction materials up to this size to multilith plates from copy camera negatives. At last, it was possible to produce half-tone prints of photography up to this size in HTA reports.

- 338 -

SECRET

SECRET

Heretofore, in publications such as the oversize consultant workbooks line work had usually been reproduced on the Ozalid machine; any oversize photographs had to be reproduced photographically, a slow and expensive process.

One other space problem was also solved during the winter of 1957-58. Ever since the previous summer, the much reduced staff in the newly designated Operations Support Branch had scarcely filled the old SPB work space on the seventh floor of the Steuart Building. On the other hand, with the advent of JAM SESSION the Military-Scientific Branch found its old quarters on the sixth floor, between the Geographic Branch and Technical Intelligence Services Branch, entirely inadequate. It was, indeed, customary for MSB to make frequent use of the PARAMOUNT Room, on the seventh floor, for briefings and consultant meetings.

The solution to this problem was obvious. On 31 January 1958, the Military-Scientific Branch moved to the seventh floor of the Steuart Building. 394/ The Operations Support Branch moved to the space vacated by MSB on the sixth floor. 395/ Apart from the more suitable physical accommodations, this placed the Operations Support Branch in close proximity to the Technical

- 339 -

SECRET

SECRET

Intelligence Services Branch, to which it seemed destined to be subordinated at the earliest opportunity.

G. People and Heirarchies

When HTA was established, the initial proposal to do so at the Office level was rejected. 396/ This was a fact not forgotten by either the ORR or OCR managers. The extraordinary success of JAM SESSION during the fall of 1957 as well as the lessons learned as a result of the manifold activities connected with it invited a reconsideration of organizational relationships. Now, in the winter of 1957-58 with many of the consultant meetings concluded, there was an opportunity to examine the existing organizational relationships with a view to charting the future course of HTA.

Ever since HTA became a reality, joint work with the military services had been a major theme running through the operation of the project. The Army had joined in force from the beginning and, after a slow start, the Navy participated to a significant degree. Even the Air Force, which had demurred about joint PI work, relaxed its opposition sufficiently to join CIA and the other services in the first-phase exploitation of SOFT TOUCH missions. Though the Air Force remained

- 340 -

SECRET

SECRET

aloof from the joint detailed exploitation of photography in support of JAM SESSION, they did have some representation at the consultant meetings. What they learned further weakened their earlier resolve to compete rather than cooperate. By December 1957, the Air Force expressed a desire to increase its liaison force at HTA from one to six persons. 397/ Lundahl's dream of a national center for the exploitation of intelligence photography had moved a halting step closer to reality.

Though the chief thrust of planning at this time was in the direction of major organizational changes, there were a few loose ends that needed attention first. Some involved the ORR component in HTA, and some their co-workers from OCR. Most important of these untidy leftovers was the question of slots lost during the job freeze announced in August 1957. By early winter the success of the counterproposals made in the fall seemed assured. An OCR Notice dated 13 November announced that as of 15 November the Statistical Branch, Special Register, would become the Statistical Division, OCR, and that it would no longer be formally associated with the Special Register. It further stated that [redacted] would be chief and [redacted] his deputy. 398/ News of the restoration of Statistical Division slots

25X1

25X1

SECRET

SECRET

lost the previous August and approval by the DCI of the nine new ones was recorded in the December monthly report of the division. 399/* The same report announced that all vacancies were being "advertised."

Meanwhile, the T/O request of the ORR Photo Intelligence Division seemed headed for approval. By early December, [] was able to announce at an HTA staff meeting that the "new increased T/O" was then on General Cabell's desk. At the same time [] optimistically requested branch chiefs to submit names of qualified persons for the new positions. 401/ By early January, the news was official; in a memo from the Office of the DDI to Lundahl, [] advised that the DCI had approved an increase in the ceiling for Project HTAUTOMAT of 35 positions -- 17 for the OCR component and 18 for D/GP to be used only for HTAUTOMAT.** This memo also requested that a memo be submitted through [] asking that he set up the specific positions needed. 402/

25X1

25X1

25X1

25X1

* A summary of the entire proposal and a comparison of the previous and new tables of organization was included in a memo from Paul Borel, Assistant Director, OCR, to the Deputy Director, Support. 400/

** These figures included both the slots lost the previous August and the new ones requested in the fall.

SECRET

SECRET

At least from an HTA point of view, this personnel operation had been exceedingly smooth and highly successful.

There were two other sticky organizational problems whose course had to be set toward an ultimate solution. One was what to do with the Operations Support Branch, which was still without recognition in the official T/O. A somewhat analogous case was the Central Branch, whose existence had never enjoyed formal recognition.

The course of the Operations Support Branch had been reasonably clear from the time it emerged from the ashes of the empire. It would one day become part of the Technical Intelligence Services unit. This was still proving to be an awkward change to accomplish officially, since both components were nominally accorded branch status. Nevertheless, the course of events was inexorably pointing in this direction. Soon after the removal of OSB to the sixth-floor quarters vacated by the Military-Scientific Branch, right next to the Technical Intelligence Services Branch, the ingestion began.

25X1

The January 1958 monthly report for the Technical Intelligence Services Branch stated baldly that the "Special Projects Branch. . . is being integrated into the Technical Intelligence (sic) Branch." 403/ The

- 344 -

SECRET

SECRET

February 1958 TISB monthly report stated that "much effort was devoted to developing record and report systems for the combined Special Projects and Technical Intelligence Branches." 404/ A month later, TISB reported that the record and reporting systems were already functioning and that plans were submitted for rearranging personnel and equipment so as to admit of a more efficient functioning of the "combined branches." 405/ In May 1958, the TISB monthly report said the rearrangement of work areas had been completed, and, in the same month, the Special Projects Branch* report first mentioned the subject and acknowledged that it had begun to operate as part of the Technical Intelligence Services Division (sic). 406/ The ingestion was complete.

The disposition of the Central Branch was, perhaps, no less clear to discerning students of the problem, which undoubtedly included all those in the branch. Because of distance, however, the process of ingestion that resulted in the final demise of the Special Projects

* Old names died hard in D/GP. The name "Special Projects Branch," didn't disappear until it was absorbed into the Technical Intelligence Services Division as the Operations Support Branch. The name "Technical Intelligence Branch," continued to be used at the branch level -- though probably not because this was still the name on the official T/O -- until the component officially became the Technical Intelligence Services Division of the CIA Photographic Intelligence Center.

SECRET

Branch was impractical. First, Central Branch would have to move and there was no immediate plans for that in the winter of 1957-58.

The nature of the impending solution was recorded in comments on the proposed reorganization of D/GP included in a memo from [] chief of the Central Branch, to Lundahl. The major portion of this memo consisted of a spirited justification of the continuance of the functions of the branch as a Central Division in the new PI organization. At one point, however, [] digressed to decry the proposal to incorporate the Central Branch as part of a Geographic-Industrial Division, insisting that this would cause administrative problems and preclude effective management of the branch. 407/

25X1

25X1

The proposed reorganization was the most important subject on the minds of managers in HTA during the winter of 1957-58. That this activity involved the expenditure of much effort was indicated by the D/GP monthly report for January 1958. 408/ It is clear, moreover, from the comments on reorganization by [] that the proposal was already available for branch comments by the middle of January. 409/

25X1

On 7 March 1958, the proposal for the reorganization was forwarded to the DDI, Robert Amory. 410/ It provided

- 346 -

SECRET

SECRET

for the establishment of a CIA Photographic Intelligence Center at the Office level. The Center would consist not only of ORR personnel in the Photo Intelligence Division, but also the OCR personnel in the Statistical Division. All would be subordinated administratively as well as functionally to the director of the new Center. There was no request for additional positions beyond those added earlier in the winter, which brought to 162 the number of positions in HTA, and no stated requirement for additional space or operating funds at this time. There was, however, an increase in the average grade from 8.8 in the combined HTAUTOMAT organization to 10.1 in the proposed Photographic Intelligence Center.

Major features of the table of organization for the proposed Center were reminiscent of HTA (Figure 106). The former OCR Statistical Division would now become the PIC Data Management Division and its former sections, which had been designated branches at the time the Statistical Branch became the Statistical Division, would retain their existing names. Each of these branches would consist of two or three sections, a reflection of the fact that, with a T/O of 62 DMD would be the largest division in the new Center.

SECRET

SECRET

Line personnel in the ORR component would be organized in three divisions. One, the Industrial-Geographic Division, a name that the Geographic Branch had acquired in the semiofficial realignment of the previous summer but never used, would be organized in a European and Satellite Branch, an Asian USSR and China Branch, and the Central Branch. [] lost his obviously belated bid for an independent Central Division.

25X1

A second line division, also devoted to photo interpretation, was the Military-Scientific. As its name suggested, this division consisted of two branches, the Military and the Scientific. The latter was to be responsible for producing PI reports and services with reference to the foreign production and the research and development of guided missiles, long-range aircraft, nuclear energy, electronics, and chemical and biological warfare. The Military Branch would be responsible for the military applications of the above categories of things. The academic distinction thus applied to the division of labor between the two branches probably reflected the relative immaturity of this whole exotic field of photo intelligence. In view of the great imagination already displayed by [] and his PIs, there was little cause for concern about the workability of the suggested

25X1

- 348 -

SECRET

SECRET

arrangement. It would change whenever necessary.

The third line element was the proposed Technical Intelligence Services Division. It was to consist of a Technical Intelligence Branch, composed of photogrammetrists, an Operations Support Branch, consisting of what was left of the old SPB, and a Graphical Analysis Branch, the new graphics shop now elevated to branch status.

In each of the four photo interpretation divisions -- DMD, IGD, MSD, and TISD -- the chief was slotted at GS-15 and the deputies at GS-14. Chiefs of branches engaged in photo interpretation occupied GS-14 slots, as did the chiefs of the DMD Information and Technical Branches and the TISD Technical Intelligence and Operations Support Branches. The chief of the Graphical Analysis Branch was slotted at GS-13, thanks to some tenacious and astute arguing by the incumbent, Chief of the DMD Support Branch was pegged at GS-12.

25X1

The proposed Center would have three staffs. The desire of the senior security officer, to be independent of the Administrative Staff was recognized in this proposal by the proposed establishment of a security office. The third staff, called Coordination and Control, was the old Support Staff under a new name.

25X1

SECRET

SECRET

It alone among the staffs had any official organizational articulation. It was divided into two branches, the Coordination and Requirements Branch, which handled requirements, project coordination, procurement of collateral overhead photography, and liaison with many organizations outside HTA, and the Editorial Branch.

The mission and functions statement for the Coordination and Control Staff revealed trends in HTA thinking at higher levels with respect to issues then being contested at the branch and staff level. If adopted, the missions and functions accompanying the proposed reorganization would provide that the staff "coordinate" incoming requirements among Center and military components to determine interest in and feasibility of accepting them. It was not entirely clear whether or not the CCS would procure TALENT coverage; but one of its stated functions was to "provide for the procurement" of special photographic material. Doubtlessly, this referred to TALENT photography and, if so, it left considerable room for interpretation and maneuvering for position.

The functions of the Editorial Branch revealed that editing of Center publications would be for organization, pertinence, consistency, clarity, grammar, and for agreement between text and graphics. The latter function,

- 350 -

SECRET

SECRET

correlation of text and graphics was a real sleeper. No one but the editors came anywhere close to an appreciation of the wide disagreement that almost always existed between the content of the text and the portrayal by the numerous graphics. In the years that followed, the discharging of this duty was a very significant factor in the editorial work load. Surprisingly, the proposed Editorial Branch functions provided explicitly for the preparation of reproduction specifications and dissemination instructions and the transmittal of the final manuscript to the reproduction facility. This could hardly be regarded as a lasting victory, however. In the escalating controversy between the editors and the chiefs of MSB and the graphics unit, both of whom wanted this function transferred to the latter unit, it was only a question of time before the assignment of this function to the Editorial Branch would be rendered null and void. Slotting in both the security office and the CCS would be at the GS-15 level but the chief of the Administrative Staff would occupy a GS-13 position. The chiefs of both the Editorial Branch and Coordination and Requirements Branch, like most branches in the line divisions, was at the GS-14 level.

- 351 -

SECRET

SECRET

In charge of this whole operation there would be a director occupying a GS-16 slot, and a deputy director and an executive officer, both of whom occupied GS-15 slots. Though the GS-16 for the director would replace a GS-15/17 slot in the former T/O, this modest upward tilt would impose no troublesome ceiling. Lundahl had already made his mark. If future operations were as successful as seemed likely, this would not hamper his upward movement.

The big change took place in the relationship between who was the deputy, and who was the executive and coming on strong. The proposal would place them in slots at the same grade. In view of the reluctance displayed by Stallings to take a firm hand in the internal operation of the organization as well as his preoccupation with less demanding peripheral chores, his long-standing official position as the number two man in the table of organization was already precarious.

25X1X1

The foregoing reorganization, though spelled out in detail in the 7 March 1958 memo to Amory, could scarcely have come by surprise. All the elements of staffing as well as slot restoration and augmentation leading up to it displayed abundant evidence of a well-coordinated effort. Moreover, more than two years

- 352 -

SECRET

SECRET

earlier and lacking tangible exploitation accomplishments with which to justify the proposal, Amory had recommended establishment of HTAUTOMAT as the Office of Statistical Research. Nevertheless, it was appropriate to include justification for the reorganization now being proposed, and such justification was an integral part of the memo to Amory.

Among major points developed in this connection were (1) the critically important accomplishments already made in the use of photo intelligence in assessing the then current threat as well as the economic, military, and scientific potential of the Soviet Union, (2) the prospect of breakthroughs in US photo reconnaissance programs that promised to surpass achievements of the U-2 system by a considerable margin, (3) the success realized in the establishment of an Agency-sponsored facility -- HTAUTOMAT -- devoted to the joint all-source exploitation, with military and other Intelligence Community personnel, of high resolution photography, and (4) the discrepancy between the official administrative and organizational structure of HTA and the actual command and reporting channels, particularly in critical situations requiring rapid response. In short, it was the position of HTA managers that the earlier subordination of the

- 353 -

SECRET

SECRET

project had outlived its usefulness and was totally inadequate to serve the needs of a permanent photo intelligence operation having the scope, importance, and future potential of HTA.

Thus, by the close of the winter of 1957-58 HTA was ready for the next leap forward. The substantive work of the previous fall had been a smashing success. The ill effects of the job freeze had been weathered, and HTA had emerged from it with more positions than it had the previous summer. Organizational problems that had developed as a result of initial miscalculations, for which HTA could scarcely be faulted, had been identified and seemingly rectified. Related organizational problems had also been diagnosed and proposals made to solve them. Above all, the prospect of getting out from under the wing of ORR and achieving Office status seemed virtually certain. Approval of the proposed reorganization would, moreover, provide further headroom, particularly for those in intermediate and higher grades. As the spring of 1958 approached, all that seemed necessary was to keep striving for further creditable accomplishments and to exercise a little patience. This is precisely what HTA personnel did.

SECRET

Secret

CIA Internal Use Only

Secret