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HISTORY OF THE ARMY SECURITY AGENCY AND SUBORDINATE UNITS

Fiscal Year 1955  
VOLUME II - Technical Operations

Declassified and Approved for Release by NSA on 10-14-2016 pursuant to E.O. 13526, MDR Case # 62313

Prepared by the Assistant Chief of Staff, G2

1957

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Prepared by the Assistant Chief of Staff

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Fiscal Year 1955

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## I. FOREWORD

This document presents an account of fy 1955 operations of field units of the Army Security Agency in the conduct of COMINT for the Army and NSA. From missions imposed upon ASA mobile units, or NSA Field Stations manned by ASA personnel, specific accomplishments have been discussed to provide a comprehensive guide for future planning and instruction.

Operationally, fy 1955 was an era of consolidation and gradual return to peace-time operations. With the Korean conflict a thing of the past, the Agency immediately commenced reorganization in the Pacific, first eliminating a number of its operational units from Korea, then introducing a new concept of operations through the formation of combined COMINT-COMSEC units, and following this by establishing foothold in other militarily important areas. In Europe, a similar, yet less complicated, reorganization, was effected.

ELINT responsibility--added to the Agency in the last weeks of fy 1955--was the climaxing operational event. Its impact was not immediately realized, but the Agency was now to enter into a field long believed associated with its functions, one which would require further adjustment in operational structure.

Meanwhile, the paramount operational objectives continued to be high degree of mission fulfillment, effective liaison, and collection of special intelligence pertaining to the war potential, military forces, and related activities of foreign countries. Work was also underway on more effective utilization and control of COMINT which, when initiated, would provide Army

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field commanders with pertinent combat COMINT by employment of the latest developments in identification techniques.

Facts for this compilation were derived from records, reports, and correspondence arising from requirements imposed upon commanders of ASA units. Controversial information was resolved through discussion with qualified military and civilian counsel. Special authority and methods of compilation for this document included:

- (1) SR 10-125-1, 3 Nov 52 and C1, 24 Apr 53. (In the last weeks of fy 1955, this authority was supplanted by AR 10-122, 23 Jun 55).
- (2) DA Pamphlet 20-200, 9 Aug 51, subj: Guide to the Writing of American Military History.
- (3) AR 220-345, 18 Oct 54, subj: Field Organizations.
- (4) Cir 23, Hq ASA, 28 Jun 55, subj: Historical Activities of the Army Security Agency.
- (5) Ltr, GAS22, 314.7, 30 Jun 55, subj: Specifications for Historical Reports.
- (6) AR 320-50, 14 Jun 52; SR 320-50-1, 23 Nov 53 including C1, 28 Oct 54, C2, 16 Apr 55, subj: Military Terms, Abbreviations, and Symbols.

Dissemination of information contained herein is to be handled in strict accordance with requirements set forth in the existing DA Regulation for Security and Dissemination of Communications Intelligence, dated 1 Jul 51 and Ltr, AGAO-S, 380.01 TS (21 Jun 51), G2, DA, dated 1 Jul 51, subj: Regulations for Security and Dissemination of Communications Intelligence.

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Cross references at the end of unit summaries in this volume indicate the first page of supplementary administrative information in Volume I.

*Harry B. Sewell*

HARRY B. SEWELL  
Lt Colonel GS  
ACofS, G2

Note - No formal accounting of the activities of Detachment V are included in this document, as this unit remains excluded from consolidated historical reports.

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## II. OPERATIONAL HIGHLIGHTS

Throughout fy 1955, operational efforts of the Army Security Agency were directed toward the constant analysis of requirements, activities, capabilities, and deficiencies as well as relative effectiveness and efficiency of COMINT field units.

Technical support, in the form of instructions, directives, and recommendations of an operational nature, was furnished to field units for guidance in improving and intensifying their COMINT operations, and in maintaining maximum and optimum efficiency. Further, a close degree of coordination was maintained with NSA COMINT collection and production activities to assure adequacy and timeliness of technical support provided field units. Finally, a constant flow of enlisted technicians were procured and placed in NSA for specialized training prior to being assigned to fill key positions overseas.<sup>1</sup>

Undoubtedly, the principal operational highlight during the year was relocation of the 327th Company from Kyoto, Japan to Formosa to support the national COMINT effort and particularly the Seventh Fleet, stationed in that area.<sup>2</sup>

Another development of interest occurred in the field of COMINT processing where enlisted training was continually monitored to obtain graduates who would ultimately be assigned to the Viet Minh problem--a joint responsibility of NSA and Fld Sta 8609--in an overall effort to augment ASA field capabilities in assuming operational control of various COMINT problems.

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p132.
2. Ibid. p132.

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As this field ability in COMINT processing increased, operational control of the following problems was transferred from NSA to ASA field units:<sup>1</sup>

- (1) [ ] high level military and [ ] to ASA, Europe.
- (2) [ ]
- (3) PVA (Peoples Volunteer Army) in Korea to ASA, Far East and the 501st Group.

EO 3.3(h)(2)  
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Finally, the authorization of close-support COMINT to USARCARIB which evolved from intercept tests conducted in the Caribbean area during fiscal years 1954-1955 and resulted in ASA recommendation to NSA that a minimum of [ ] DF and [ ] intercept sites be established at Hq ASA, Caribbean.<sup>2</sup>

While NSA did not concur in the utilization of the number of developmental positions recommended, it did authorize [ ] intercept and [ ] DF positions as an interim measure. Periodic evaluations of traffic intercepts proved inadequate, however. As a result, ASA requested, and was granted, interim authority to operate [ ] intercept positions in lieu of [ ] manual Morse and [ ] DF positions pending evaluation of a valid DF mission.<sup>3</sup>

Radio Fingerprinting (RFP), Morse Operator Analysis (MOA), and DF missions were also monitored during fy 1955 and extensive technical support provided these activities. Control procedures for the assignment of intercept, DF and RFP missions to the field--whereby no target was put on DF or RFP assignment unless it was also on intercept assignment--were formulated

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, pl33.  
2. Ibid. pl33.  
3. Ibid. pl34.

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and published.<sup>1</sup> A gradual world-wide replacement of obsolescent DF equipment with the new DF set, AN/TRD-4 increased operational efficiency of DF sites and led to reorganization of the Far East strategic DF net.<sup>2</sup>

Spectrum Search Teams [redacted]

[redacted] moved from their original location in the British Sector of Berlin to Templehof Air Base in the American Sector of Berlin during the year in order to gain an increase in received signal strength of a known UHF communications target. Following the move, 25 frequencies were intercepted operating in the UHF of an [redacted] transmitter.<sup>3</sup> Although no formal evaluation of the traffic was made, it was anticipated that subsequent analysis would greatly augment existent information of East German Communist activity.<sup>4</sup>

In order to intercept UHF signals emanating from other areas, the Agency organized an additional mobile Spectrum Search Team, designated as [redacted]. Prior to 1 Jul 55, when NSA Research and Development assumed operational and technical control of this team, it was made known to ASA, Europe that operations might be carried out advantageously along the border of Czechoslovakia where fixed UHF targets were known to exist. The team, however, was not operative by the year's end.<sup>5</sup>

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, pl38.
2. Ibid. pl39.
3. Ibid. pl40.
4. Ibid. pl41.
5. Ibid. pl41.

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In the field of special identification techniques, consideration was given a requirement which had existed for sometime for the replacement of the communications "flashing" methods--as used from control to outstations in DF systems--with a more accurate and rapid system. Fy 1955 research by NSA and ASA revealed that the application of CIFAX principles as an encryption vehicle for "piping DF control information over a "flash" net would permit speedy, secure and accurate piping of intercepted manual morse (CW) signals over high frequency radio nets which could then be matched with signals heard at remote sites". Using equipment such as AFSAX D503 (CIFAX), it would also be possible to transmit other intelligence as required. It was anticipated that installation of this equipment would materially improve DF results. Accordingly, the Agency budgeted for ten AFSAX D503 for fy 1956.<sup>1</sup>

Toward development of an optimum electronically-controlled DF system, problems involved were outlined with currently available DF tools and systems, and the general characteristics of a recommended system introduced.<sup>2</sup>

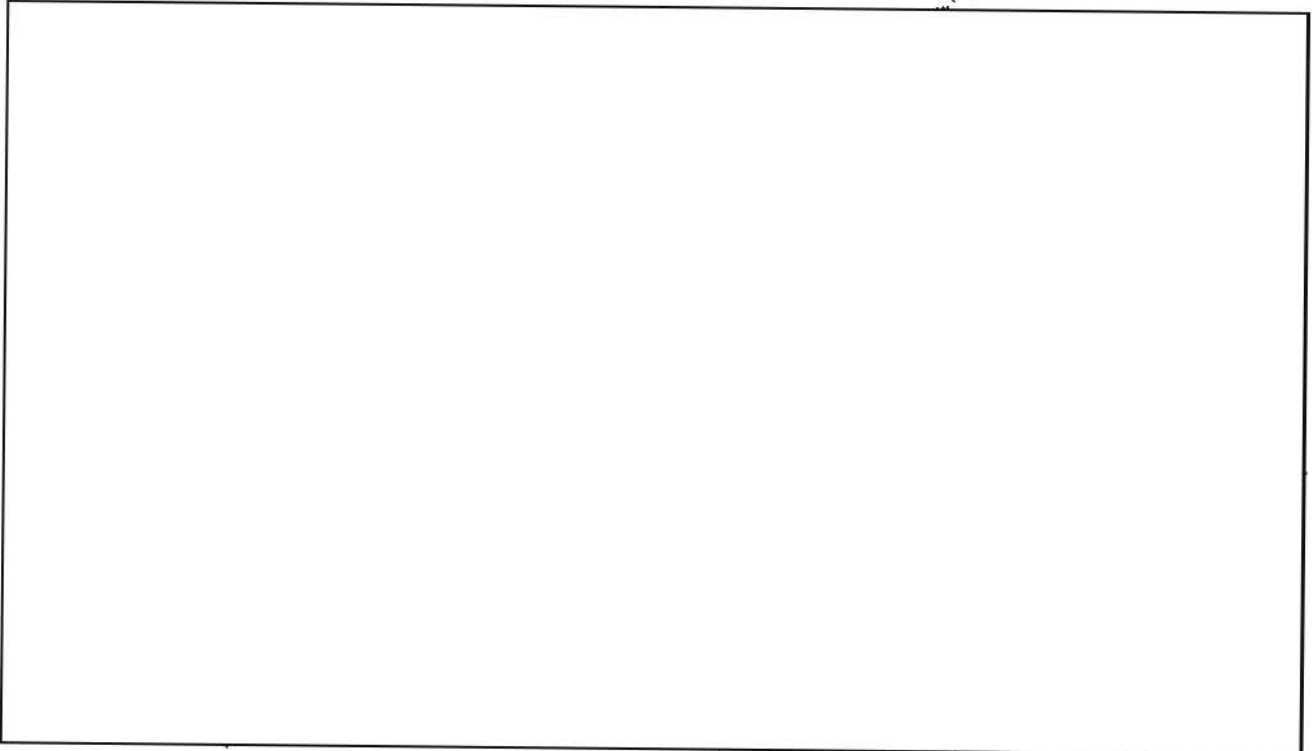
Based on progress already made, the optimum system was believed possible in an actively supported research and development program. Recommendations that developmental phasing of the requirements for the system be approved and, among other things, that consideration be given to development of a one-side DF system which would determine transmitter locations accurately, rapidly, and consistently, highlighted progress on the system which was slated for inclusion in the Agency's five-year DF Program.<sup>3</sup>

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p142.
2. Ibid. p143.
3. Ibid. p143.

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Another activity which received considerable attention during fy 1955, was guidance and technical support to ASA field units and maintaining liaison with other intelligence agencies in an over-all effort to support COMINT activities of ASA theater commanders and DIRNSA. Sources utilized for intelligence to be disseminated included:



An exclusive landline circuit was also established between ASA, Europe and Special Security Officer, European Command to provide COMINT support to the European Command Indications Center.<sup>2</sup> Arrangements were then made for direct dissemination of COMINT end-products by ASA, Europe to Special Security Officer, Heidelberg, and

Considerable study was likewise devoted to development of means to

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, pl44.
2. Ibid. pl45.

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The Agency's TAREX mission during fy 1955 was to provide information concerning foreign cryptologic and general communications developments in support of the National COMINT and COMSEC effort. This was accomplished through:

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- (1) Procurement of foreign cryptographic documents.
- (2) Interrogation of defectors, repatriates, refugees, and individuals who voluntarily provided information of a cryptologic nature.
- (3) Rendering technical guidance to other US intelligence agencies acting upon ASA requests for the [redacted] collection of cryptologic and communication information.
- (4) Procurement of foreign commercial publications of value to the national COMINT effort.<sup>3</sup>

In this field, the assignment of additional officer personnel to ASA, Europe and the establishment of a TAREX project at ASA, Far East resulted in more effective TAREX operations than in any previous year.<sup>4</sup> Arrangements were also made for establishment of a special TAREX team [redacted] under the

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1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p145.  
 2. Ibid. p146.  
 3. Ibid. p147.  
 4. Ibid. p147.

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operational control of Co A, 522d MP Bn, with G2, USAREUR providing financial and logistic support. This enabled TAREX personnel to have direct access to numerous sources of information in Berlin, resulting in more comprehensive and expeditious reporting.

Interrogation of defectors and repatriates produced considerable information during the year. In the Far East, detailed OB was obtained from two defectors from the North Korean Air Force.<sup>1</sup> And, interrogation of German expatriates from Kuchino Institute in Moscow produced valuable information concerning the development of the [redacted] device, a miniature radio unit, and the "TALFON" radar navigational apparatus. Information concerning Soviet and Satellite decimeter and microwave transmissions was obtained from a Soviet Army defector, while personal notebooks of an East German defector contained information relative East German electronic developments.

The most productive sources of information during the year were those foreign nationals who, because of careful cultivation by TAREX representatives supplied information on a continuing basis. These sources furnished information concerning:<sup>2</sup>

[redacted]

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p148.  
2. Ibid. p149.

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The Agency's,

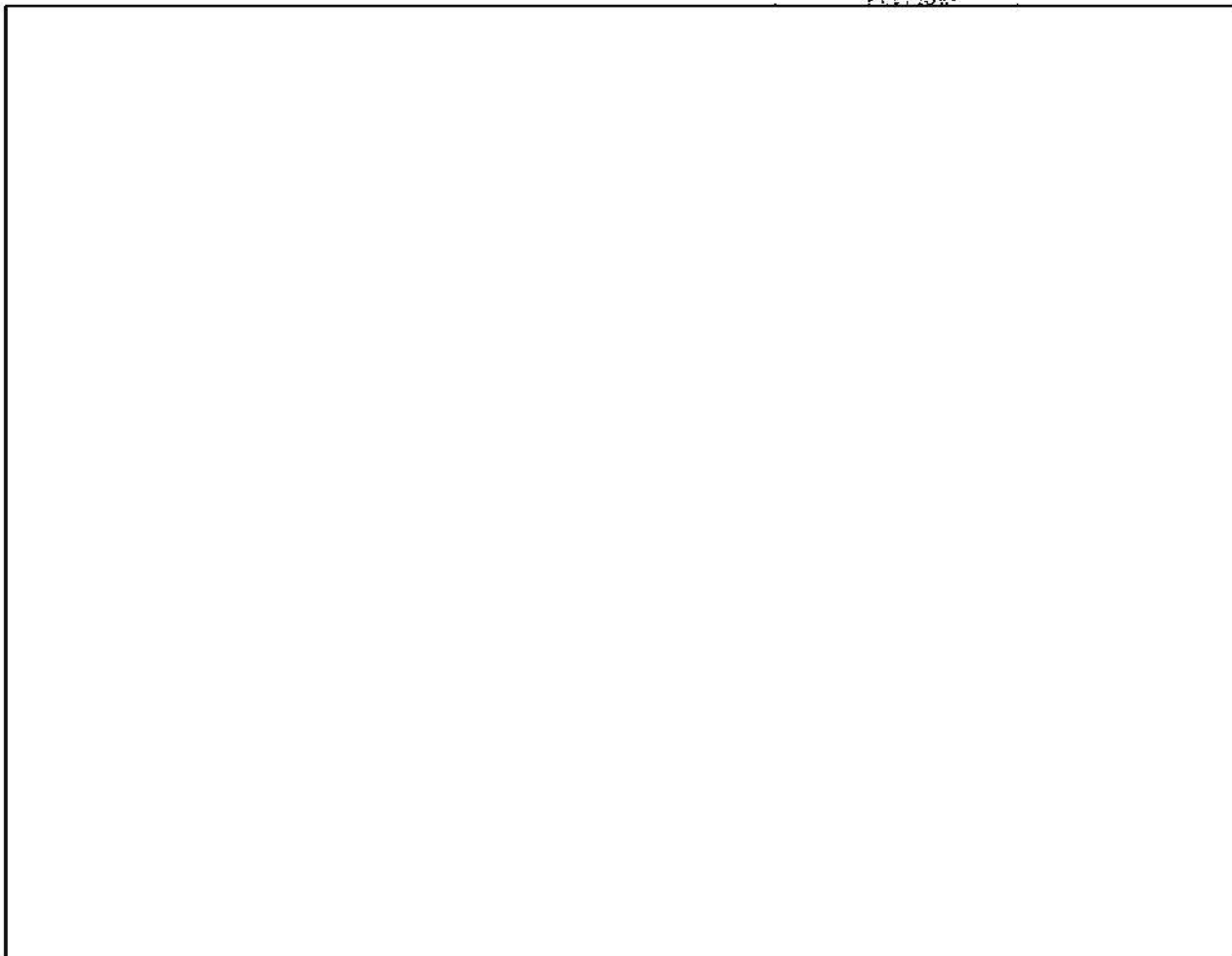
mail intercept projects (80E-A through I)

continued to provide valuable information during fy 1955 through the

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p149.
2. Ibid. p150.

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Covert procurement of international mail, opening, filming, re-sealing and returning to posted channels (80EY Project) continued to provide valuable information concerning East-West trade, activities of trade personalities, illicit trade negotiations, and shipment of strategic goods, arms, and ammunition.

A similar project (80EY-1) initiated in September 1954 developed into a lucrative source of information. Intercept of a large volume of mail between West Germany and the USSR and its satellites provided personalized views of life behind the Iron Curtain, covering such subjects as morale,

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p150.

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political restrictions, shortages of food and medical supplies, housing, cost of specific items of food and clothing, weather, crop conditions, government quotas levied upon individuals, and location and activities of military and quasi-military units.<sup>1</sup> The project also provided information concerning the location, activities, and expected date of repatriation of German nationals held as prisoners in the USSR, which enabled intelligence representatives to arrange for interrogation of these individuals immediately upon repatriation and to conduct these interrogations in such a manner as to elicit the greatest amount of information possible.<sup>2</sup>

In addition, the project produced considerable information concerning Communist activities in West Germany, including plans for agitation against the Bonn Government, dates and places for meetings of Communist and pro-Communist groups, and names and addresses of Communist leaders and individuals with pro-Communist attitudes. The effectiveness of both projects increased as a result of the redesignation of this material from Category III COMINT to Category I, which permitted wider distribution and utilization by field consumers.



similar traffic obtained by CIA and G2, USAREUR special sources. Discussions were underway between NSA and other interested agencies as the year ended,

1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p150.
2. Ibid. p151.

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but no decision was reached as to disposition of the matter.<sup>1</sup>

Technical support was provided to the various Machine Aids Sections throughout fy 1955 through specialized training of personnel, preparation and distribution of operational manuals and technical pamphlets dealing with mechanized processing, and development of new techniques through additional research on mechanical and electronic machines. Additionally, field visits were made to provide on-the-spot technical assistance and close coordinating of processing techniques.<sup>2</sup>

Among the principal developments was action to replace SOCRATES I at ASA, Far East with SOCRATES III, a high speed device capable of alphabetic substitution. Because the Navy problem was basically numerical, NSA requested ASA to transfer SOCRATES I to a Navy installation located in Japan. NSA, meanwhile, offered to assist in the completion of SOCRATES III and arrange for its installation by June 1956.

Increased requirements for machine processing at all field units made it apparent that a mechanized technique to overcome backlog in manual card punching was necessary. Five type 10-R10 readers (5-level paper tape) were obtained through NSA and adapted to a modified card punch machine.<sup>3</sup> These devices enabled machine units to produce IBM cards automatically from 5-level paper tape.<sup>4</sup>

Next, multilith machines (Model 1250) were ordered for shipment to Hq ASA, Far East to cope with the requirement of supplying call sign lists

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1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p152.
  2. Ibid. p134.
  3. Ibid. p135.
  4. Ibid. p136.

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to all intercept positions on a timely basis.<sup>1</sup>

"Target Saturation" -- A machine processing technique which specified pre-planned mode of operation was initiated at Hq ASA, Europe on one foreign entity during the year. Although quite successful, the basic system was discontinued when the Machine Section capability was directed toward higher priority problems. The card format was retained, but the files were not generated because of insufficient analysts to work the problems. The 502d Group Machine Section processed its assigned problem, utilizing the "punch as you see" system of target saturation, and, by the end of the year, was generating "brief" target saturation files.<sup>2</sup>

An M-164 expansible trailer, received during fy 1955 was modified to accept IBM equipment and air-conditioning units. Although deficient operationally, the equipment was shipped to Europe to meet the urgent need of the 502d Group.<sup>3</sup>

Thus, the principal accomplishments. This did not complete the picture however, for much was recorded by individual operational units within their areas of influence. The record that follows sets these in their proper perspective.

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- 1. Ann Rept, Sp Ops Div (GAS50), fy 1955, p137.
  - 2. Ibid. p137.
  - 3. Ibid. p137.

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III. ASA UNIT OPERATIONS (WORLD-WIDE)

A. Continental United States

1. Field Station, 8601 DU, Warrenton, Va

Throughout fy 1955, all operational missions and targets for Fld Sta 8601 were assigned by NSA. Manual Morse missions were both "assigned" and "general search" in nature; Automatic Morse covered [ ] links in 4 geographic areas; Radio Printer covered [ ] missions; and Special Identification photographed signals of assigned nets and green items (high priority general search).<sup>1</sup>

Prior to June 1955, Manual Morse equipment consisted of BC-779's, -794's, -1004's and SP-600's. Coverage was good, but receivers were not of the best quality. In June 1955, 48 R-390/U were installed (all positions) and coverage improved.<sup>2</sup> Further improvement resulted from an increase in general search positions from three to five.<sup>3</sup> Operational mission coverage follows:<sup>4</sup>

Cases

Hours Assigned

[Redacted]
------------

495  
432  
191  
104  
96  
96  
72  
24  
24  
24  
8 1/2  
8

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1. Comd Rept, VHFS, FS 8601, fy 1955, Vol II, pp3-4.
2. Ibid. p14.
3. Ibid. p3.
4. Ibid. Tab 1.

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Total Hours Assigned	1510
----------------------	------

Total Hours Worked	1786
--------------------	------

Automatic Morse intercepted and transcribed assigned  links in  throughout the year; however, obsolete equipment handicapped personnel.<sup>1</sup> The 36 triple diversity positions installed and operating averaged 13,995 hours of coverage monthly. A change in emphasis and assignment reduced coverage of  links from 68 to 47,  links from 25 to 12, and increased  links from 8 to 42.<sup>2</sup>

The station's radio printer assignment changed considerably during the year. During the first quarter;  priority was dropped thereby decreasing coverage on this phase. Poor conditions on targets from the eastern areas also disturbed reception. Next, the  voice mission was dropped due to an inability to hear desired links. In November 1954, a major and a new category system produced definite increase in  coverage and message count.<sup>3</sup> Further, the addition of R 390/U's enhanced coverage.<sup>4</sup> Average hours covered monthly during the report period were 9,707 on  and 509 on <sup>5</sup>

In March 1955,  radio printer men commenced training as 1TPB tape scanners. Upon completion of this training they instructed all assigned 1799's in tape scanning. By the end of the fiscal year, the station was able to accomplish its scanning mission in a highly efficient

1. Comd Rept, VHFS, FS 8601, fy 1955, Vol II, pp4,14.
2. Ibid. Tab 1.
3. Ibid. p4.
4. Ibid. p14.
5. Ibid. Tab 1.

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manner.<sup>1</sup> In the second quarter, Model-19 Printer was modified to enable operators to insert tapes into the printer and transfer copy automatically from tape to page.<sup>2</sup> A special mission was assigned to record SigC noise transmissions from California and New Jersey during the year. Several magnetic tapes were made by radio printer personnel and forwarded to Arlington Hall Station.<sup>3</sup>

Special Identification personnel photographed 1,377 shots during the report period. Of these, 420 were forwarded to NSA, 255 were test shots, 621 were discarded, and 81 were retained. On 1 Feb 55, a check was performed on DEN 17-2 to determine its accuracy. On 2 Mar 55, an antenna transmission line test was run with the same equipment to determine if the relay system in use hindered shot accuracy.<sup>4</sup> In both tests the equipment was found most satisfactory.<sup>5</sup> During the year a new piece of equipment--the PH-41--replaced Morse System PH-253 and produced clearer film in about 1/3 the time.<sup>6</sup>

Distribution of intercept assignments to appropriate operational areas was performed by traffic analysis personnel who also supported intercept operators with information relating to calls, frequencies, and schedules.<sup>7</sup> The bulk of communications was handled by these personnel and all traffic sent by official courier. This included:<sup>8</sup>

EO 3.3(h)(2)  
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(1) All intercepted traffic (except coded government and coded

1. Comd Rept, VHFS, FS 8601, fy 1955, Vol II, pp9, 21.
2. Ibid. p17.
3. Ibid. p9.
4. Ibid. p5.
5. Ibid. p5.
6. Ibid. p21.
7. Ibid. p5.
8. Ibid. p19.

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(2) The majority of messages originated at the station.

(3) Special identification reports including film.

Required reports--DARE, TECSUMS, DSCR, DANAR and MGSR--were made up by the Traffic Control Reports personnel. TECSUM Format Q was implemented 31 May 55. Messages forwarded to NSA included:<sup>1</sup>

<u>Type</u>	<u>Message Totals</u>
Manual Morse	14,718
Automatic Morse	29,563
Radio Printer	43,584
Special Identification shots	420

Until its discontinuance 19 Mar 55, the station's independent DF unit took shots and forwarded line bearings on its fixed assignment, XXZ63401, and all green items.<sup>2</sup>

Due to outbreak of hostilities in Guatemala the station's CommGen was on emergency stand-by basis from the beginning of the fiscal year until January 1955. At this time notification was received to forward all government coded and plain text traffic [redacted]

[redacted] and to operate for a 10-hour daily period. This was later stepped up to 16-hours a day, and in March 1955 the center commenced 24-hour operations.<sup>3</sup>

One difficulty during the report period was the obtaining of replacement parts for TT 7/FG, TT 15/FG and M-14.<sup>4</sup>

Telecommunications, other than telephone, were handled by the

1. Comd Rept, VHFS, FS 8601, fy 1955, Vol II, p6.
2. Ibid. p8.
3. Ibid. p7.
4. Ibid. p15.

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CommCen and consisted of:<sup>1</sup>

- (1) All reports on intercepted traffic.



Total message groups passed through the center for fy 1955 were:<sup>2</sup>

<u>Month</u>	<u>Total Message Groups</u>
Jul - Dec 1954	Negative
Jan 1955	245,658
Feb 1955	188,368
Mar 1955	399,770
Apr 1955	501,070
May 1955	600,132
Jun 1955	689,071

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Beginning in December 1954, and extending through the end of January 1955, the station was assigned a field of special concentration,



Operational sections were assigned duties on the project which was very successful and resulted in a special commendation for the station from DIRNSA and Chief, ASA. It also demonstrated the worth of the CommCen and resulted in it being placed on full-scale operations.<sup>3</sup>

REF: VOL: I P: 102

1. Comd Rept, VHFS, FS 8601, fy 1955, Vol II, p19.
2. Ibid. p7.
3. Ibid. p18.

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2. 306th Communications Reconnaissance Battalion, Fort Bragg, NC  
 Effective 7 Dec 55, a COMINT Section was established for the  
 306th Battalion. Initial organization comprised Control and T/A Subsections.  
 Additional subsections added during fy 1955 were C/A on 14 Feb 55, and DF  
 on 13 Apr 55.<sup>1</sup>

Intercept and analysis mission of the battalion during the  
 year concerned coverage of the following Central and South American targets:

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<u>Cases</u>	<u>Hours Assigned</u>
General Search	10,465

Message groups processed by analytic personnel follow:

<u>Month</u>	<u>Total Message Groups</u>
Dec 1954	89,023
Jan 1955	126,645
Feb 1955	210,690
Mar 1955	421,468
Apr 1955	394,177
May (to include 15th)	186,685

In general, fluctuation in message totals was attributed to changes in  
 assigned missions. In many cases certain targets were more productive than  
 others, in others, the initial determination of schedules, frequencies and  
 call signs proved time consuming.<sup>2</sup> As the antenna field, utilized by the  
 battalion, was not suitable for long range intercept, plans to extend the

1. Ann. Rept, 306th CRB, fy 1955, Vol II, p2.  
 2. Ibid. pp5-6.

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field were under discussion as the year ended.<sup>1</sup>

REF: VOL I P. 109

3. 337th Communications Reconnaissance Company, Fort Bragg, NC

Until assignment of its first intercept mission on 6 Jul 54, the 337th Company trained with "canned" COMINT problems. As receiving capabilities of the company's site were unknown, the initial assignment was chiefly general search. Later, a mission covering South and Central American targets was assigned which evolved into the company performing permanent intercept of circuits of

Until

13 Apr 55, the company performed this mission singly, but later shared it with Co A, 313th Battalion.<sup>3</sup>

During the year, Traffic Analysis personnel prepared a number of reports and developed special studies reflecting schedules, frequencies, net reconstruction, OB and message serial numbers.<sup>4</sup>

At the close of the year, new antenna fields were under contracts and commercial power had replaced portable power units.<sup>5</sup>

REF: VOL I P. 113

4. 313th Communications Reconnaissance Battalion, Fort Bragg, NC

Following reorganization in May of 1955, the COMINT Control Section of the 313th Battalion coordinated its intercept assignment between

1. Ann Rept, 306th CRB, fy 1955, Vol II, p7.
2. Ann Rept, 337th CRC, fy 1955, Vol II, pp2-3.
3. Ibid. p4.
4. Ibid. p5.
5. Ibid. p8.

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two operational companies for whom it acted as liaison between the intercept, T/A, and DF Sections of the companies.<sup>1</sup> Accordingly, required intercept was provided each company. In addition, [ ] T/A men were assigned to provide information and guidance to intercept operators.<sup>2</sup> Although raw traffic and chatter were processed by the T/A Section at battalion level, a lack of linguists deterred progress.

During the year, the battalion's mission of the interception of [ ] targets continued with emphasis on areas where internal disturbances prevailed. A study was also made on [ ] nets.<sup>3</sup> Many call signs on [ ] nets were equated to Naval Ship and Shore stations of those countries. On 26 May 55, three additional intercept positions were authorized thus raising the total to 11.<sup>4</sup>

Prior to the end of the report period a DF training mission was assigned consisting of a flash circuit with an oscillator over a land-line telephone system using continuous wave. COMUS pads were used to encrypt and decrypt flash messages transmitted. This mission was terminated 23 Jun 55. On other DF projects, daily bearing reports were prepared and forwarded by DF plotters through COMINT control. Only line bearings were obtained because of target distance and baseline restriction. All personnel engaged in DF activity during the year were trained in the use of AN/TRD/4's and preventive maintenance.<sup>5</sup>

REF: VOL I P. 116

1. Ann Rept, 313th CRB, fy 1955, Vol II, p7.
2. Ibid. p4.
3. Ibid. p2.
4. Ibid. p5.
5. Ibid. p3.

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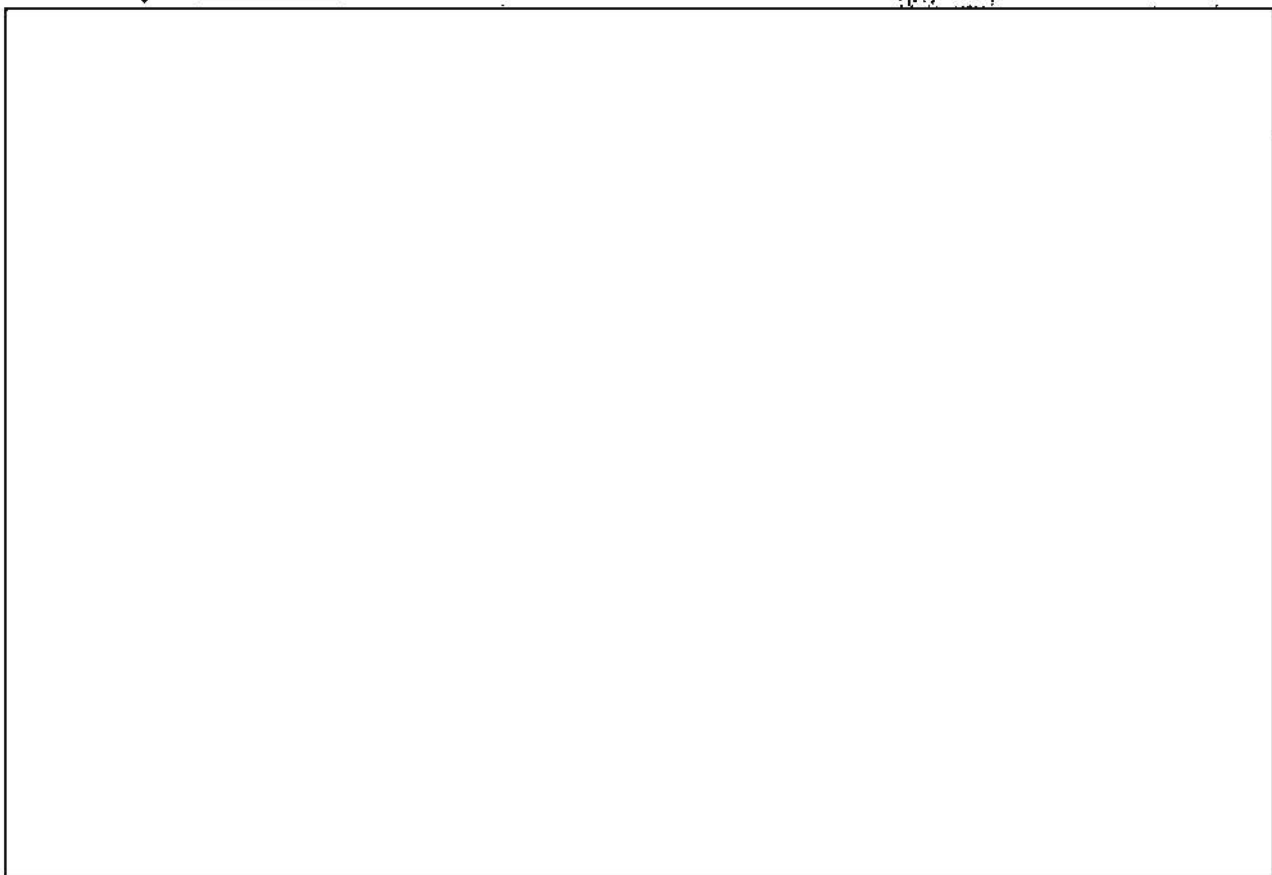
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## 5. Field Station, 8602 DU, Petaluma, California

During fy 1955, Fld Sta 8602's Operations Division, consisting of manual Morse, automatic Morse, radio fingerprinting, tape scanning and traffic analysis, remained under operational control of NSA. Authorized strength was

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All 21 of the station's manual Morse positions were manned to the degree permitted by assignment of qualified operators. On 1 Jan 55, major call sign/key changes by  service nets produced a flurry of problems in recovery and net identification. Following noteworthy occurrences were observed on  service missions:<sup>2</sup>



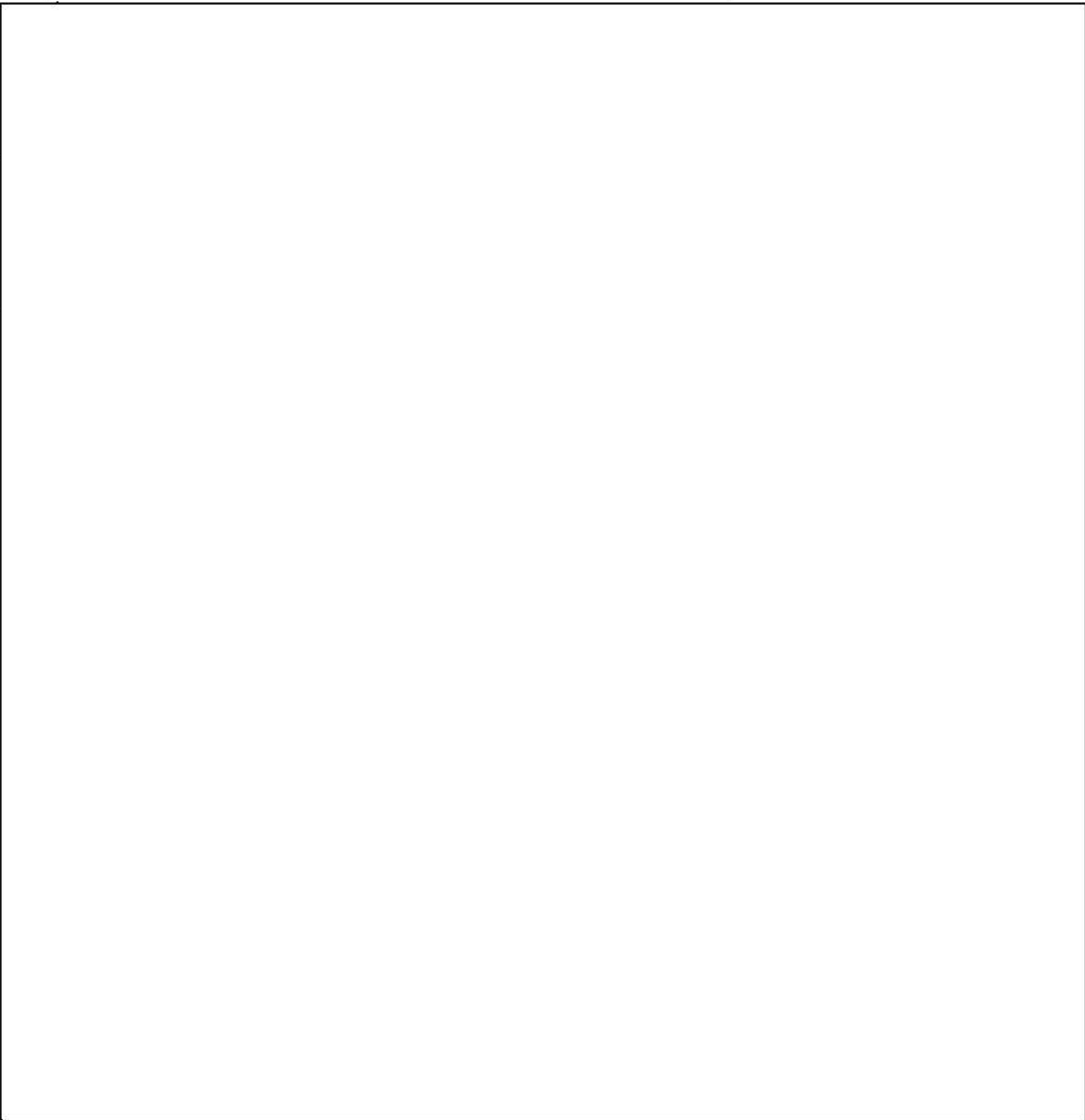
1. Ann Rept, FS 8602, TRRS, fy 1955, Vol II, p2.
2. Ibid. pp2-8.

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intercept provided no outstanding items of interest.

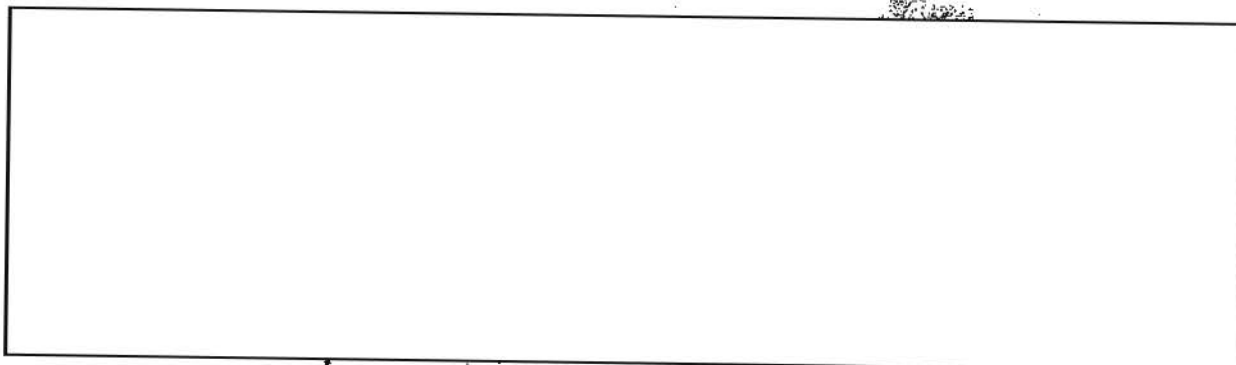
During the year the station's Automatic Morse Section, using an NSA

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Scanning Guide, selected 139,329 msgs comprising 2,633,672 gps for transcribing from undulator tape to page copy. Many selected messages were forwarded to NSA electrically with high precedence, because of immediate interest to analytical sections there.<sup>1</sup>



The station's Radio Printer Section supplied operators better information from manual Morse and T/A sections during the year which resulted in more complete intercept of [ ] printer transmissions sent on links parallel to assigned manual Morse circuits. An estimated \$2,500 was saved as a result of substitution of single copy in place of three-part teletype paper on [ ] circuit page printing machines.

As no scrambler intercept equipment was installed, no intercept, except to copy stutter groups, was performed on such circuits. Apparently a slow conversion to scrambler was being made on both service and commercial [ ] radio printer links.

Continuous search and copying of [ ] printer links provided considerable traffic for scanners. A constant surplus of radio printer interceptors permitted many to receive tape scanning training thereby increasing their value and enlarging their capabilities. Inexperienced operators were

1. Ann Rept, FS 8602, TRRS, fy 1955, Vol II, p8.
2. Ibid. pp8-9.

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trained in fundamentals of radio printer and theory.<sup>1</sup>

All radio printer operators were trained as tape scanners, a process requiring six months. Rapid turnover of personnel, the necessity of keeping men trained in both tape scanning and radio printer intercept work, plus the attempt to train all 059 MOS men in scanning created many personnel management problems.

Special missions for tape scanners, sent immediately by wire were: selecting Category 22 messages to or from [redacted] referring to the [redacted], and any Category 34 messages on [redacted] business. Simplex traffic scanners selected 91,586 msgs, multiplex scanners 138,113 msgs for forwarding. NSA notified the section of its appreciation.<sup>2</sup>

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The station's CommCen had a half-duplex leased landline to NSA and a half-duplex to the major relay center at the Presidio of San Francisco. The former transmitted both on and off-line. PYTHON cryptosystem was utilized principally. VENUS and DIANA systems were also available. During the fiscal year 25,052 msgs were transmitted with an average of 169 gps per message. Only 8,522 minutes of outage was experienced in comparison to 171,810 the previous year. Prior to, during, and after, the UN Conference of June 1955 in San Francisco, the CommCen assisted an NSA representative in San Francisco in passing traffic. From 16-28 Jun 55, selected messages from the transmission files of several commercial communications firms in San Francisco were microfilmed and hand carried to the station for encryption and transmission. Two TT27 teletypewriter equipments procured by the NSA

1. Ann Rept, FS 8602, TRRS, fy 1955, Vol II, pp9-10.

2. Ibid. p10.

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Representative from commercial sources were utilized to permit teletype operators to read the records. A total of 86,808 gps were "poked" and sent to NSA on this project.<sup>1</sup> REF: VOL. I P. 120

B. Territory of Alaska

1. Hq ASA, Alaska, 8614 DU, Fort Richardson

The Operations Section of Hq ASA, Alaska, processed Morse, voice and radio printer traffic to obtain COMINT and technical data throughout fy 1955. Primary targets were [REDACTED]

[REDACTED] Traffic was received from Fort Richardson, Nome, Gambell and Kenai. Detachment A, at Adak, tested and prepared for a COMINT mission, but did not undertake one during the report period. In February 1955, COMINT effort at Nome was discontinued and, in the third quarter, intercept activities at Fort Richardson ended as the 333d Company was defederalized. At Gambell, COMINT activity was increased by one radio telephone position raising its operational potential to six manual Morse and three radiotelephone positions.<sup>2</sup> Throughout the year information compiled by major operational sections was developed into reports, in spot intelligence summaries, forwarded to USARAL, ASA, NSA and other interested organizations as follows:

Reports Control

This section was established 11 Jul 54. An improvement in overall correlation of intelligence was readily apparent as the section consolidated intelligence produced by all sections. Four consumer reports were published: Monthly Activities Report, Weekly Operational Activities Report, Weekly Technical Notes and Periodic C/A Notes. A resume of [REDACTED] activity in the Far East from January 1953 - June 1955 was also prepared.<sup>3</sup>

1. Ann Rept, FS 8602, TRRS, fy 1955, Vol II, ppl3-14.
2. Ann Rept, ASA Alaska, fy 1955, Vol II, p3.
3. Ibid. p4.

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Traffic Analysis



Cryptanalysis



Translation

Strength averaged [ ] men. Primary function was translation of messages decrypted by C/A and scanning voice transcripts from Kenai and the 333d Company. The section did all transcribing for the command. At the close of the year only Kenai and Gambell produced voice intercept. After Nome was closed in April 1955, only Kenai produced radio printer traffic. Another important function was translation of chatter as most T/A personnel knew little of foreign languages and chatter remained a good source of information.<sup>3</sup>

Detachment E

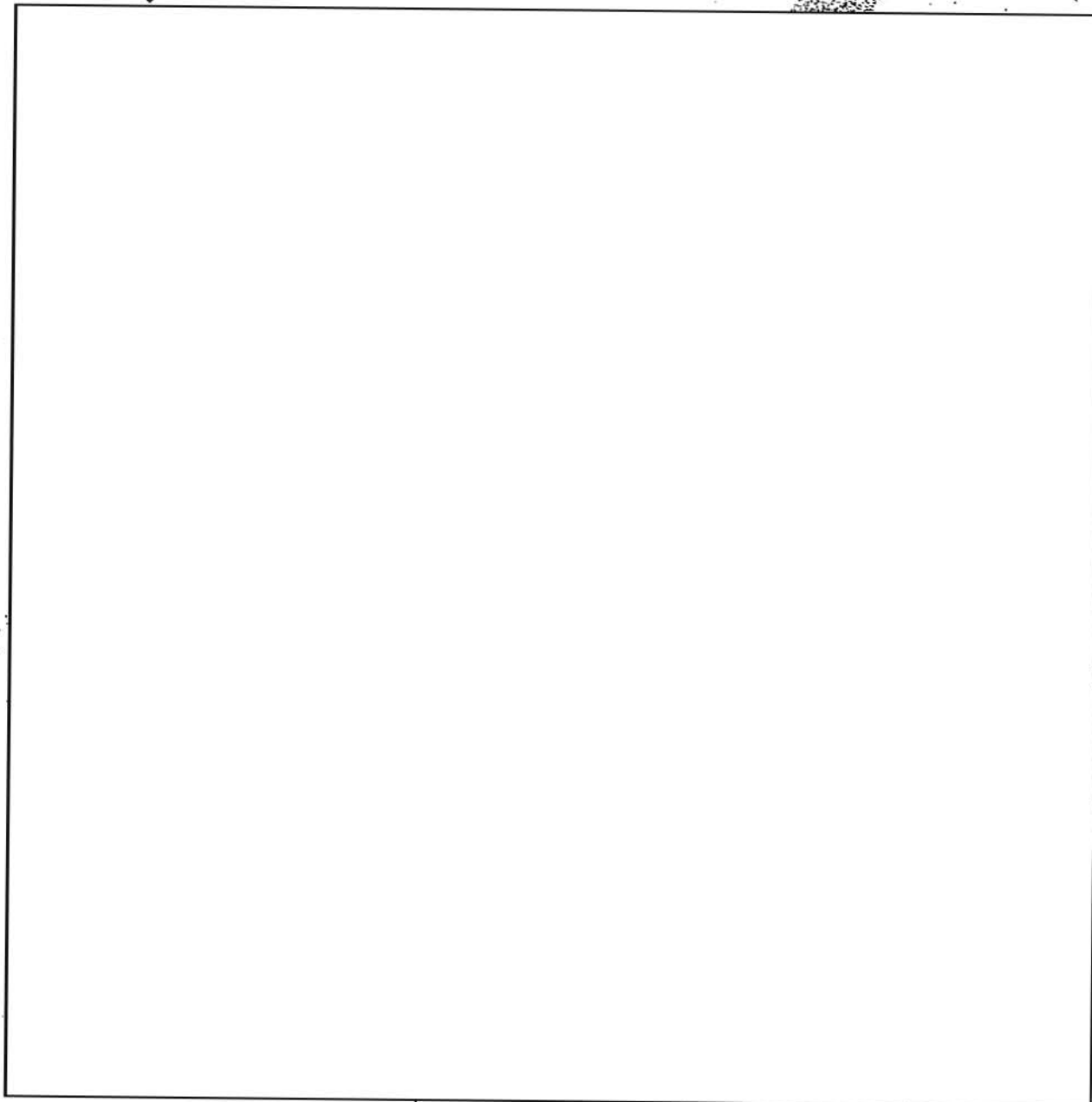
This detachment operated [ ] manual Morse positions, [ ] voice intercept positions, a traffic analysis and a radio maintenance section. Primary mission of the Gambell site was intercept of traffic on the [ ]

1. Ann Rept, ASA Alaska, fy 1955, Vol II, p4.
2. Ibid. pp4-5.
3. Ibid. pp5-6.

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Several special missions were performed in connection with the shooting down of a US Navy P2V patrol bomber by Soviet fighters, for which detachment personnel received commendation for their parts in the rescue and evacuation of the plane's crew. The scene of the crash was approximately 10 miles from Detachment E.

1. Ann Rept, ASA Alaska, fy 1955, Vol II, pp8-9.

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Radio Receiver SP-600 (Hammerlund) was utilized by all sections. Considerable improvement in performance resulted when Recorder-Reproducer RD-74/U was raised 2" on wooden blocks to allow ventilation of the underside.<sup>1</sup> On-line radio telegraph was utilized for transmission of all keys, TEXTA predictions, and any other operational material to Chief, ASA Alaska. Liaison was maintained with the 9472d TSU to assure a secondary channel of administrative communications when normal communications failed.<sup>2</sup>

REF: VOL. I P. 130

## 2. Field Station, 8607 DU, Kenai

Throughout fy 1955, Fld Sta 8607 continued to intercept foreign communications, perform DF, submit raw material and technical reports, and perform miscellaneous tasks in support of the national COMINT effort. The station's operational mission consisted of manual and automatic intercept of [ ] military, naval, air, civil and polar air, air warning, police, [ ] the automatic intercept of [ ] in the Far East and South American area; identification of intercept material by T/A, RFP and DF. The station also furnished sporadic voluntary support on special air early warning type missions as requested by the Air Force. Coverage of this mission was highly successful.<sup>3</sup>

A general reduction in station operational strength occurred in August 1954, but by 15 September all sections were near authorized strength. In June 1955, a considerable increase in replacements brought some sections above authorization, however, transfer of experienced operators to Hq ASA Alaska, in addition to normal rotation, cut the number

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1. Ann Rept, ASA Alaska, fy 1955, Vol II, pp9-11.
2. Ibid. p11.
3. Ann Rept, FS 8607, fy 1955, Vol II, p2.

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of skilled manual Morse operators dangerously low during the last quarter of the report period.<sup>1</sup>

Operational highlights of individual sections follow:

Automatic Morse<sup>2</sup>

[redacted] was the only assignment until the addition of [redacted] in October 1954. At the same time the [redacted]

sively. In June 1955, Category Nine traffic was recorded on RD-75/U magnetic tape recorder and forwarded without further processing where previously it had been recorded on RD-60/U recorders on undulator tape, and manually transcribed. In addition to the recorders, R-274/FRR and RCA SC-88 receivers were used.

Operators declined from [redacted] during the year. Assignment at year's end was [redacted] Automatic Morse, [redacted] coverage cases.

Manual Morse<sup>3</sup>

General emphasis in the early part of the year was on [redacted] nets, placed on assignment in September 1954. A maximum effort was made on recovery of a major system changeover of target cases in early January 1955. Partial recoveries were made prior to the end of January with almost complete recovery by the end of February. By this time [redacted] Naval and Military circuits were predominate assignments although civil air, [redacted] cases were also copied.

At the beginning of fy 1955, [redacted] EM were manning [redacted] intercept and [redacted] trick chief positions. By the end of February 1955, [redacted] EM manned the same number of positions. In early April, a twenty-fourth intercept position was installed. At the end of the year, [redacted] EM were available, of which [redacted] were experienced, [redacted] students and [redacted] "junior" operators.

A major difficulty was lack of replacement parts for typewriters. Some traffic was missed because of this equipment being deadlined. Several Hallicrafter R-274 receivers were installed to increase circuit coverage by frequency spotting. These worked well although BC-779-A or BC-779-B were believed superior.

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EO 3.3(h)(2)

1. Ann Rept, FS 8607, fy 1955, Vol II, p4.
2. Ibid. p10.
3. Ibid. pp11-12.

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The equipment, an AN/TRD-4 with crossed "U" adcock antenna cut for frequency range 3-10 mcs, was installed, operating and awaiting assignment by 30 Sep 54. The first week of October was spent in testing and calibration. Extreme care was taken in making a bearing correction chart to provide for any inherent error in the antenna field and correct the bearing for any octantal error that might occur on higher frequencies. Initial assignment was made 7 Oct 54 when 24 hours-per-day operations were begun. Next to DF, the most important task was taking independent and check bearings.

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A "tip-off" system was also inaugurated between the station's Intercept and Control Sections. From April 1955 to the end of the year an effort was made to reduce repetitious bearings on known stations so that more time could be spent searching and shooting new and unidentified stations. Total bearings decreased but their value increased. In May and June, target bearings were assigned which could not be heard. The assignment at the close of the year was as follows: [redacted] PRI ABLE, and [redacted] PRI BAKER.

Special Identification<sup>2</sup>

Film library mounting cards were standardized for ease in locating and matching. In January 1955, a transmitter collocation subsection was formed. Shooting of 2B transmissions began 16 Mar 55 and a library started. A special logging system maintained continuity on each individual transmitter being used in a certain city. The section was able to tie in several 2B transmission shots with CW transmitters from the same city. During the first two weeks of the January call sign frequency change, analysts made as many matches as possible with the previous years' calls. Along with tips from manual Morse and traffic control, it was possible to collocate a considerable number of new calls. As a result, continuity was maintained on practically all cases.

Special instructors gave personnel training in overall maintenance of DEN-17, and operation and repair of the DEN-17-2 camera unit. The P-4 plug was checked for reversal, but was found to be correctly placed. In response to a technical bulletin, film shot length was shortened from 25 to 20 ft per shot.

Poor receiving conditions reduced shot totals during the winter months. Another factor was dropping of several Naval cases formerly given wide coverage. Total shots for the year were 2545. Mission at the end of the year included: 2 "A" priority and 15 "B" priority NSA cases, and 6 "A"

1. Ann Rept, FS 8607, fy 1955, Vol II, ppl4-15.
2. Ibid. ppl9-21.

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priority, 2 "B" priority and 21 "C" priority cases. "A" priority was shot every day, "B" priority every three days, and "C" priority every six days.

Control Section<sup>1</sup>

Strength at the beginning of the year was [redacted]. A loss of [redacted] EM in August 1954 necessitated discontinuance of monthly technical notes. Due to the relatively small number of EM authorized, the primary function was basic traffic identification and processing, instead of T/A.

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EO 3.3(h)(2)

After the [redacted] communications change of 1 Jan 55, some permanent and many tentative identifications were made through the use of DF and RFP. Enciphering charts and keys were recovered by higher headquarters, and the section made daily recoveries of keys.

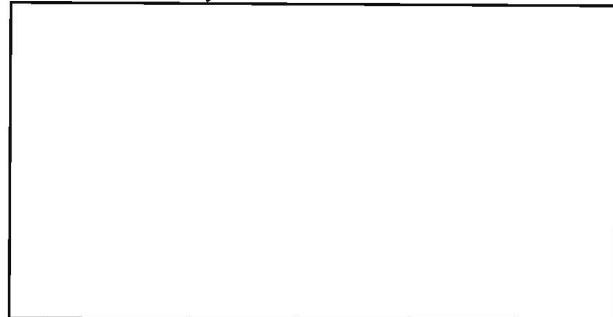
An early scanning system for high priority [redacted] traffic was inaugurated in February 1955. Seventy-one messages out of several thousand intercepted were selected for priority forwarding. Production dropped after 1 April when some intercepted circuits switched to [redacted].

Voice<sup>2</sup>

Both [redacted] commercial and service type transmissions were copied; five links and search on the former, air and civil air search on the latter. Shipping, Naval air, air defense, voice [redacted] and police cases were copied on an unassigned intercept basis.

One position, utilizing RD-74 and an average of [redacted] linguists was used, however, the performance of the RD-74 was poor. Factors that enhanced proficiency were: TDY assignment of experienced personnel to the station, and sending the section chief on TDY to other stations. This interchange improved coordination and receipt of vital documentary aids. Coordination with DF led to identification in many unknown cases and helped pinpoint stations for better antenna selection. Increased utilization of technical aids was also important. Plans to phase out the voice mission at the close of the year were discontinued. Voice intercept for the year totaled 1963 hours. Assignment at the end of the year was:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.



1. Ann Rept, FS 8607, fy 1955, Vol II, pp22-23.
2. Ibid. pp24-26.

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Assigned strength dropped from [ ] men during the year. Equipment changes were: loss of AX-9 by fire, six LTPA and three LTPD altered to four LTPA, five LTPD, and two trick positions converted to search positions and three rather than four DEN-35. Copy time on two channel military nets amounted to 6240 hours. During October 1954, a large amount of [ ] traffic was noted with main-line link between [ ] Lack of proper [ ] equipment prevented much analysis. Personnel were sent on TDY three weeks for instruction in [ ] Printer T/A, as more complete and correct identification was desired. From April to the end of the year, a high volume of [ ] links was noted.

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On 1 Jan 55, a complete change of rotas for [ ] made most of the schedules compiled by the station obsolete. Accordingly, DCR was replaced by DANAR and a control system for classified documents established.

In January 1955, M-14 printers of one ASAN-13 position were wired in accordance with LTPB #6 to cover the LTPB assignment. At the same time M-15 printers were modified with a small piece of angle iron to protect the cover window. In February, five M-15 printers with LTPD baskets were modified to eliminate the auto line feed when carriage return impulse was received.

The assignment at the beginning of the report period was [ ] Service RP links, [ ] Printer links, [ ] RP links, and assigned search for all of the above. By the end of February 1955, multiplex-type systems utilizing ASAN-13's and ASAN-8's were dropped. At [ ]

Combined intercept traffic total for fy 1955 was over 13,000,000 gps. Reports on ionospheric predictions from higher headquarters aided overall intercept. Readings, during the last few days of April 1955 and into the month of May, were poor and were reflected by low intercept levels and very poor DF bearings.<sup>2</sup> A valuable addition to the station during the year was

1. Ann Rept, FS 8607, fy 1955, Vol II, pp27-31.
2. Ibid. pp33-34.

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the installation of a secure telephone intercommunications system between all operating sections.<sup>1</sup> REF: VOL. I P. 144

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EO 3.3(h)(2)

C. Republic of Panama

1. Hq & Hq Det, ASA, Caribbean, 8616 DU, Canal Zone

During the period 1 Apr-30 Jun 54, the ASA, Caribbean COMINT activity did not perform any special missions in support of local commands, however, [redacted] traffic passed by ACAN was gathered [redacted] by the local Special Security Office, given to ASA, Caribbean for forwarding to Hq ASA for processing and extraction of information of intelligence value. In addition, [redacted] traffic by the leading [redacted] radio facility in the area was obtained through a USARCARIB source and forwarded to NSA.<sup>2</sup> From July 1954 to March 1955, COMINT activity of ASA, Caribbean was conducted on an "operational training" basis and included intercept and traffic analysis. This had resulted from a 90-day general search test and subsequent notification from Hq ASA to establish close-support COMINT in the Caribbean area.<sup>3</sup>

By 1 Apr 55, the headquarters had been assigned the mission of providing COMINT in support of USARCARIB through intercept and DF of foreign communications targets affecting the security of the Canal Zone and submitting raw traffic and technical reports to NSA in support of the national COMINT effort.<sup>4</sup> Station designation [redacted] was assigned, 13 Apr 55. NSA exercised operational control; non-routine operational instructions were issued through Hq ASA.<sup>5</sup>

1. Ann Rept, FS 8607, fy 1955, Vol II p22.

2. Comd Rept, ASA Caribbean, 8616 DU, fy 1955, Vol II, p7.

3. Ibid. p3.

4. Ibid. p6.

5. Ibid. p1.

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EO 3.3(h)(2)~~EIDER~~

A new TD of May 1955 authorized [ ] for assignment to the Intelligence Branch of the headquarters. As of 30 Jun 55, [ ] were assigned. The only equipment authorized for intercept and DF were one BC 312, two AN/PRD-1, and three AN/GRC-9's. Receivers R-274 and Recorders RD-74 later supplemented authorized equipment.<sup>1</sup>

From inception, ASA, Caribbean's COMINT activity concerned the intercept of foreign communications in the Caribbean area with the aim of identifying illicit transmissions, and forwarding all intercepted traffic to NSA and/or ASA. Traffic analysis was performed on all raw traffic to maintain local intercept control. Local TEXTA was compiled and TEXTA changes were forwarded to NSA. Special T/A and translation was performed on all Spanish clear text with a view to furnishing the supported command with an "end product." This was done without interrupting the flow of traffic to NSA and ASA. Periodic operational and special technical reports were prepared and forwarded in accordance with NSA directives. Special "end product" reports were prepared on items of local interest and forwarded to the supported command through the local SSO. Due to lack of TEXTA, the limited range of the DF equipment, and the lack of a valid mission; DF personnel were trained as intercept operators.<sup>2</sup>

REF: VOL. I P. 148

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1. Comd Rept, ASA Caribbean, 8616 DU, fy 1955, Vol II, pp8-9.
  2. Ibid. ppl0-11.

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## D. Territory of Hawaii

## 1. Field Station, 8605 DU, Helemano, Oahu

Throughout fy 1955, Fld Sta 8605 conducted its COMINT mission through its Operations Branch which consisted of a Traffic Control and Reports, Manual Morse, RP, Voice, CommCen and Signal Supply-Maintenance Sections. With the conversion of the single voice position to a manual Morse position, Jan 55, the Voice Section was discontinued.<sup>1</sup> Operational personnel decreased from [ ] during the year. The station continued to operate on a rotating trick schedule with a six day on two day off basis.<sup>2</sup> All manual Morse and RP raw traffic was forwarded daily via Armed Forces Courier Service.<sup>3</sup>

The receipt and employment of Receiver R-390/U, the new category X-Ray assignments, the decentralization program, the implementation of new station specifications; the addition of on-line COMINT circuits for reporting purposes, and the extensive exchange of technical information with other stations increased station operational efficiency and improved the quantity, quality and timeliness of the intercept and local analysis efforts.<sup>4</sup>

Special missions were also performed. All [ ] traffic intercepted on [ ] and return from 1-8 Oct 54 was separately packaged and forwarded without processing. [ ]

[ ] messages from 19-25 February were scanned to Category 34, and processed as regular traffic. On 31 Jan 55, a special 60-day scanning

1. Ann Rept, FS 8605, fy 1955, Vol II, pl.
2. Ibid. p5.
3. Ibid. p7.
4. Ibid. p24.

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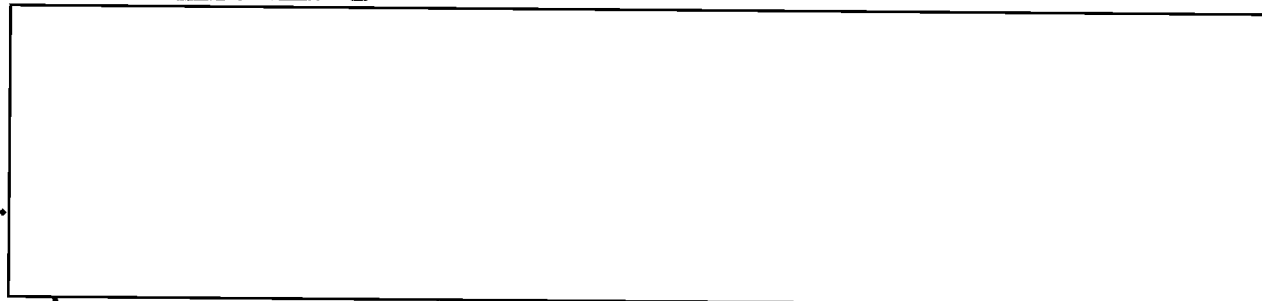
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mission for forwarding by electrical means all intercepted messages to and from [ ] was begun.<sup>1</sup>

Starting at 0900, 31 Jan 55, the station began monitoring the Eniwetok-Hawaii-US RT circuit on a 24-hour basis.<sup>2</sup>

Operational highlights of individual sections follow:

Manual Morse<sup>3</sup>



The section averaged [ ] Sixteen positions and a minimum of 368 man-hours per day were required to effectively cover the mission in July 1954 and 15 positions with 352 man-hours in June 1955. Total messages intercepted were 45,855 as compared with 29,904 the previous year. Largest monthly total was 5,371 in June 1955. Traffic and chatter were intercepted from an average of 23 individual circuits each day.

A major [ ] change occurred 4 Jan 55. By a concentrated search of the frequency division and with close cooperation of T/A, almost 100% recovery of normally heard [ ] cases on assignment was accomplished by 19 January. A special training program reduced the period of training for new operators. Close liaison with non-Morse insured maximum coverage of common links. Approximately 5,232 RP references were noted and exploited. All available data relating to call signs, frequencies, circuit activity and reception of assigned [ ] circuits was compiled as reference material.

Radio Printer<sup>4</sup>

This section commenced the year with an intercept assignment of 4 single and 20 two-channel [ ] cases. The [ ] assignment included 11 first priority cases, 9 alternate cases, and a general search mission for new and unidentified cases. On 31 Oct 54, the complete RP Group "X" assignment was dropped and a new Group "X" assignment by category initiated. Additionally, all cases parallel to manual Morse and an [ ] search mission

1. Ann Rept, FS 8605, fy 1955, Vol II, p25.
2. Ibid. p6.
3. Ibid. pp2, 7, 13-15.
4. Ibid. pp3, 8, 15-16.

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were covered. The assignment consisted of four categories:

- 1)
- 2)
- 3)
- 4)

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EO 3.3(h)(2)

Assigned cases dropped from 44 at the opening to 33 at the close of the year. Personnel similarly decreased from [redacted]. These men covered 8 simplex, 6 two-channel, 6 multiplex, 1 signal analysis, and 3 search positions.

The types of transmissions intercepted from assigned [redacted] targets included two-channel, three-channel, four-channel, six-channel and nine-channel Baudot multiplex transmissions. Also intercepted were LTPA and LTPB single channel transmissions. The majority of [redacted] targets on assignment utilized double frequency shift keying. [redacted] identification aids were employed and approximately 99% of all intercepted [redacted] transmissions were correctly identified. From 13 Jul 54 to the end of the year, [redacted] transmissions were intercepted with [redacted] groups copied.

Total intercept time was 6,895 hours [redacted] coverage and 32,012 hours [redacted] coverage. Total [redacted] traffic intercepted consisted of 48,195 perforated tapes and 4,818 pieces of page copy.

#### Traffic Control and Reports<sup>1</sup>

TECSUM's, DARE's and DANAR's were prepared. TEXTA and other technical aids were maintained and T/A performed as required for local intercept control, for processing intercepted material and other purposes. Strength was approximately [redacted].

Projects included studies pertaining to circuit frequency usage, MUN files, BST files, circuit schedules, message service number studies, operator characteristics file and recovery work on procedure charts in RP and Manual Morse Sections. The filing system was completely revised in March 1955. A TEXIN report was placed in effect July 1954. Forwarding of RP Morse TECSUM was commenced in November and DANAR in December. In March 1955, certain portions of key recoveries were forwarded by wire with ASA, Far East added as an information addressee for a month. In May, a new forwarding procedure for [redacted] traffic to include NSA and ASA, Far East was effected.

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EO 3.3(h)(2)

1. Ann Rept, FS 8605, fy 1955, Vol II, pp3, 10, 16-20.

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The section recommended a complete revision of the Morse assignment to include dropping of all RK circuits, in order to fit more closely into local intercept conditions. The recommendation was approved and one full cover position and one group position dropped. One priorder POROCO was added. This new assignment covered RM, RP and RT circuits in the Morse Section.

Contributions to the communication networks recovery were made after the January 1955 communications change. Certain key recoveries, special T/A releases and TEXIN reports were forwarded daily by wire to NSA and other intercept stations. RP scanners processed a total of 1,487,036 msgs.

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## E. Europe

## 1. Hq ASA, Europe, Frankfurt, Germany

Throughout fy 1955, the operational mission of ASA, Europe included the collection of information pertaining to the war potential, military forces, and other military and related matters of enemy or potential enemy and foreign countries; the provision of support to NSA through COMINT information and technical COMINT data; and the provision of COMINT to local consumers.<sup>1</sup>

Individual accomplishments of sections comprising the Operations Branch

follow:

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Processing

Throughout fy 1955, this section consisted of analysis teams for [redacted]

[redacted] intercept. Analysis was conducted on [redacted] intercept until 1 Mar 55.<sup>2</sup>

[redacted] Team was organized into a Morse group and a R/P group until January 1955, when a Type Easy call sign listing group was established.<sup>3</sup>

During the year, improved forms were devised and standardized; reports and corrections issued as required. Special attention was paid technical support of intercept stations.<sup>4</sup>

IBM runs were also made on intercepted Morse and R/P practice traffic, the results of which were used primarily as "message hit" files. These were

1. Ann Rept, ASAE, fy 1955, Vol II, pl.
2. Ibid. pl0.
3. Ibid. pl0.
4. Ibid. ppl2-13.

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useful in identifying activity as to certain services, areas and nets. Morse IBM runs were used primarily as T/A aids, whereas R/P runs, because of their broader scope and frequent lack of call signs, were found useful by T/A units and intercept stations. Morse runs were suspended in January 1955, and resumed in June to include T/A elements as well as message preambles.

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EO 3.3(h)(2)

IBM runs on the [ ] were used to study practice traffic; match-traffic hits; search for valid messages, routing indicators, schedule and frequency usage studies; and compilation of procedural characteristics.<sup>1</sup>

On 1 Jan 55, field reports revealed many [ ] Military nets had not changed call signs, and additionally a large number of new four-letter call signs were heard. After using the same Baker Book calls from 31 December to 3 January, [ ] began using calls from unpredicted Baker Books with call signs derived from new keys, and usually on new basic station trigrams (BST). Intercept operators and field traffic analysts provided most of the initial identification of nets and transmitting stations. These were checked at ASA, Europe with material from NSA, GCHQ, 6910 Scty Gp, and USN 40.

After 3 January, [ ] call signs were used by [ ] Air, Air Warning, Low Level Navy Air, [ ] [ ] and in much of the R/P activity, but did not appear in exploited military Morse nets. In April 1955, the main Morse [ ] calls, and in May and June the Hq Military net included in its schedule one [ ] [ ] call daily. However this net, as well as other Military District nets, continued to operate normally.

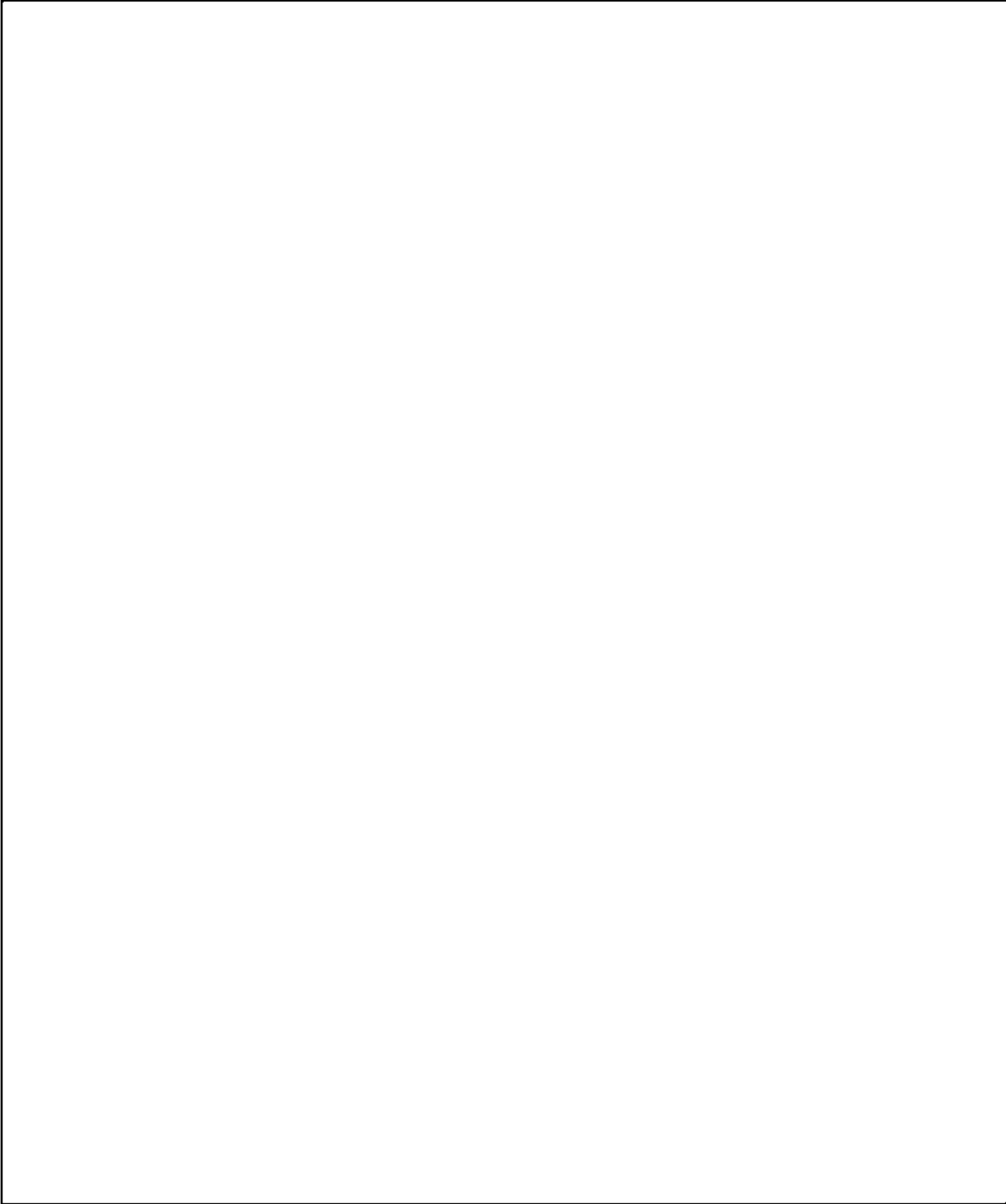
1. Ann Rept, ASAE, fy 1955, Vol II, p13.

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1. Ann Rept, ASAE, fy 1955, Vol II, pp15-16.
2. Ibid. pp10-11.

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All plain text printer chat and traffic was scanned for [redacted] personalities, identities of units, cover names, place names, and other items of interest. These were translated as fully as possible.

In January 1955, a R/P activity report was published, listing identification features of activity of the last quarter. Identification and analysis of R/P activity was of much value immediately after the January communications change in recovery of military net and area identifies for it provided indicators as to Baker Book usage and through confirmation of basic station trinomes common to Morse and R/P. Special R/P releases were published on [redacted]

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3) Type Easy Call Sign - Shortly after the [redacted] call sign change, when it was apparent that new four letter call signs were being used on a wide scale, a Type Easy call sign processing group was set up to collect traffic and prepare it for IBM listings. At first, an effort was made to follow continuity and identify users in addition to publishing call sign lists and consolidated recoveries. Then, an arrangement was made with NSA and [redacted] whereby ASA, Europe would collect, record, and publish all Type Easy calls including those from NSA, [redacted] and field sources. NSAEUR furnished support. Initial editing was performed for IBM punching, proof lists were run off and again edited, and necessary corrections were made in the master IBM deck for consolidated listing. The first list was published 4 Mar 55 and was followed by regular bi-weekly listings. Once each month a supplementary listing of calls with probable placement by page was distributed. It was compiled through an IBM "chaining run." After May 1955, only the last listing of each quarter contained all calls for all blocks while intermediate listings covered only the European area. In the same month, NSA's IBM call sign card deck was forwarded to ASA, Europe to provide a central master deck of "best calls."<sup>2</sup>

[redacted] team began the year with operational control of T/A and C/A on low and medium grade systems of [redacted] networks. Beginning in August, a major cryptographic change was initiated on all nets. The majority of the systems were high-level and were delegated to NSA. This made one of the two "John" machines at ASA, Europe unnecessary and it was transferred to US Liaison Officer (USLO) in February 1955. Operational control of T/A remained with [redacted]

1. Ann Rept, ASAE, fy 1955, Vol II, pp11-12.
2. Ibid. ppl3-15.

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ASA, Europe. Intercept was concentrated at USM 634 with 16 category "C" and two category "J" positions utilized. Material was also received from third source. Continuity was established and maintained after each call sign and frequency change.

A routine additive change in August 1955 on the [ ] network was under solution on the 23d when the collective additive book used from [ ] to all O/S became a high-level system. On 6 September, the prolific lateral traffic ceased, no explanation being found. In November, a new lateral system was introduced with extremely limited use. On 10 Jan 55, lateral traffic was resumed at its previous high volume and six messages in a medium-level system were partially read. After early February, all traffic on the [ ] network was apparently high-level.

A major cryptographic change was instituted on all [ ] systems during September-November 1954. In December, all but a few systems were designated high-level and removed from ASA, Europe responsibility. For all practical purposes there were only two or three readable low echelon [ ] systems at that time. By 4 Jun 55, the last of the [ ] low and medium-level cryptographic systems had disappeared.

T/A revealed a continued expansion of the [ ] network during the year. Numerous nets were intercepted and at the end of the report period 16 were operating. The [ ] network underwent a minor reorganization in March 1955. The main net consisting of control in [ ] was split, and two controls each with six O/S established.

At the start of the year the [ ] voice effort was conducted from Eisenstein, Germany. Poor location and results necessitated a new site, and

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on 1 May 55, a mobile site at Mahring became operational and a few days later a mobile site was established at Arzberg.<sup>1</sup>

[ ] Team

Two entities of the [ ] problem were decentralized to the [ ] team during fy 1955. As a result, ASA, Europe assumed complete control of [ ] Communications Activity COMINT Entity [ ] to include intercept and TEXTA control as well as T/A, C/A, translation, and reporting responsibilities.

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The principal C/A effort was complete exploitation of a [ ] organization identified 26 Jun 54 as the [ ] Battalion. The unit was engaged in DF on allied radio stations in West Europe, the majority of which were identified as American military stations. Five cryptographic systems and 186 keys were recovered during fy 1955. In May 1955, when units of the [ ] Army began their annual summer maneuver, a new station appeared on the net which represented a security unit attached to a military unit engaged in the maneuvers. When the new cryptosystem was broken and messages read, the targets proved to be [ ] stations.

In addition to [ ] the team produced C/A results on other services. Seven military systems were recovered by ASA, Europe, in addition to five Navy systems. In some cases ASA, Europe was credited with the initial break into systems subsequently completely recovered by NSA and [ ]

ASA, Europe also assumed full T/A responsibility for certain portions of the [ ] Nets, and the [ ] team maintained call sign, frequency, schedule and net continuity,

1. Ann Rept, ASAE, fy 1955, Vol II, pp16-18.

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daily records, and net diagrams. Processing was limited to US, 87L and [ ] intercept.

On 1 Jan 55, [ ] communications began using call signs from an unknown source; and new frequencies. Except for [ ] network structures remained unchanged. Certain individual nets were identified and continuity established, basic station trinome usage determined, and finally call signs assigned to individual books and pages. By June 1955, all call sign books were recovered. Establishment of complete military net continuity was anticipated by the end of the calendar year.

Complete saturation on the [ ] problem was stopped in January 1955 due to lack of [ ] analytic personnel and the priority of the [ ] Easy call sign change. Message preambles, together with ten gps of text and every contact, continued to be punched daily, however this did not impair the usefulness of IBM processing. T/A was performed on [ ]<sup>1</sup>

[ ] Team

The [ ] remained constant during fy 1955 in contrast to the six key changes of the previous year. Two new subordinate stations initiated operations, and two supplementary keys in use were recovered and forwarded to NSA along with numerous code values. Analysis of [ ] signatures was not successful; however, analysis of [ ] address groups proved successful with 58 gps identified, including the location of all [ ] transmitting O/S. Approximately 1200 msgs were translated and published. Military units were

1. Ann Rept, ASAE, fy 1955, Vol II, ppl8-20.

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identified where possible through [redacted] Although the air system [redacted] was practically discontinued during the year, the three messages received allowed key recovery. Work was resumed on the [redacted] control system [redacted] during the fall of 1954 and two matrices were recovered.

In October, [redacted] decryption ceased.

In December, it was replaced with a [redacted] Apparently the system was too cumbersome for it was replaced in February 1955 by a system, the text of which could be reduced to dinomes and trinomes. Accordingly, the size of each matrix was determined and the key found to change every third day. Alphabets in the matrices were recovered plus numerous code values. After the initial break-in, the temporary title [redacted] was assigned. NSA issued permanent title [redacted] effective 23 Mar 55. To facilitate decryption, matrices were arranged into four sets, and analytic personnel continued to recover true basic matrices.

Based on message context, the unidentified system [redacted] during the year. Approximately 35 keys were recovered.<sup>1</sup>

Throughout fy 1955, the [redacted] voice problem was exploited as far as facilities allowed, and became one of major importance. Originally one position at Fld Sta 8608 had the primary mission of copying the [redacted] [redacted] network, one cased net, and voice search. During the year, traffic from [redacted] was requested and more than doubled as a result. In March 1955, a voice search position was established at Fld Sta 8608 and traffic increased many times over the previous year. Totally, eight [redacted]

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1. Ann Rept, ASAE, fy 1955, Vol II, pp20-22.

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voice nets were cased. Analysis established a [ ] voice call sign book and all calls heard were listed by IBM. Special type nets, such as voice Morse, voice Morse printer, etc., received special attention. Practically all traffic on [ ] voice nets was low echelon and could be read with sufficient depth.<sup>1</sup>

Operational highlight of the year was exploitation of [ ] nets.<sup>2</sup>

Continuity was maintained on the principal [ ] military net [ ] after a call sign change in October 1954. Continuity was also established on three additional main line nets using regular main line keys and two military nets using a second set of arbitrary keys were found along with a military net using unknown keys. Continuity was also established on 16 unknown [ ] nets, 14 of which used main line keys. One of these used a call sign and frequency rota generated by the day of the month (repeated each month) which had never been observed before by ASA, Europe on the problem. Finally, continuity was maintained on the principal Navy and Air Force nets. Results included a subordinate [ ] which changed call sign usage and frequency rotas, and the issuance of TEXIN on [ ] which was intercepted sporadically for some time.

#### [ ] Team

The [ ] team maintained continuity on [ ] links throughout fy 1955. Call signs, continuity, and letter-for-number substitution codes were recovered and published. Intercept of [ ] nets was assigned to Fld Sta 8606 in January 1955 in hope of exploiting cryptographic possibilities. On 1 February, there was a re-allocation of call signs on [ ] and also some that were previously unheard. The [ ] effort was discontinued 1 Mar 55.<sup>3</sup>

1. Ann Rept, ASAE, fy 1955, Vol II, p22.
2. Ibid. p21.
3. Ibid. p22.

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During fy 1955, the ASA, Europe voice program grew from a summertime operation to a 12-month intercept program. The three [ ] sites intercepted valid low level traffic in considerable quantity. From July through October, the [ ] sites at Altefeld, Bahrdorf, and Berlin intercepted more voice traffic than in all the preceding period of voice intercept.

In September 1954, a site was located at Lubeck which proved very lucrative during the winter months. During the same month there was an attempt to DF [ ] voice transmissions in the Bahrdorf area. Small portable DF sets in  $\frac{1}{4}$  ton trucks were tested extensively, but were ineffective. AN/TRD 4 sets in  $2\frac{1}{2}$  ton trucks succeeded in taking several line bearings daily, but there were no fixes.

A school to improve transcriber proficiency was established at ASA, Europe, 15 Nov 54. The school continued until 1 Apr 55 when students were assigned to units. Twenty additional Dimafor recorders were procured in January 1955, making a total of 42. Antenna fields were rebuilt at Altefeld, Bahrdorf, and Berlin voice sites, and plans were underway to rebuild the field at Lubeck. On 1 May, the voice site at Bahrdorf reopened with [ ] [ ] positions. Results in the later part of the fiscal year indicated that Bahrdorf would again be a valuable [ ] voice source. Plans were being made to keep the site open during the winter and NSA sent a team to assist in transcription, analysis, and reporting.

By the end of the fiscal year the voice program was successfully getting

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information to the consumer on time. Daily summaries to the 502d Group and thence to consumers produced receipt of the end product within 24 hours after intercept.<sup>1</sup>

#### Machine Aids

Two complete machine aids units were available at Hq ASA, Europe throughout fy 1955. Until the end of the second quarter, one unit processed only [ ] traffic under target saturation, while the other processed all other COMINT projects. The [ ] unit produced valuable listings for analysis of frequencies, contacts, NR's, call signs, intercept control, etc. This relieved analysts of practically all editing and manual logging chores, and permitted more time to be devoted to actual analysis.

The section continued support of [ ] and DF sections. Decrypts, indites, time lags, patterns, and various preamble arrangements were provided C/A and T/A Sections.

On 1 Jan 55, full support was thrown on the [ ] Type Easy call sign change. TECSUM's were punched from all US intercept stations and [ ] and cards were received from 6910 Scty Gp. Many runs were made in an effort to regain continuity on some links. As the system began to break, a placement deck was initiated containing a block number, source, call sign, PRC, validity and users. In January 1955, the first mobile machine aids van arrived.<sup>2</sup>

#### Special Identification Techniques

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During fy 1955, the SIT Section consisted of DF, RFP, and MOA. The section supported: ASA units containing these facilities, the COMINT effort in

1. Ann Rept, ASAE, fy 1955, Vol II, pp22-24.
2. Ibid. pp26-27.

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establishing locations of enemy or potential enemy radio stations, and T/A by making identifications by matching transmitters.

During fy 1955, ASA, Europe DF activity was divided into nets organized as follows:

ASA Europe Strategic DF Net

USM 6	Control, Herzo Base
USM 8	Alternate Control, Scheyern
USM 6B	Bremen
USM 6C	Berlin
USM 8A	Memmingen
USM 45A	Sinzig
USM 45C	Malmsheim
USM 8C	Kassel (closed 5 Aug 54)

502d Group Mobile Net

USM 631	Control, Rothwesten
USM 632	Alternate Control, Bamberg
USM 631A	Lubeck
USM 631B	Kassel
USM 631C	Wassendorf
USM 632A	Schweinfurt
USM 632B	Straubing
USM 632C	Furth

502d Group Voice Net

(This net was established in May 1955 to cover units on maneuver at Letelinger-Heide training area, East Germany)

USM 602D	Control, Bahrdorf
USM 602A	Tulau
USM 602B	Bahrdorf
USM 602C	Sollingen

328th Company Mobile DF Net

Trieste	Relocated to Landshut, Germany September 1954
Graz	To close 31 Jul 55
Bad Aibling	
Weiden	

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The section received daily bearing reports from all of these and 1st

[redacted] One complete day's reports were processed each morning.

Call signs were checked, BST added where needed, and uncased missions checked to determine if they were part of the target areas. Bearings were extracted and recorded on a plotting form. The reports were then sent to the IBM section. When sufficient bearings were accumulated on a target it was plotted by the split "T" method and results disseminated. A plotting folder of each was maintained containing net diagrams, letter designations of unit, geographical coordinates, RFP matches, and graph paper with each station or BST of the net superimposed by the split "T" method. By November 1954, all sites were equipped with DF set AN/TRD-4.<sup>1</sup>

#### Traffic Control

Throughout fy 1955, this section was responsible for balanced mission assignment. Accordingly, special reports were studied to obtain maximum effective coverage. The most significant change in mission occurred in mid-September, when the intercept assignment of the 334th Company was amended to inject [redacted] search into Category "C" positions assigned [redacted] missions. On 14 Mar 55, Fld Sta 8606's RFP mission was amended to revise tip-off responsibility.<sup>2</sup>

#### Special Analysis

During the year, special analysis was performed on [redacted] intercept collected by a G2, USAREUR agency. Collection sources for this intercept comprised:

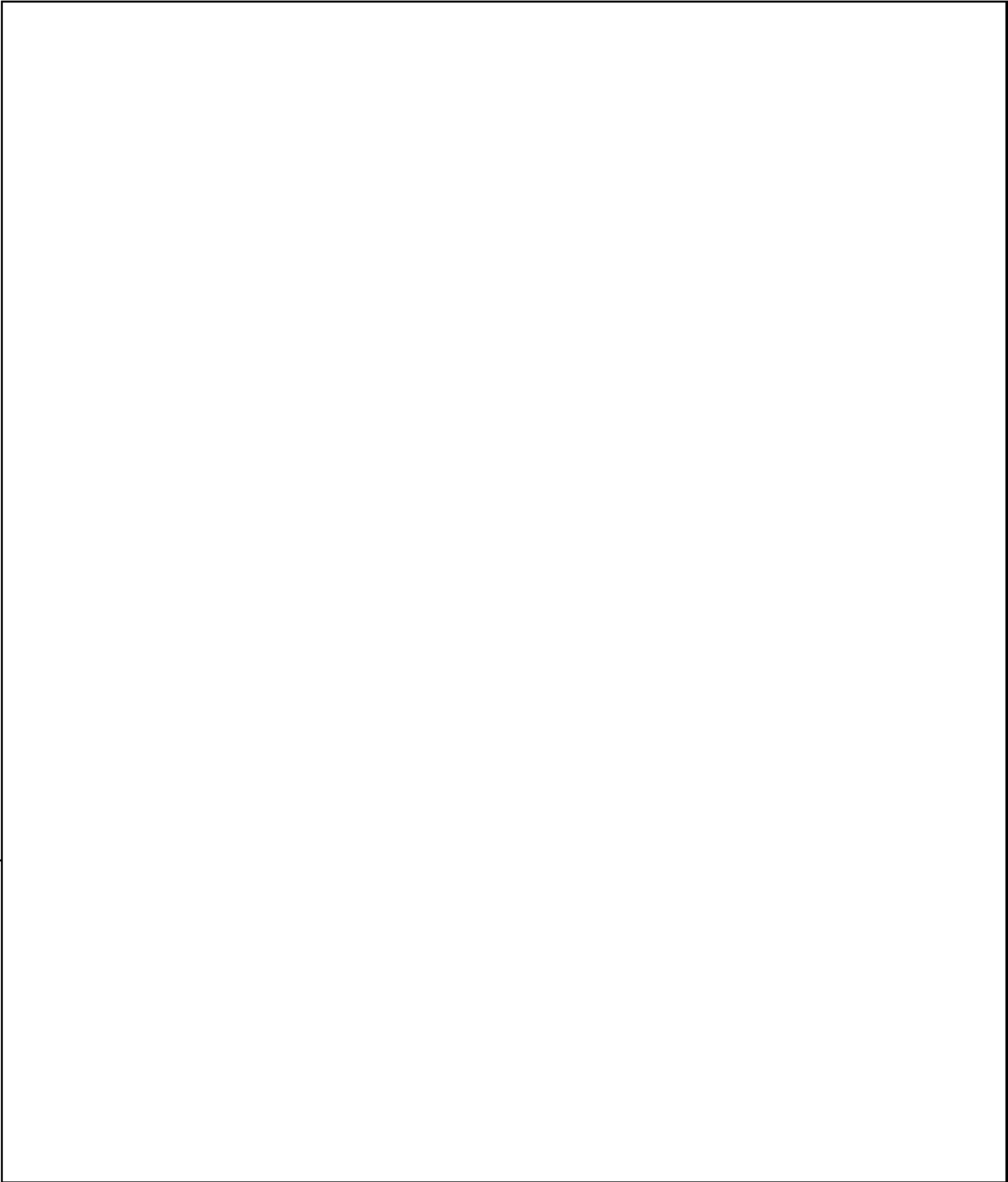
1. Ann Rept, ASAE, fy 1955, Vol II, pp28-31.
2. Ibid. pp32-33.

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1. Ann Rept, ASAE, fy 1955, Vol II, pp38-40.

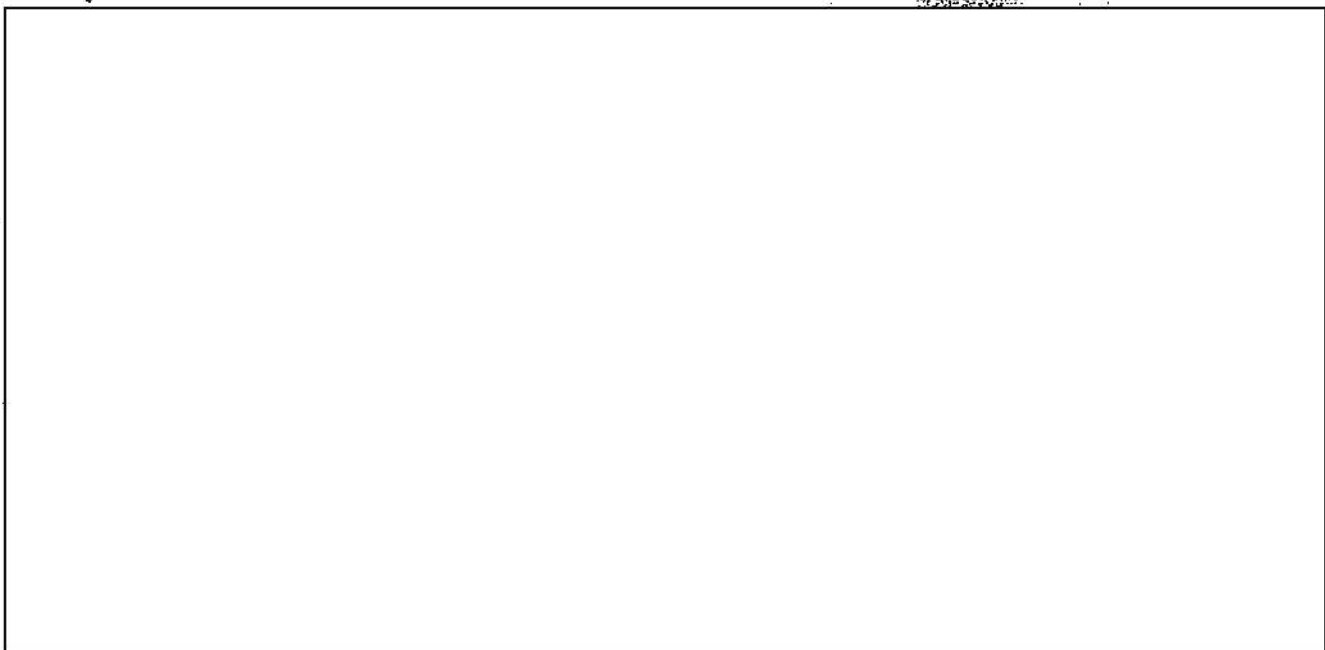
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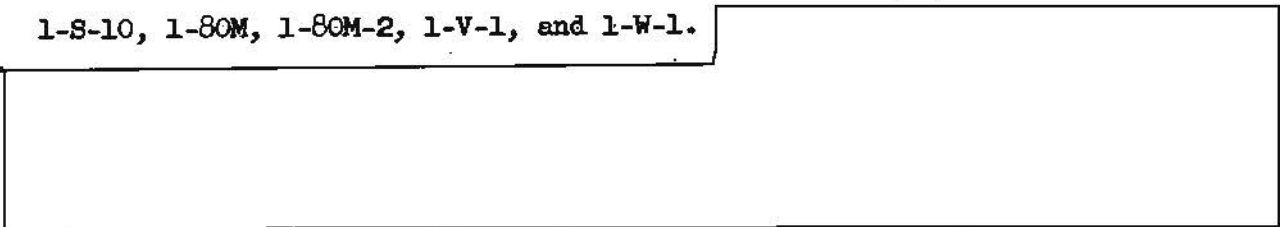
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TICOM

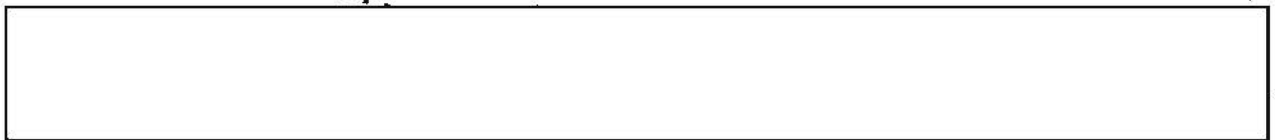
On 1 Oct 54, the TICOM team was transferred to the Intelligence Branch. As of 25 Apr 55 the team became known as TAREX and commenced operation in accordance with a TAREX SOP. Regular sources contacted during the year were: 1-B-1, 1-D-1, 1-E-1, 1-G-10, 1-80M-1, 1-H-1, 1-K-1, 1-P-1, 1-P-2, 1-P-3, 1-S-10, 1-80M, 1-80M-2, 1-V-1, and 1-W-1.

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In October 1954, both 1-80M-1 and 1-80M-2 were established. The former was of no value and was dismissed effective 30 Jun 55. ASA, Europe also distributed to USAREUR intelligence agencies requirements concerning defectors.



1. Ann Rept, ASAE, fy 1955, Vol II, pp44-45.

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[REDACTED]

Much valuable information was obtained about it. Sources dropped during the first six months of 1955 were: 1-80M-1, 1-E-1, and 1-D-1.<sup>1</sup>

### Research

The Research Section or Spectrum Search Team, was organized to search the frequency spectrum above 30 mcs for unusual or new type signals, making "in-the-field-analysis" of signals found.

In July 1954, the team was located in the Grunewald area of Berlin covering a frequency range from 25 to 12,100 mcs. Few results were obtained above 1000 mcs. Priorities assigned were: One, 1000-1750 mcs; Two, 500-1000 mcs; and Three, 50-250 mcs. During August, extensive search in the frequency range 1100-1600 mcs gave negative results, but a lack of testing equipment made the sensitivity of receivers doubtful. In September, a very weak signal was intercepted at 1290 mcs and on 10 Nov 54 the first recording was made. Strength of the multi-channel decimeter signal was insufficient to operate the equipment.

On 20 November, the team began operations at Templehof on a 90-day trial. Reception was better at the new position. On 1 Jan 55, signals were observed on 1115 and 1240 mcs, but were too weak to record or analyze. Additional equipment was planned for, in order to develop signals at the new location. Operations were discontinued 3-17 January while equipment was realigned and overhauled.

The team was instructed to record 1290 mcs signals beginning 11 January. Extensive search and sampling of other signals continued. New equipment was

1. Ann Rept, ASAE, fy 1955, Vol II, pp40-41.

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received in February including two 10 ft parabolic dishes, the AFSAV D-90, APO-9 RCA Voltmeter, and a five-inch oscilloscope. As a result, signal strength was doubled.

On 15 April, the mission was changed. 1290 mcs continued to be recorded, and 1480 mcs was scheduled for recording. When the Templehof transmitter was down, attention was paid to 1330 mcs as a possible carrier, and search on 30-300 mcs was to have the same priority as frequency range 1000-1750 mcs, with any unusual signal conditions or activity noted. The newly installed Clarke Receiver and a horizontally polarized TV antenna searched frequency range 5-250 mcs, concentrating on multi-channel type signals. A mobile run was also made. Recordings of demodulated voice and engineer channels of 1290 mcs were then prepared. Reported signals from 30-300 mcs were recorded once a week except for 52 and 585 mcs which were given special treatment.

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... Of interest was the intercept of two signals on 1200 and 1399 mcs by an [redacted] However, a section representative, sent to [redacted] failed to pick up the signal again.

By the end of the year it was felt that sufficient information had been collected on [redacted] signals above 1000 mcs and enough equipment had been designed to begin production. Equipment layout was rearranged to give maximum space for a "PROD" operation and a patch panel was installed so equipment could be easily inter-connected for demonstrations.<sup>1</sup>

#### Reports

This section was established 1 Nov 54. After a month of organizational

1. Ann Rept, ASAE, fy 1955, Vol II, pp46-51.

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work, weekly briefings were initiated. Routine processing of technical reports and documents was carried out. During the first month of 1955, the branch began establishing consumer requirements for COMINT end-products. The filing system was revised and microfilming undertaken. A reading file of COMINT and collateral material was instituted. During the report period, 199 reports were published; 8628 COMINT and 1911 collateral documents processed.<sup>1</sup> REF: VOL. I P. 165

2. Hq ASA, Austria, Salzburg, Austria

Throughout fy 1955, the operational mission of ASA, Austria included control, processing, and reporting COMINT on the   
 military and para-military targets.<sup>2</sup>

Accordingly, analytical processing of raw and semi-processed material received from collection units was performed as well as a major COMINT reporting effort from the European theater on these targets. Further, the collection effort of the 328th Company and Detachment K, Fld Sta 8608 was controlled, supervised, and coordinated with other ASA, Europe collection units. No special missions were assigned. Operational facilities of ASA, Austria remained at Salzburg until 25 Jun 55, at which time they were moved to Bad Aibling, Germany.

To provide an organization capable of fulfilling the mission, the Operations Division was divided into four separate branches ("A," "B," "C," "D") and a message center.<sup>3</sup> Responsibility for intercept control and general

1. Ann Rept, ASAE, fy 1955, Vol II, pp42-43.

2. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl.

3. Ibid. p2.

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administration was delegated to "A" Branch; "B" Branch was charged with the analytical and reporting effort on the [ ] problems; and "D" Branch was delegated DF evaluation and reporting responsibility on all targets assigned. The entire operational set-up worked eight hours, seven days a week.<sup>1</sup>

A large turnover of personnel necessitated implementation of formalized training to supplement that provided on the job. Included was a course in COMINT reporting which commenced during the first part of February 1955. As a follow-up, classes were conducted implementing techniques stressed in the course. In June 1955, classes in traffic analysis and a course in basic cryptanalytic features with which a traffic analyst should be familiar were given by the Chief, Operations Division, NSAEUR.<sup>2</sup>

In order to provide COMINT consumers and technical agencies with a timely product, intelligence and technical items produced by analytical personnel were published and released in reports, bulletins, special releases, and weekly notes.<sup>3</sup> In support of technical agencies, weekly technical notes, technical support letters, cables, and other pertinent information were produced on each mission assigned.<sup>4</sup>

In support of tactical consumers, special releases, COMINT reports, and translations were published as events occurred. Continued increase in the use of cable facilities for the exchange of technical data produced good coordination between all headquarters and units working on missions under study.<sup>5</sup>

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p2.
2. Ibid. p3.
3. Ibid. p4.
4. Ibid. p5.
5. Ibid. p5.

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One new innovation in the processing of TEXTA occurred in July 1954 at which time the first TEXIN cable was dispatched. This replaced old and faulty "suggested TEXTA" cables. The new procedure was initiated by NSA and greatly facilitated handling and dissemination of TEXTA information.<sup>1</sup>

Technical and tactical agencies supported by ASA, Austria during fy 1955 included:

Technical

Hq ASA, Washington  
 NSA, Washington  
 NSA, Europe (NSAEUR)  
 General Communications Hq (GCHQ)  
 6910 Scty Gp (USAFSS)  
 12th Wireless Sq (BTA)  
 6950 Scty Gp  
 502d Comm Recon Gp

Tactical

CG, USFA  
 CinC, EUCOM  
 CinC, USAREUR  
 CinC, USAFE  
 CG, Seventh Army  
 CG, 12th AF

Intelligence reports were made directly to the CG, USFA, and other tactical consumers in the European theater, through Special Security Officer channels.<sup>2</sup> COMINT reports, plus all types of technical support on target countries, were forwarded to US and British COMINT agencies through COMINT channels.<sup>3</sup>

During the report period, a voice detachment (Det G) was re-established on the border of the US-Russian Zones of Southern Germany in the area just north of Passau, Germany. The site again proved desirable for voice intercept on [ ] targets. However, the detachment was forced to return to Bad Aibling in November 1954 because of difficulty in providing support during the winter months. On 1 Aug 54, a voice position covering [ ] Military

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p10.
2. Ibid. pp6, 8.
3. Ibid. p8.

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targets located at Wels, Austria returned to Bad Aibling. One  voice position was maintained throughout the year at Vienna.<sup>1</sup>

Another test conducted during August 1954 was one at Bad Aibling on  targets covered by the 328th Company. The area was tested in an effort to determine whether or not the site was favorable with a view towards centralizing intercept sites under control of ASA, Austria. Results proved that although targets could be covered at Bad Aibling, the area would not produce the quality or quantity of intercept available at Wels, Austria.<sup>2</sup>

On 7 Oct 54, the political situation (withdrawal of all US Troops) forced the DF site at Trieste (Det D) to return to its parent organization, considerably reducing the length of the DF baseline.<sup>3</sup> On 10 December, this detachment was relocated at Landshut, Germany, a location utilized by the 328th Company in 1953. Although this location did not increase the length of the baseline, it provided the back-up essential to keeping sites operational at Bad Aibling, Germany (Det B), Weiden, Germany (Det C), Landshut, Germany (Det D), and net control at Bad Aibling.

Most reporting on the  problems dealt with COMINT evidence of field training of a routine nature, involving elements of regiments or battalions conducting firing exercises in the Doellersheim area of Austria. Instead of reporting all activity by electrical means in special releases, it was decided that recapitulations of communications activities within those organizations would be published as a weekly COMINT report.

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p6.
2. Ibid. p8.
3. Ibid. p6.

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Special releases were continued as the means of reporting initial appearance of field training of major units and other intelligence highlights.<sup>1</sup>

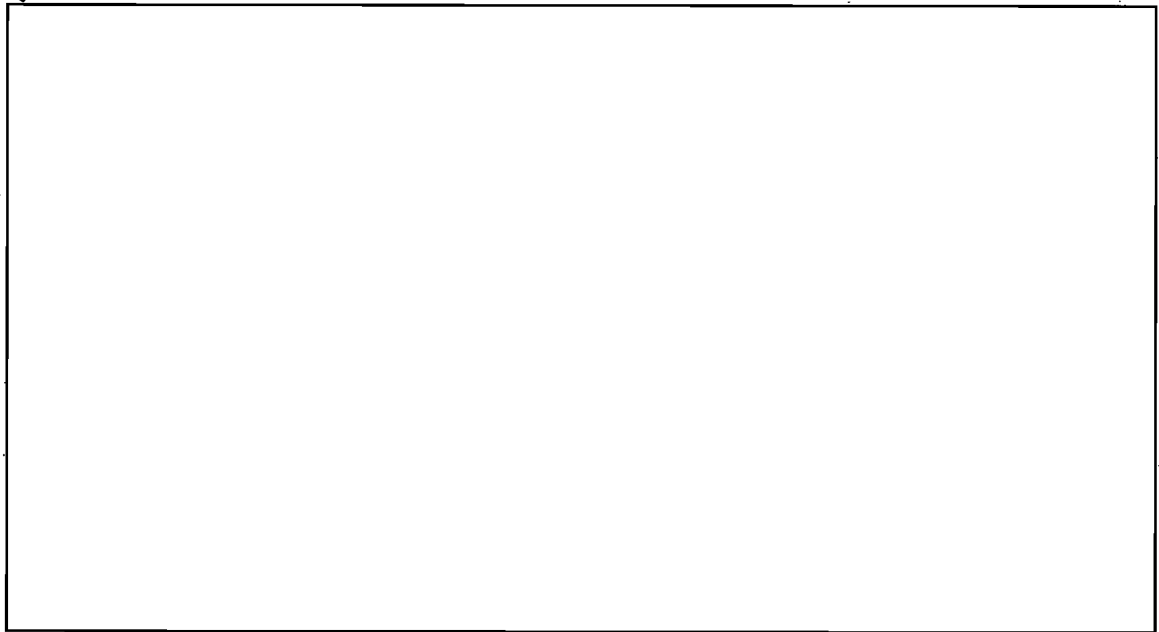
One proposal introduced during the year involved movement of the headquarters Collateral Section from the S3 Section to the Operations Division where it would be able to better maintain classified OB covering

[redacted] Forces

as well as a current Radar OB of the [redacted] Zone of Austria.<sup>2</sup> Following

the move, a much closer relationship between operational branches in disseminating current collateral information to analytical personnel was noted.<sup>3</sup>

Fy 1955 operational highlights on principal targets or techniques follow:



Net procedure was similar to that employed in previous years with most predictions holding true. Normal book sequence was followed.

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p7.
2. Ibid. p7.
3. Ibid. p8.
4. Ibid. p10.
5. Ibid. p11.

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throughout the year, and, although two basic station changes occurred during the latter six months, continuity was maintained on nearly every identified radio group. On 20 Oct 54, a new format for the transmission of valid air warning messages was introduced on the [redacted] net to provide greater security, as well as to expedite the flow of [redacted] traffic.<sup>1</sup>

The anticipated call sign change of 1 Jan 55 did not occur until 4 January. Call signs of 31 December were utilized until the change of call sign books, keys, and basic stations was effected.<sup>2</sup> New Type Easy call signs from Block 1017 were used sporadically throughout the month of January along with call signs from Baker Book 11. After the call sign change, radio nets serving the 2d [redacted] were not identified until after a call sign change on 1 April. A distinct departure from normal procedure occurred when this group selected its call signs from Baker Book 14 used by other [redacted] radio groups.

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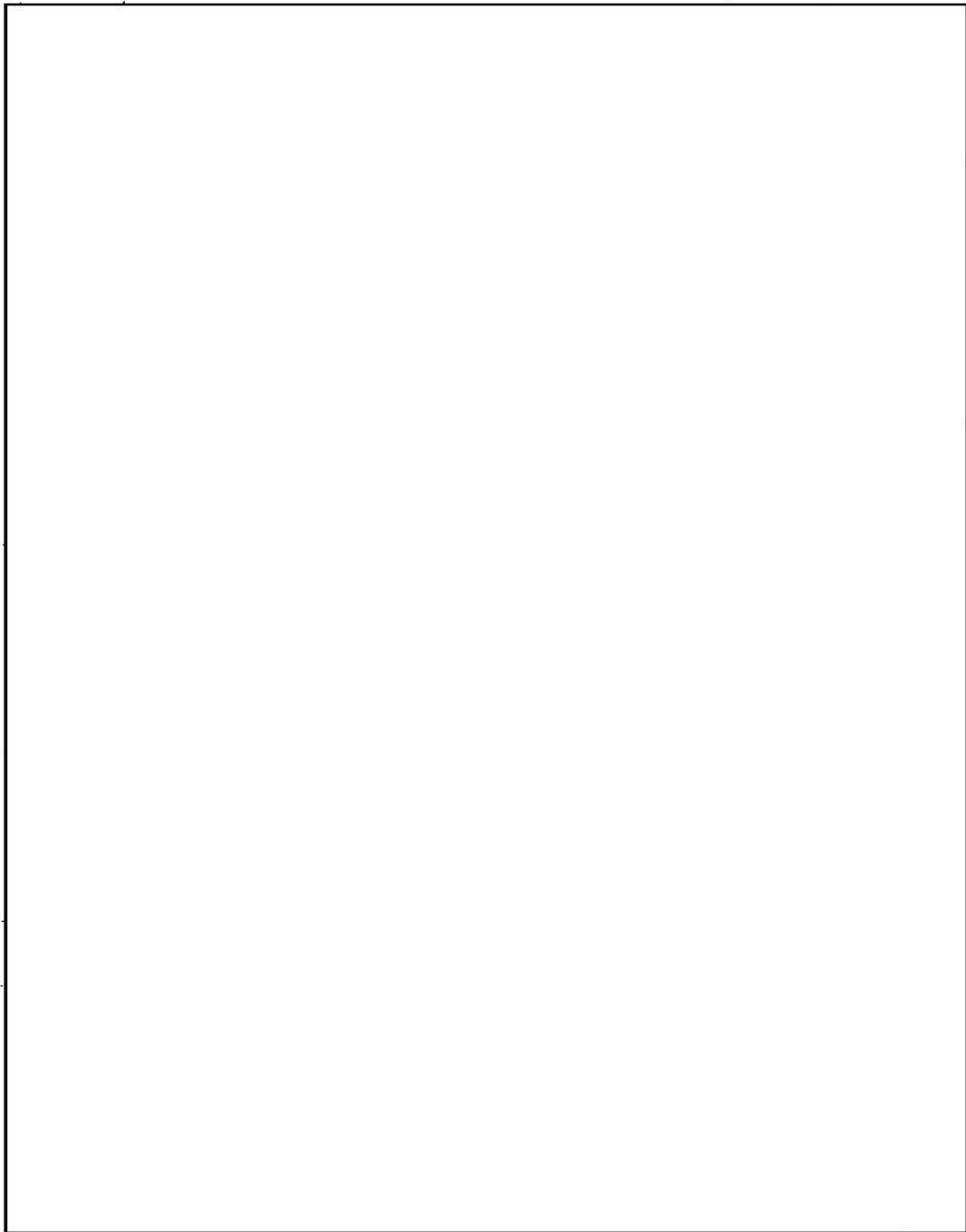
1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl1.
2. Ibid. pl1.
3. Ibid. pl2.
4. Ibid. pl2.
5. Ibid. pl3.

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1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl3.
2. Ibid. pl3.
3. Ibid. pl4.

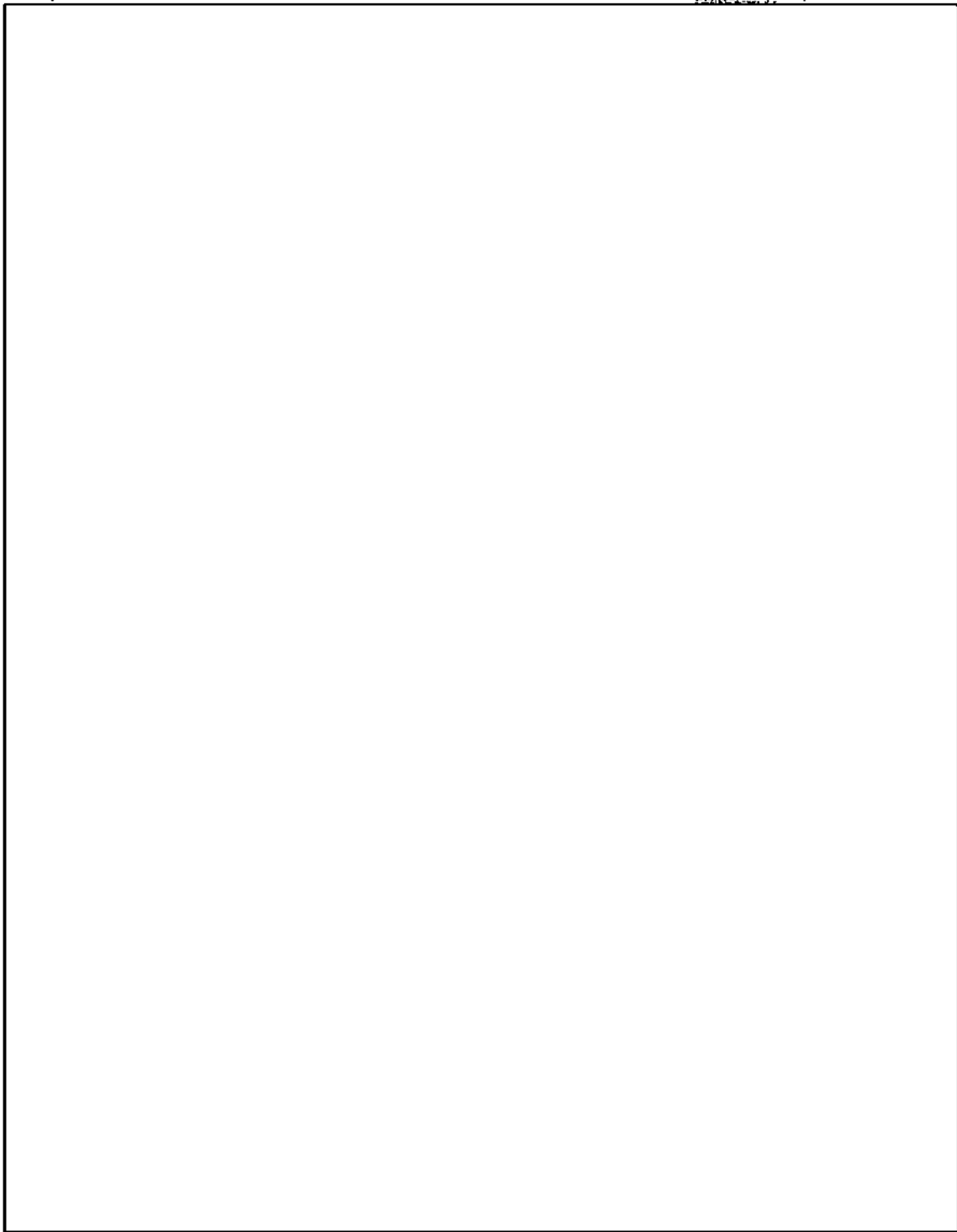
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1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl4.
2. Ibid. pl4.
3. Ibid. pl5.
4. Ibid. pl5.

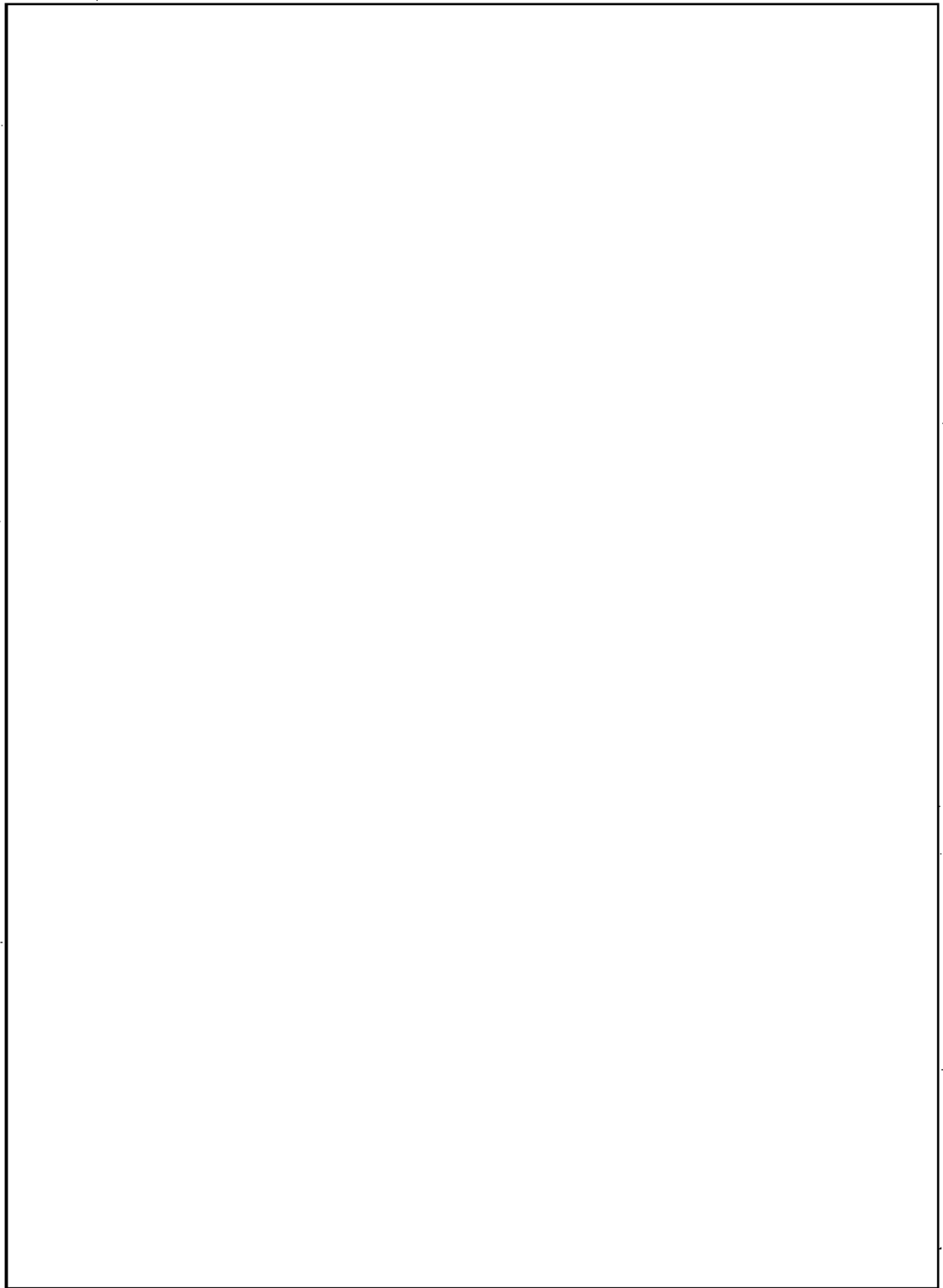
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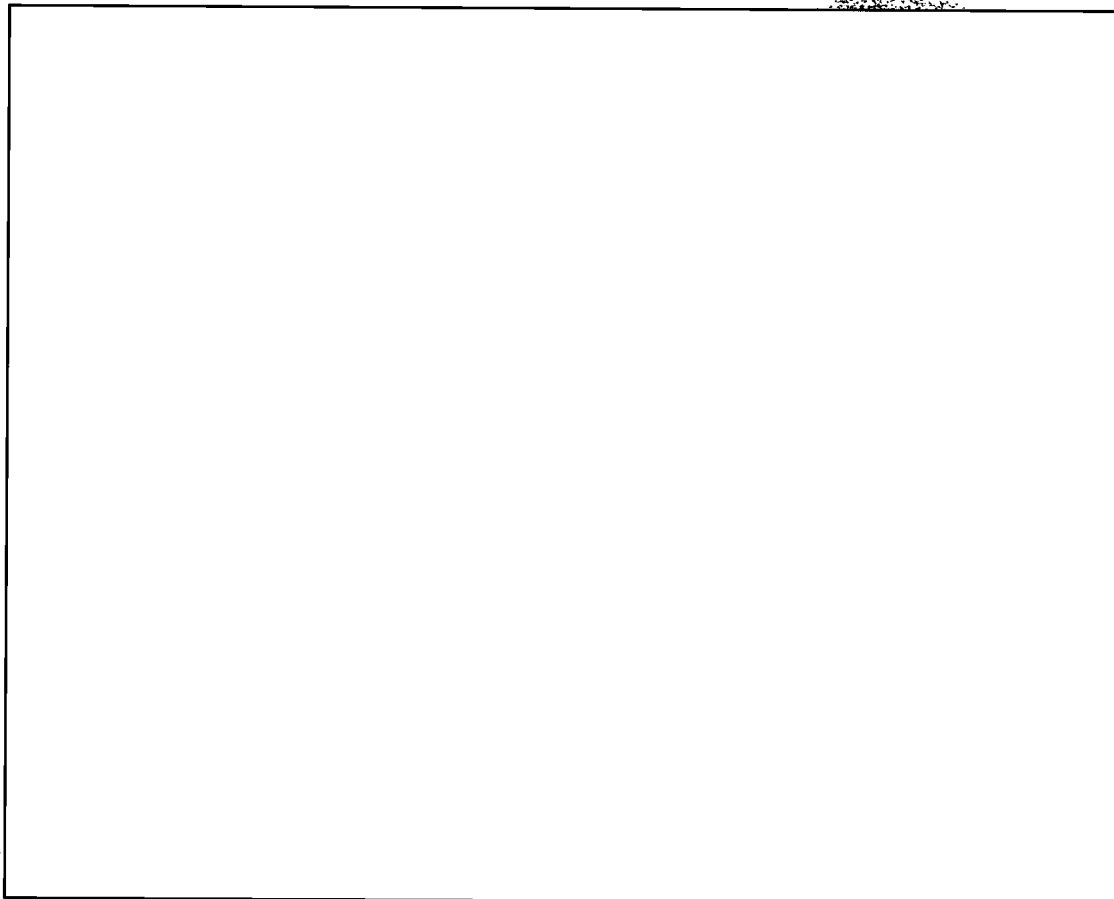
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1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl6.
2. Ibid. pl6.
3. Ibid. pl7.
4. Ibid. pl7.

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The voice problem at ASA, Austria showed considerable improvement during the first half of fy 1955. This was manifested in both the amount of traffic intercepted and the quality of the transmissions. Quite a few voice nets were identified and equated with their Morse counterparts through references to voice operation and some military traffic was identified through terminology.<sup>3</sup> No definite method of call word derivation was discovered, although it was fairly certain that a pattern type of selection, rather than by the use of a basic station trinome, was being employed most of the time.

During the second half of fy 1955, the amount and quality of radiotelephone traffic intercepted continued to be high, and many nets continued to be identified by methods similar to those used during the first half of the fiscal year. A large amount of tactical activity reflecting low echelon military training was intercepted, although none of the nets on which this traffic occurred could be identified. It was tentatively established that call words for certain other nets were derived according to definite patterns of selection. On some nets, it was noted that call words were possibly

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, pl8.
2. Ibid. pl8.
3. Ibid. pl9.

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selected according to five-day repeat patterns, while on other nets call words were possibly selected according to monthly repeat patterns. On one net it was noted that some call words repeated on dates which formed the same date patterns used in the Morse frequency rota of the group.<sup>1</sup>

Cryptanalysis

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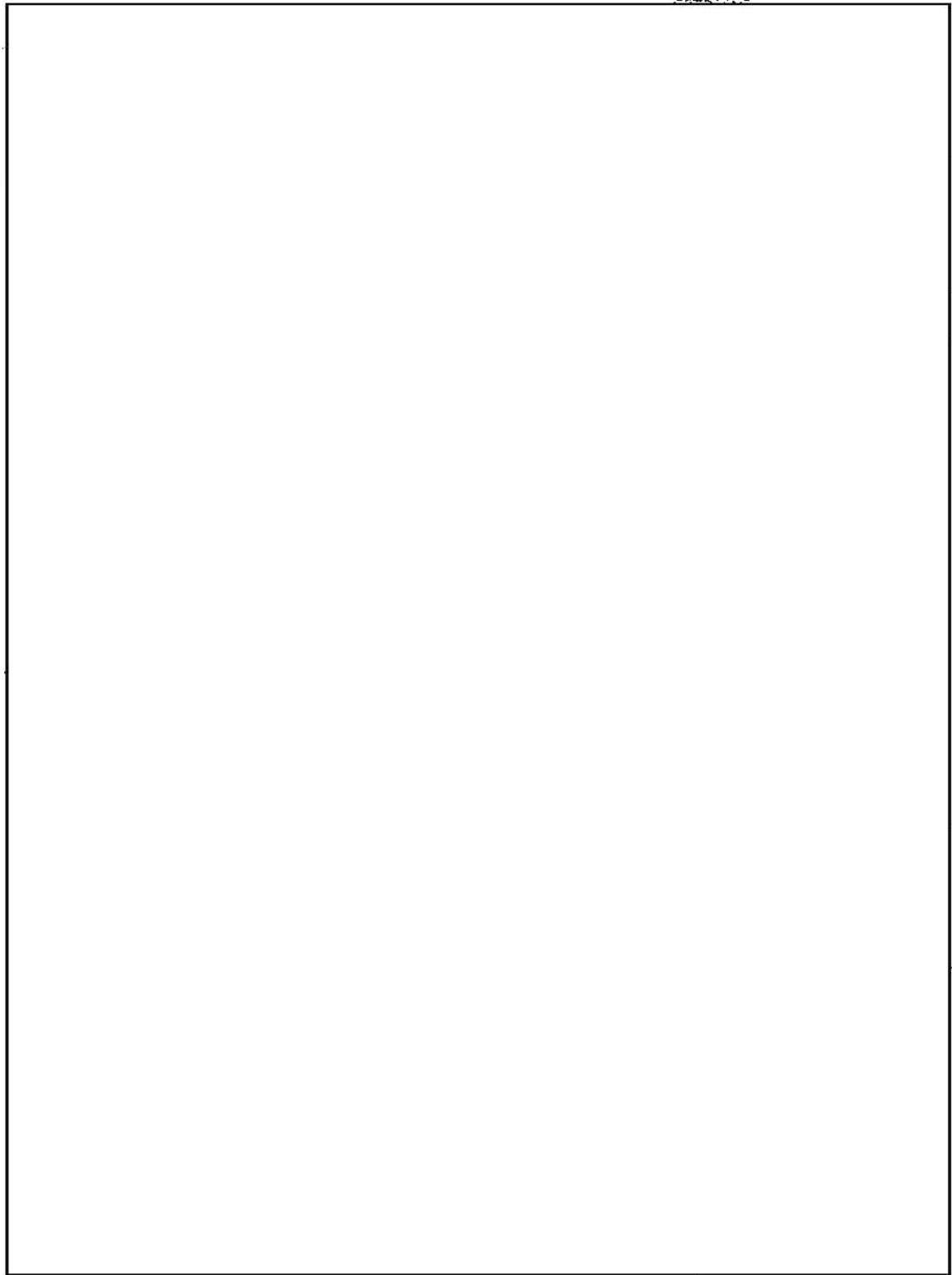
1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p19.
2. Ibid. p20.
3. Ibid. p20.
4. Ibid. p21.

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1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p21.
2. Ibid. p22.
3. Ibid. p22.

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The cryptanalytic effort during the fiscal year was divided between production and research, with special emphasis on the latter. Small groups of analysts were concentrated on particular cryptosystems, with the result that they became quite expert in individual handling of their problems.



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1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p23.
2. Ibid. p23.
3. Ibid. p26.
4. Ibid. p26.
5. Ibid. p26.

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Direction Finding

DF plotting and evaluation remained under the direct supervision of the OIC, "A" Branch, throughout fy 1955. Accordingly, responsibility existed for evaluating and reporting all bearings reported by 328th Company mobile DF net and also the reporting on a monthly basis to higher headquarters the productivity of each site within the net. Throughout the report period, "D" Branch relied on the 328th Company mobile DF net and on the ASA, Europe fixed net for all bearings, which were received on a daily basis.<sup>1</sup> They were then averaged and plotted every five days on work sheets until the end of the month when all bearings for the month were averaged.<sup>2</sup>

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- 3. 502d Communications Reconnaissance Group, Heilbronn, Germany

Throughout fy 1955, the primary mission of the 502d Group was full responsibility for the [redacted] Intercept and reporting on [redacted] was given to the group on 1 Jul 54 and this decentralization required modification of previous procedures to include seven days a week operation, daily traffic analysis summaries, and a monthly net activity report. Analytical sections of subordinate units increased to a 14-hour day schedule. The group also continued to have responsibility for reporting on the [redacted] problem, although this was altered during the year.<sup>3</sup>

Group headquarters operations organization was not materially modified to meet the new mission. Similarly, it was not necessary to change operational functions of subordinate intercept units.<sup>4</sup> Two major sections--Analysis and Control--continued to report directly to the operations officer, and all concomitant duties were distributed to these sections.

1. Ann Rept, ASA Austria, 8618 DU, fy 1955, Vol II, p27.  
 2. Ibid. p27.  
 3. Ann Rept, 502d CRG, fy 1955, Vol II, p6.  
 4. Ibid. p7.

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The Analysis Section contained a traffic analysis and cryptanalysis subsection for each  mission. The Control Section provided for the editing of technical reports, the handling of TOP SECRET control for the entire headquarters, and the publication of reports.

Small analytical groups continued to be responsible for the final analysis on all target armies and raw material was channeled directly to them. Raw material usually consisted of manual Morse, which continued to provide the major amount of intelligence, radio printer, DF, radio fingerprinter, transportation information, and radiotelephone intercept. A fusion section later evolved from the transportation section to amalgamate results from the analytical groups, and to augment reports with whatever collateral information was available.<sup>1</sup>

The Control Section was broken down into four subsections to cover mission assignment, TEXTA, mission evaluation and DF plotting. When a mobile machine aids unit was assigned to group in January 1955, it became another control subsection. Intercept was accomplished, as in previous years, by subordinate units.<sup>2</sup>

Throughout fy 1955, the Control Section assumed the responsibility of obtaining whatever intercept might be needed by the Analytical Section to produce finished COMINT. This was accomplished chiefly by the shifting of emphasis on different aspects of the intercept assignment. Technical advice and assistance, however, were major factors utilized in the attainment of the intercept desired.

1. Ann Rept, 502d CRG, fy 1955, Vol II, p6.
2. Ibid. p7.

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Intercept control was exercised for [ ] and to a certain extent for the [ ] problem. This control consisted of mission assignments and evaluation of results in the fields of manual Morse, radiotelephone, DF, and radio fingerprinting. The manual Morse mission of the [ ] problem was a joint effort between group and NSA after 12 Oct 54, and the [ ] radio printer intercept assignment was also a joint effort. There was no radio printer intercept problem for the [ ] [ ]<sup>1</sup>

Mission assignment and performance of subordinate intercept units were evaluated on the premise that the three primary functions of the COMINT companies were intercept, close intercept-analytical support of group, and rapid reporting of results based upon primary analysis.<sup>2</sup> The Control Section also conducted a continuing evaluation and adjustment of its own assignments, especially in manual Morse and DF. The Control Section supervised the shifting of mission coverage between subordinate intercept units during the necessary moves to insure continuity. Close intercept support to subordinate units was provided by timely forwarding of TEXIN and TEXTA material. Staff supervision of the Group's DF effort was exercised, and strategic plotting was accomplished under the supervision of the Control Section. DF results and accuracy were evaluated, and adjustments were made on a continuing basis. The proper forwarding of all types of raw material and reports was supervised by the Control Section.<sup>3</sup> The utilization of the

1. Ann Rept, 502d CRG, fy 1955, Vol II, p71.
2. Ibid. p71.
3. Ibid. p72.

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Machine Aids Subsection at Group headquarters was supervised by the section after that unit was installed in January.

In Most cases, the shifting of target emphasis was accomplished upon the recommendation of the Analytical Section with which the Control Section maintained very close liaison at all levels.<sup>1</sup> Group headquarters changed intercept assignment designators 22 Jan 55. Although this did not affect the method of coverage or efficiency, it contributed to uniformity of assignment methods within the various intercept units and services.

DF and RFP mission assignments were adjusted constantly on the basis of changing analytical requirements.<sup>2</sup>

The fiscal year began with two developments which enabled group control to provide much better intercept than before.<sup>3</sup> First, the group was authorized to issue TEXIN's to subordinate units and other headquarters interested in the  problem. This enabled the Control Section to feed back to intercept operators, without delay, changes in individual target net operating characteristics upon obtaining three days of continuity by analysis of all intercept sources.<sup>4</sup>

The second feature was the delegation of authority to the Control Section to assign temporary case notations. This authority facilitated the assignment of notations without delay on new nets where continuity had been obtained from all intercept sources. Sufficient important exercise nets were recovered by this method to classify the process an invaluable stride forward.

1. Ann Rept, 502d CRG, fy 1955, Vol II, p72.
2. Ibid. p73.
3. Ibid. p75.
4. Ibid. p75.

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[redacted] assumed the responsibility for issuing [redacted] TEXTA.<sup>1</sup> This was further delegated to the [redacted] with which the group maintained direct on-line cryptographic circuit. Permanent notations were forwarded expeditiously by teletypewriter to group headquarters.<sup>2</sup> Despite the best efforts of the [redacted] there was always a time lag in the issuance of permanent notations, but this drawback was nullified by group prerogative to issue TEXIN's and temporary case notations, which could be placed on assignment immediately.

A CHAD tape was cut in the group CommCen for all permanent TEXTA received from the [redacted]. All incoming TEXTA was screened by the Control Section, and only those cases using current [redacted] books forwarded to subordinate units.<sup>3</sup>

Group continued to furnish a liaison officer to G2, Seventh Army throughout fy 1955. Accomplishment of a thorough liaison mission greatly improved relations with Army and enabled the group to receive better logistic support. As usual, group continued to furnish Army with a very high percentage of its most timely and reliable information. In turn, G2, Seventh Army made available the latest collateral intelligence, thus enabling group to produce more complete intelligence reports by virtue of a more intimate knowledge of target units.

In previous years, the liaison officer to the [redacted]

1. Ann Rept, 502d CRG, fy 1955, Vol II, p76.
2. Ibid. p76.
3. Ibid. p77.

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was furnished by Hq ASA, Europe. For most of fy 1955, the liaison officer was furnished by group because the two headquarters represented similar command levels and tasks were parallel. Working relations between the two continued to improve and a definite increase in the amount and quality of primary technical information produced was noted.<sup>1</sup>

End products of intercept companies were passed by both electrical means and courier service to group. Material with up to SECRET classification was carried by a daily, armed courier to group. Material of higher classification was carried by officer-courier weekly, or more often, if necessary. Exchange of technical information with other units was controlled by the group.<sup>2</sup> As fy 1955 ended, a new plan evolved to use three processing and reporting centers for information to non-technical consumers. The 302d Battalion was to assume responsibility for the [redacted] armies, while the 307th Battalion was to report on the [redacted] armies and the voice intercept effort. Group headquarters was to maintain responsibility for reporting on the [redacted] nets, for reports to all technical consumers and for "wrap-up" reports on all [redacted] activity.<sup>3</sup>

#### COMINT Alerts

Fy 1955 had scarcely begun when group experienced a series of COMINT alerts. The first alert was called 9-11 Jul 54, when condition YOKE was declared by NSA in conjunction with AF Exercise CHECKPOINT. This provided a test for newly published NSA Cir 53-2.<sup>4</sup> More important, however, it indicated

1. Ann Rept, 502d CRG, fy 1955, Vol II, p80.
2. Ibid. p80.
3. Ibid. p83.
4. Ibid. p65.

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a serious weakness in not receiving reports from subordinate units early enough to comply with the reporting schedule established. A large part of this weakness was frequent CommCen equipment failures occurring at the most crucial times. This situation improved with time, but was never satisfactorily remedied.

A condition ABLE alert was called by the Chief, ASA, Europe on 27 Aug 54, but was terminated the following day. A third alert was declared on 1 October by NSA, but it was terminated the following day.<sup>1</sup> The Chief, ASA, Europe called a condition BAKER alert on 1 Jan 55, when it became apparent that the [ ] a communications change of undetermined scope. NSA revoked the alert later in the day, but replaced it with situation [ ]

The next expected crisis never came. In anticipation of a major call sign change on 31 March, procedures were established by group to report the extent and nature of the expected quarterly book or block change.

Emergency procedures were established on 16 Jun 55, for subordinate units to report immediately any communications reflections of possible unusual activity on the anniversary of the 17 Jun 53 Berlin riots, but no riots occurred. Later, in anticipation of the usual quarterly call sign change on 30 June, subordinate units were directed to report no later than 2200Z, one hour after the normal change.<sup>2</sup>

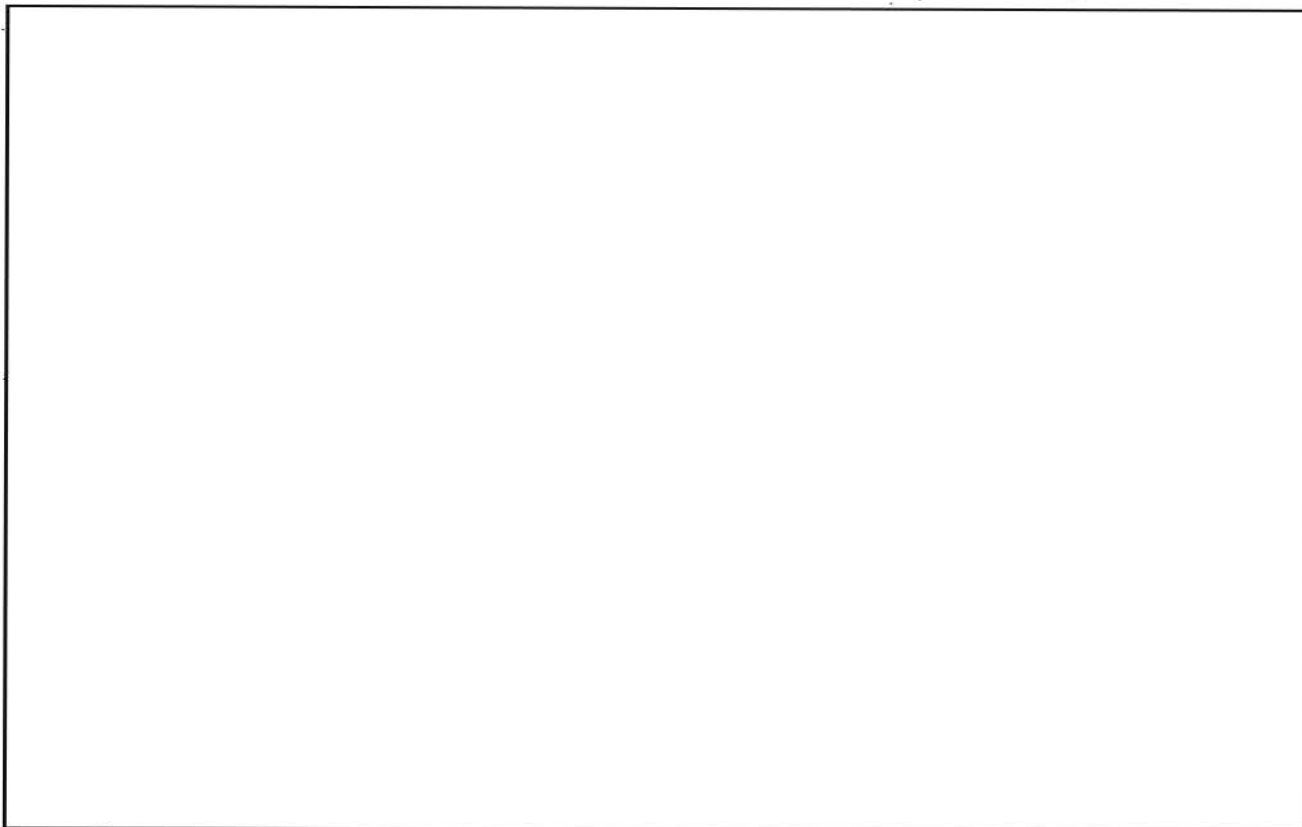
Operational highlights of the 502d Group during fy 1955 follow:

[ ] CW Intercept

In general, the 331st Company was responsible for intercept of the [ ] armies and [ ] nets because of their northern

1. Ann Rept, 502d CRG, fy 1955, Vol II, p66.
2. Ibid. p67.

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In the latter part of January 1955, the CW mission was modified to reflect changes created by the introduction of the new [ ] call sign systems. The new mission consisted of 18 CW positions intercepting [ ] traffic. The positions were broken down into three full coverage positions copying [ ] Army nets, two priority POROCO's copying [ ] Army command nets, one priority POROCO copying [ ] Army nets, and ten search positions. The large number of search positions was required due to the lack of continuity on many previously identified nets.<sup>4</sup>

[ ] nets were dropped from the mission in May 1955. These were redesignated as [ ] air nets due to call sign usage and intercept

1. Ann Rept, 502d CRG, fy 1955, Vol II, p7.
2. Ibid. p8.
3. Ibid. p8.
4. Ibid. p9.

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responsibility was transferred to the USAF.<sup>1</sup> This released several positions for additional [ ] intercept, and a major shift in the mission assignment was effected 1 Jun 55. The new mission included heavy emphasis on the [ ] Armies and remained in effect until the end of the fiscal year.

Plans were made early in the spring for the reorganization of the group on 25 June under TOE 32-55, -56, and -57. It was planned to continue substantially the same intercept responsibilities by subordinate battalions, but to have two companies with intercept responsibilities in each battalion, each company covering ten positions and located together under a unified control, supported by a battalion analytical section collocated with the intercept effort.<sup>2</sup> Accordingly, the 302d Battalion was instructed on 23 June to begin personnel transfers to make Company "A" operable and to stabilize the 332d Company which was later to be transferred to the jurisdiction of the 312th Battalion.

A major improvement expected from the reorganization was the tightening of command responsibility, resulting from battalion support and supervision of the intercept entity.<sup>3</sup> It was found from experience that direct communication from group headquarters to the intercept unit sometimes resulted in the battalion commander's elimination from the chain of command and supervision, especially when battalion headquarters was located at some distance from the intercept unit. It was expected that this organizational fault would be eliminated by the collocation of battalion with the company and

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1. Ann Rept, 502d CRG, fy 1955, Vol II, p9.
  2. Ibid. pll.
  3. Ibid. pll.

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operation of the CommCen by battalion headquarters, rather than the intercept company.<sup>1</sup>

           CW Traffic Analysis

Throughout fy 1955, analytical sections of subordinate units worked in close liaison with intercept operators and sent their results to the Analysis Section at group headquarters.<sup>2</sup> This section underwent reorganization during the year as a result of NSA's decentralization program and resulted in the following changes:<sup>3</sup>

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- 1) Creation of a search subsection.
- 2) Curtailment of the            subsection following the transfer of            analytical functions to the 6910th Scty Gp in April 1955.
- 3) Augmentation of a fusion subsection through added personnel. After January 1955, this subsection fused all collateral information into usable secondary, and when necessary, primary products.

Three new reporting procedures were initiated during the period:<sup>4</sup>

- 1) Effective 1 Jul 54, a traffic analysis summary was initiated to provide group with a vehicle by which to report to NSA on the activity of a            army for a 24-hour period.
- 2) Weekly Technical Notes were substituted for weekly activity reports on 12 July. Originated by NSA, these notes were to be the instrument by which group, under the new decentralization plan, would transfer information concerning unusual technical development to NSA.
- 3) The monthly net activity reports became the means to release information about all nets by case notation and basic station trinomes.<sup>5</sup>

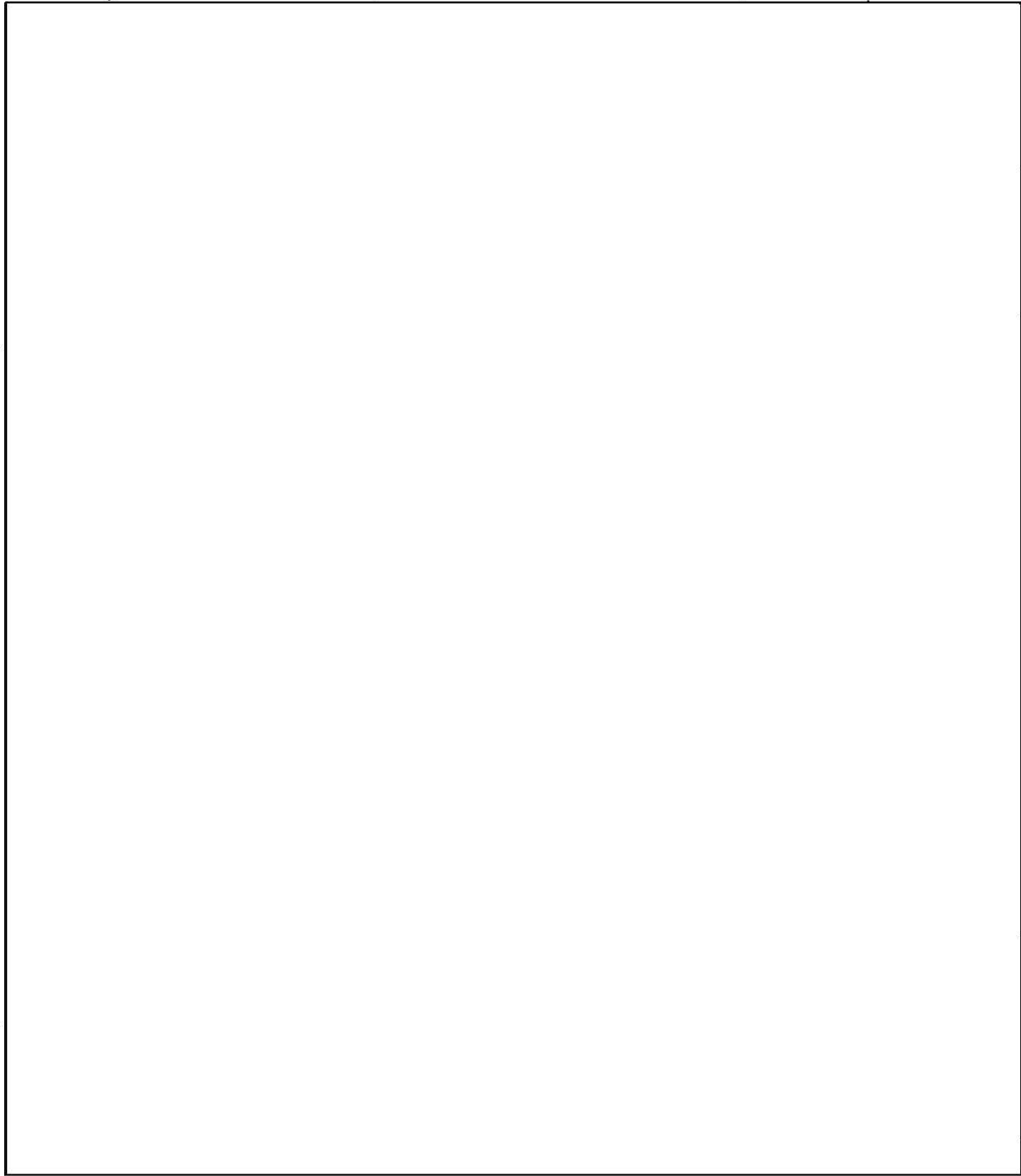
1. Ann Rept, 502d CRG, fy 1955, Vol II, pl2.
2. Ibid. pl1.
3. Ibid. pl2.
4. Ibid. pl3.
5. Ibid. pl4.

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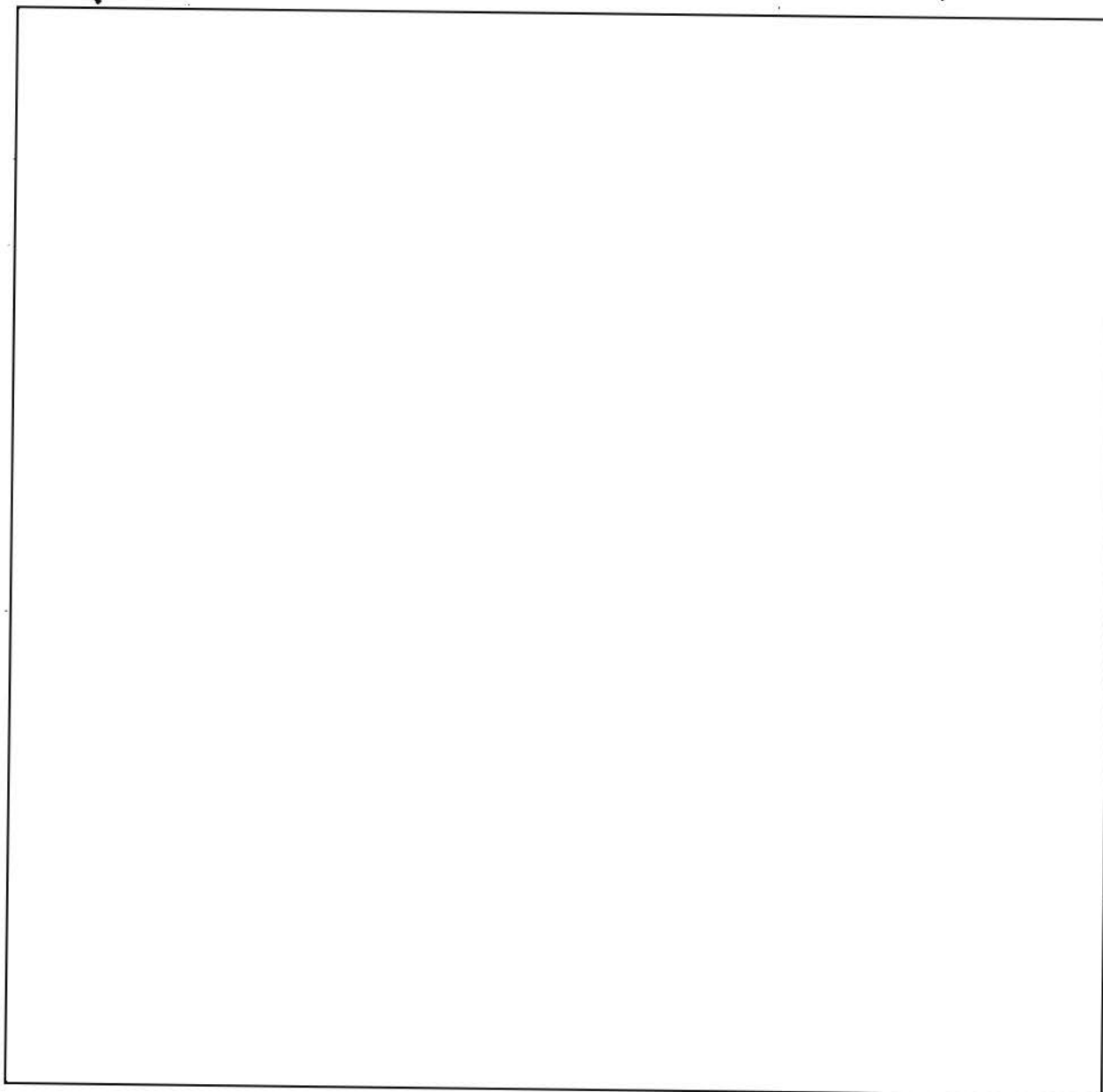
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1. Ann Rept, 502d CRG, fy 1955, Vol II, pl4.

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Operational personnel losses continued to plague the group throughout fy 1954. Clerical personnel authorized under the TOE were insufficient, and a shortage of manual Morse intercept operators continued until mid-winter, when replacements began to arrive in large numbers. A shortage of analytical

1. Ann Rept, 502d CRG, fy 1955, Vol II, pl5.
2. Ibid. pl6.
3. Ibid. pl6.

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personnel began early in the winter and continued through the fiscal year, making it necessary to retrain many high-speed radio operators as analysts.

There was an abundance of [ ] voice intercept operators during the winter, but when crucial summer months approached, many linguistic personnel who had trained as intercept operators rotated to the ZI and replacements were few. Accordingly, by 30 Jun 55, the radiotelephone intercept program was at approximately two-thirds strength, with further personnel decreases expected.

In the analytical section at both group and its subordinates, the rate of re-enlistment remained very low.<sup>1</sup> The first significant group of drafted personnel was absorbed, for the most part, in subsections which did not require the extensive practical experience needed to become competent in the analysis of the various [ ]. By the end of the fiscal year, group headquarters operations section was suffering along with subordinate units from a shortage of officers, with conditions promising to get much worse before replacements could be expected to reach required standards. The officer shortage in operating companies, in the face of the reorganization of 25 Jun 55, was extremely critical.<sup>2</sup>

A mobile Machine Aids Van AM-164-E1 with mounted IBM equipment arrived at the group on 30 Dec 54. Initial installation and check of equipment was delayed until 7 Jan 55 because power units were not yet available and the entrance to the area which was to house the van required enlargement. No shipment damage was found, and the equipment was serviced and checked out

1. Ann Rept, 502d CRG, fy 1955, Vol II, p51.

2. Ibid. p52.

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ready for operation by 9 Jan 55.<sup>1</sup> The unit was put into operation on 10 January under extremely adverse conditions, because of a lack of equipment and materials. Meanwhile, cabinets were obtained on loan from ASA, Europe and used throughout the year.<sup>2</sup>

The group was assigned a DEN 17-2 radio fingerprinter machine at Herzo Base on 1 Jul 54, which was manned by personnel from each of the group's intercept companies who supplied a search position for the machine. A SIGNIN circuit was installed to group headquarters for rapid transmission of targets assignments and results.<sup>3</sup>

Plans were made, however, to move the equipment to Rothwesten as soon as a permanent operations building could be completed. After the January call sign change, the DEN 17-2 aided a great deal in recovering  continuity but results during the remainder of the year were disappointing. Part of this difficulty was attributed to alleged poor reception at Herzo Base; a part was attributable to the distance from the support of local intercept control; and part due to the extreme sensitivity of equipment.<sup>4</sup>

In radiotelephone, it was noted that during tests of proposed voice sites and at other times that some of the equipment used had an extremely high failure ratio, particularly the RD-74/U Recorder-Reproducer. Dimophone recorders were found of great value in the work since they were able to withstand the strain of 24-hour operation.<sup>5</sup>

In DF, the greatest improvement in equipment in this field was the substitution of AN/TRD-4 DF sets in October-November 1954,<sup>6</sup> for the old SCR-291's.

1. Ann Rept, 502d CRG, fy 1955, Vol II, p52.
2. Ibid. p53.
3. Ibid. p58.
4. Ibid. p58.
5. Ibid. p59.
6. Ibid. p60.

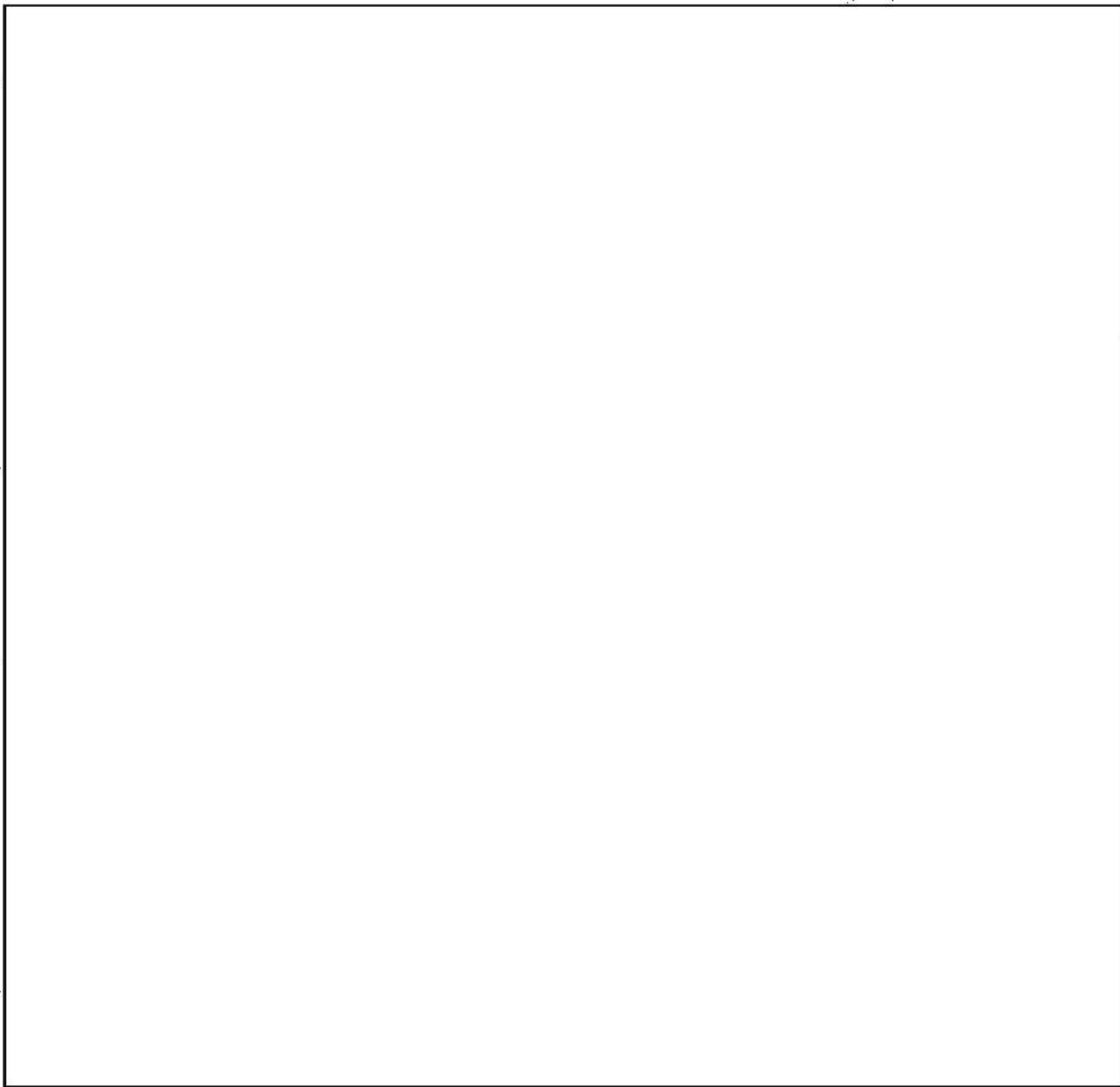
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These new sets improved operational efficiency greatly. In manual CW Morse, gradual re-equipment with new R-274/C and a few other receivers helped intercept considerably.<sup>1</sup>

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1. Ann Rept, 502d CRG, fy 1955, Vol II, p60.
2. Comd Rept, 502d CRG, fy 1955, pp18-19.

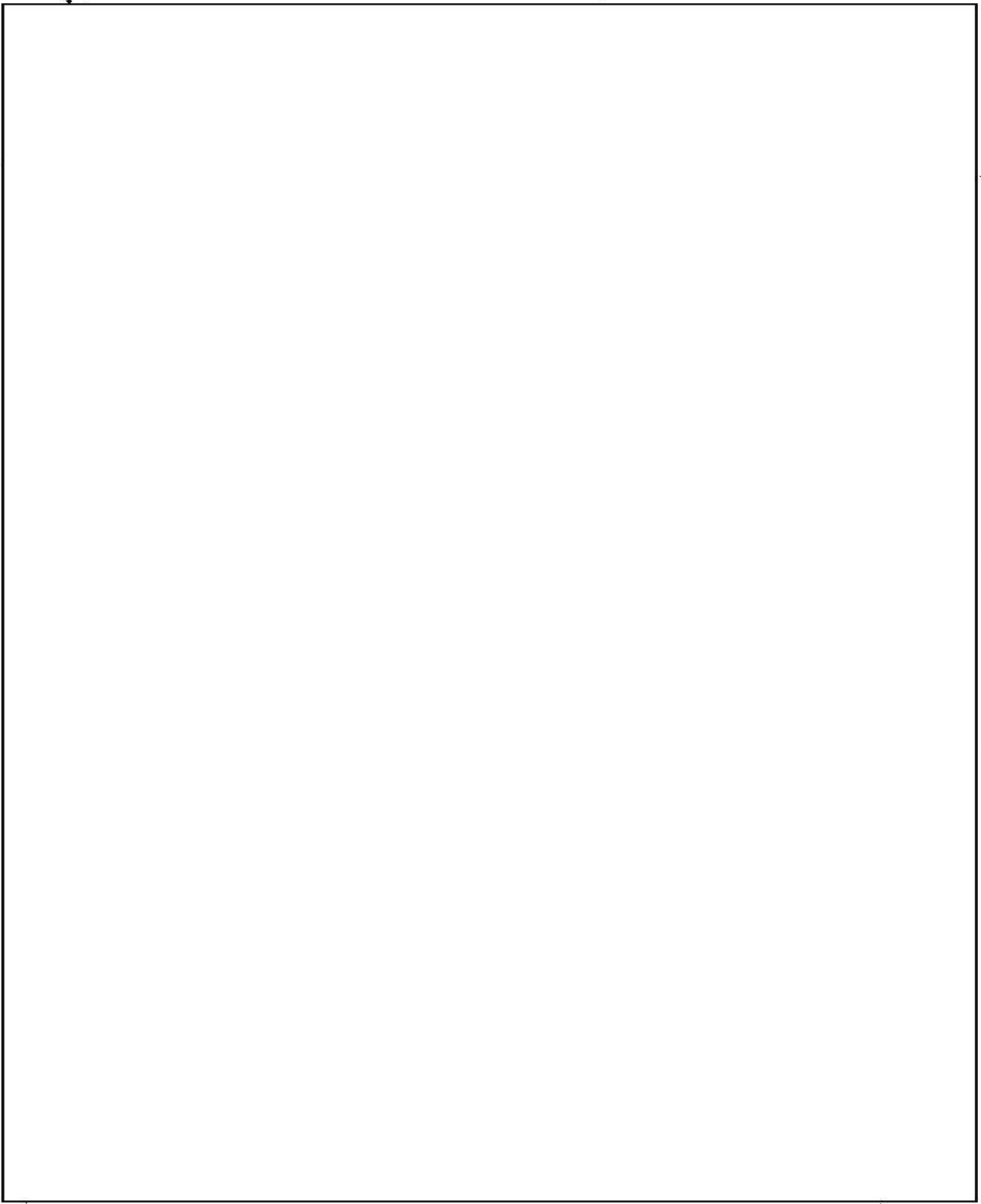
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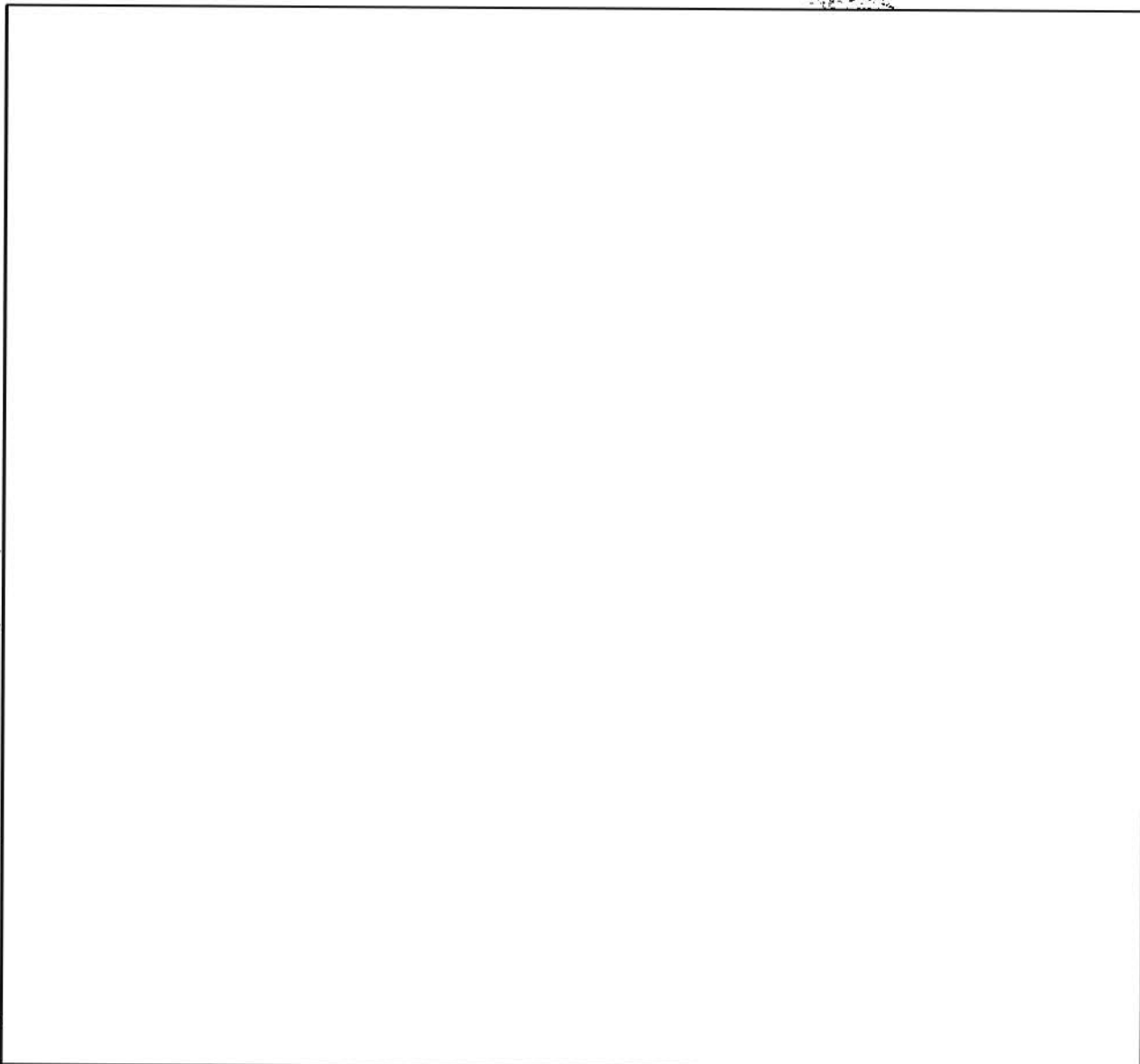
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1. Comd Rept, 502d CRG, fy 1955, p20.
2. Ibid. pp20, 21.
3. Ibid. p22.

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cycle was changed, but as of June 30, COMINT had not revealed any indications of a move to field training areas by these units.<sup>2</sup>

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CW Cryptanalysis

The volume of valid traffic received in the  cryptanalytic section during the first half of fiscal year 1955 was low. In January, however, the volume of valid traffic increased more than threefold. This was caused by search effort in recovering  military nets. A great part of this traffic proved non-military.<sup>3</sup>

1. Comd Rept, 502d CRG, fy 1955, pp22-23.
2. Ibid. p24.
3. Ibid. p25.

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Analytical success was achieved on 14 systems. These were all of low sophistication, consisting of dinomic, trinomic and tetranomic substitution for single letters. Continuity on these recovered systems was lacking, and in most cases, only one message was available. The First Guards Mechanized Army began passing three-digit valid traffic on 14 May, and continued to pass this traffic through the month of June. This was the first system received which had volume and continuity, but it had not yet been recovered by the end of June.<sup>1</sup>

#### Radiotelephone

Perhaps the greatest progress during fy 1955 was made in the field of [ ] radiotelephone intercept and analysis, and in January 1955, the Chief, ASA Europe, delegated control responsibility for both intercepting and reporting on [ ] radiotelephone traffic to group. As a result, it was found that the most productive method of obtaining voice intercept was with fairly static intercept sites near the [ ] border utilizing elaborate antenna fields and sensitive receivers.

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Accordingly, a site was established at Lubeck, in addition to the already existing site at Bahrdorf in the British Zone, manned by personnel of the 331st Company, and at Altefeld in the American Zone, manned by personnel of the 332d and 334th Companies. (After 1 January, the Altefeld site was manned completely by the 332d Company.

The site at Lubeck was established late in July 1954 with two positions, and experienced moderately good reception. In mid-September, a "V" antenna was erected which made the site as productive as any of the others. Two more positions were added 4 November. It was decided to operate these and the three at Altefeld throughout the winter to ascertain, if possible, whether [ ] voice traffic could be intercepted during those months when no [ ] maneuvers were expected.

The effort was rewarded in mid-January when [ ] voice traffic began arriving from both Altefeld and Lubeck, four months earlier than ever before. This activity indicated that some type of armored activity was being conducted by the [ ] at that time. Line bearings from a DF site located at Lubeck near the voice-site indicated that much of the activity may have originated near Rostock.<sup>2</sup>

Based upon the results received in January, immediate plans were made to winterize the site at Bahrdorf to make it a year-round function. As the site did not resume operating until 1 May 55, it was unknown how much valuable early activity was missed.

The procedure of handling voice traffic was modified early in May. SIGNIN communications lines were installed from the sites at Lubeck, Bahrdorf and Altefeld to Rothwesten. In addition, a circuit was installed to funnel

1. Comd Rept, 502d CRG, fy 1955, pp25-26.
2. Ibid. pp26-27.

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to Rothwesten all information intercepted at a site located in Berlin and operated by Fld Sta 8606. Tapes and hard copy of transcriptions were couriered to Rothwesten.<sup>1</sup>

A change was also made in the method of processing radiotelephone intercept traffic. Ten transcribers were especially trained at Hq ASA, Europe, and assigned to the group. Three transcribers were assigned each intercept site, and four were assigned to the analytical section at Rothwesten.

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Radiotelephone Analysis

A great deal of intelligence information was derived from low-echelon military voice traffic during fy 1955. With the increased volume of traffic, the improvement of intercept, and the more highly trained personnel involved, it was possible to obtain much valid information concerning tactics, OB, echelon data, the degree of training of tactical elements, and communication techniques.<sup>2</sup>

The phases of training of these elements were determined by the complexity of the commands heard in the intercept. Exercises involving armored units were most frequently intercepted. These units included tanks alone, tanks and self-propelled weapons, tanks supporting infantry, unidentified armored elements in reconnaissance or observation and occasionally, tanks with air support.

At no time during the year was it possible to identify an exercise as involving infantry units alone. Infantry commands were heard, but these were always intercepted in conjunction with armored elements. Artillery exercises were intercepted and followed previously established pattern. This intercept as a whole was relatively light, and little intelligence information was gained.<sup>3</sup>

During the year, voice analysis personnel kept a special lookout for such things as continuity of traffic, names of towns and units, possible air support, types and sizes of weapons, time intervals in exercises, types of fire, use of coordinates, mention of terrain features, and special exercises. Special forms of warfare were also noted and reported. These included gas and radiological warfare. Mention was made of gas, contaminated areas, atomic explosions, atomic activity, and gas and atomic training. In the past, it was deduced that tank training courses were being used, and additional intercept confirmed this fact. It was also believed that umpires or referees, probably located in towers or other similarly high vantage points, were used to score and report firing results.<sup>4</sup>

1. Comd Rept, 502d CRG, fy 1955, p28.
2. Ibid. pp28-29.
3. Ibid. p30.
4. Ibid. p31.

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During fy 1955, it was the goal of the Voice Traffic Analysis Section to report items of intelligence value to the consumer within 24 hours after intercept. To achieve this, an analysis team was established near the intercept sites in order to get the information as soon as possible. The section was enlarged during the year to [ ] men. [ ] were sent to Rothwesten as the field analysis team; the other [ ] remained at group headquarters as coordinators.<sup>1</sup>

As certain problems were encountered with the present system of reporting, gradual modification in reporting and processing was inaugurated within existing capabilities and principles outlined in the letter of decentralization.<sup>2</sup>

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[ ] Direction Finding

Manual Morse DF - As of 1 Jul 54, the group mobile DF net consisted of six DF sites operating as a single unit under a new control and alternate net control. Three DF sites and net control were assigned the 331st Company. The other three DF sites and alternate net control were assigned to the 332d Company.

On 1 Jul 54, net control was located at Koenigslutter, in the British Zone of Germany, which had been the field location of the 331st Company throughout the summer. Net control moved back to the Company's home station at Giessen 28 Oct 54, and remained there until 23 May 55, when the intercept unit moved to Rothwesten. The 332d Company assumed net control while the 331st was inoperative during the moves. Alternate net control was located at Bamberg throughout the fiscal year. DF sites under both companies were designated "A", "B", and "C" and were situated in a base line extending 405 miles along the eastern edge of the British and US Zones of Germany.<sup>3</sup>

Modified SCR-291 DF's were used by all sites as of 1 Jul 54; in November, the SCR-291 was replaced by the AN/TRD-4. Communications equipment consisted of the AN/GRD-26A radios. Net control utilized three SCR-399's for communications equipment, while alternate net control utilized one SCR-399. Full-flash procedure was used throughout the year, and notification of activity by a target was sent by a tip-off at intercept control, the two search positions at DF control, or one search position at DF alternate control. Immediately after the stations obtained bearings, they reported to net control, which was responsible for preparing daily bearing reports, complete with fixes, which were forwarded directly to all consumers. The COMUS tracking system replaced the MACO and ASAEFC systems on 20 Aug 54.<sup>4</sup>

1. Comd Rept, 502d CRG, fy 1955, pp31-32.
2. Ibid. p33.
3. Ibid. pp33-34.
4. Ibid. p36.

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All bearings were extracted from daily bearing reports at group headquarters and were logged on cards by case number and basic station trinome. Targets which were shot successfully during the week were plotted. This weekly report contained the following when known: unit, home station, case number, call sign or BST, present location, plot classification, and inclusive dates. This report was transmitted electrically to the 302d and 307th Battalions and Chief, ASA Europe. A weekly cable report, on identified units only, was forwarded Seventh Army and USAREUR. A special copy of this report was also furnished the Traffic Analysis Section to assist analysts in determining target moves.<sup>1</sup>

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In January, 1955, DF came into prominence by providing the solution for many of the traffic analysts' problems with the new [ ] call signs. All two-station cuts or fixes on [ ] targets were reported daily to analysts to assist in identifying individual targets. The principal aim of DF during this period was to assist T/A in every way possible to allocate basic station trinomes which were still unidentified. As a result of the success achieved, more reliance was placed on locations reported in all DF summaries. Furthermore, DF was successful on many occasions in providing locations of units engaged in field training exercises. Efficient net control on the part of the 331st Company and 332d Company and adherence to the assigned mission resulted in a notable improvement in the number of responses to flashes, along with an increase in the ratio of fixes to flashes, compared with the previous year.<sup>2</sup>

Radiotelephone DF - It was not until the spring of 1955 that a suitable radiotelephone DF program was devised. However, group began on 10 Aug 54 to use a mobile DF net for voice purposes. An alternate control transmitter for voice was placed at Bahrdorf to flash targets to the net. A voice operator was placed at each of the three DF sites of the 331st Company and at a 332d Company site at Schweinfurt, which was believed near enough the border to participate in DF fixes. Limited results were returned by all stations, but the experiment only strengthened the assumption that intercept sites were copying targets located a short distance across the border, perhaps at a maximum of fifty miles.

In mid-September, an effort was made to obtain DF bearings on Russian voice targets by utilizing three AN/PRD-1 portable DF sets manned by personnel of the 331st Company. The control was established at Bahrdorf, and the central site was located nearby. One station was established about ten miles south of the central site. AN/GRC-9 radios were used for communications. The sites were operated only during daylight hours with personnel returning to control each evening. The test proved ineffective, probably because of the lack of sensitivity of the DF equipment.<sup>3</sup>

1. Comd Rept, 502d CRG, fy 1955, pp36-37.
2. Ibid. pp37-38.
3. Ibid. p39.

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It was not until the establishment of the group radiotelephone DF net on 1 May 55, that any conclusive results were achieved in locating targets. Three of the four AN/TRD-4 DF sets assigned to group were placed in operation near Bahrdorf. Control was placed at the Bahrdorf intercept site. Output of each of the receivers was wired into a jack-box, where the trick chief could monitor and supervise all positions. Activity was tracked to the net by radio operators.<sup>1</sup>

The northern site of the net was located 25 miles north of Bahrdorf, at Tulau; the central site was one mile west of the radiotelephone site; the southern site was 25 miles south of Bahrdorf at Twieflingen. It required 15 days to get the net into operation, largely because of inadequate power units, difficulties in removing the SCR-506 (later replaced with AN/GRC-26A's in June) radios used for communication, and the lack of trained personnel.

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Nature of the target activity made it mandatory to modify the method of tracking radiotelephone missions for the DF net. Accordingly, provisions were made to track an entire target net for DF stations and to utilize bearings on any of the stations in the net which could be located. Another problem was that [redacted] call words were utilized by the radiotelephone targets. Here, arrangements were made to track the letters "NET," together with measured frequency and other tracking data regarding the target net. These modifications produced good results.<sup>2</sup>

The voice DF sites were manned by personnel of Hq & Hq Co, 502d Group. Although results were meager at first, every two-station cut was welcomed most eagerly. For the first time, the group had definite evidence to support its theory that intercepted traffic came from targets located at a short distance from the intercept sites, since most DF results plotted no farther than 35 miles from the intercept station.

In an effort to substantiate or refute the opposing contention that it was possible that a sky wave was being intercepted, a voice patrol from the 332d Company was sent on 26 Jul 54, to test at Memmingen for voice signals. Memmingen was chosen since it was the location where the best results had been achieved in the past on the interception of sky-wave signals. However, by 1 August, absolutely nothing had been intercepted, and the test was discontinued. Perhaps more important, it was possible, on the basis of DF results, to connect the activity of voice targets with information received from other COMINT and collateral sources, which indicated that certain target units were training at the places indicated by voice DF results. It was impossible to ascertain any definite, rigidly controlled voice call sign system, like those used in [redacted] manual Morse and radio printer operations.<sup>3</sup>

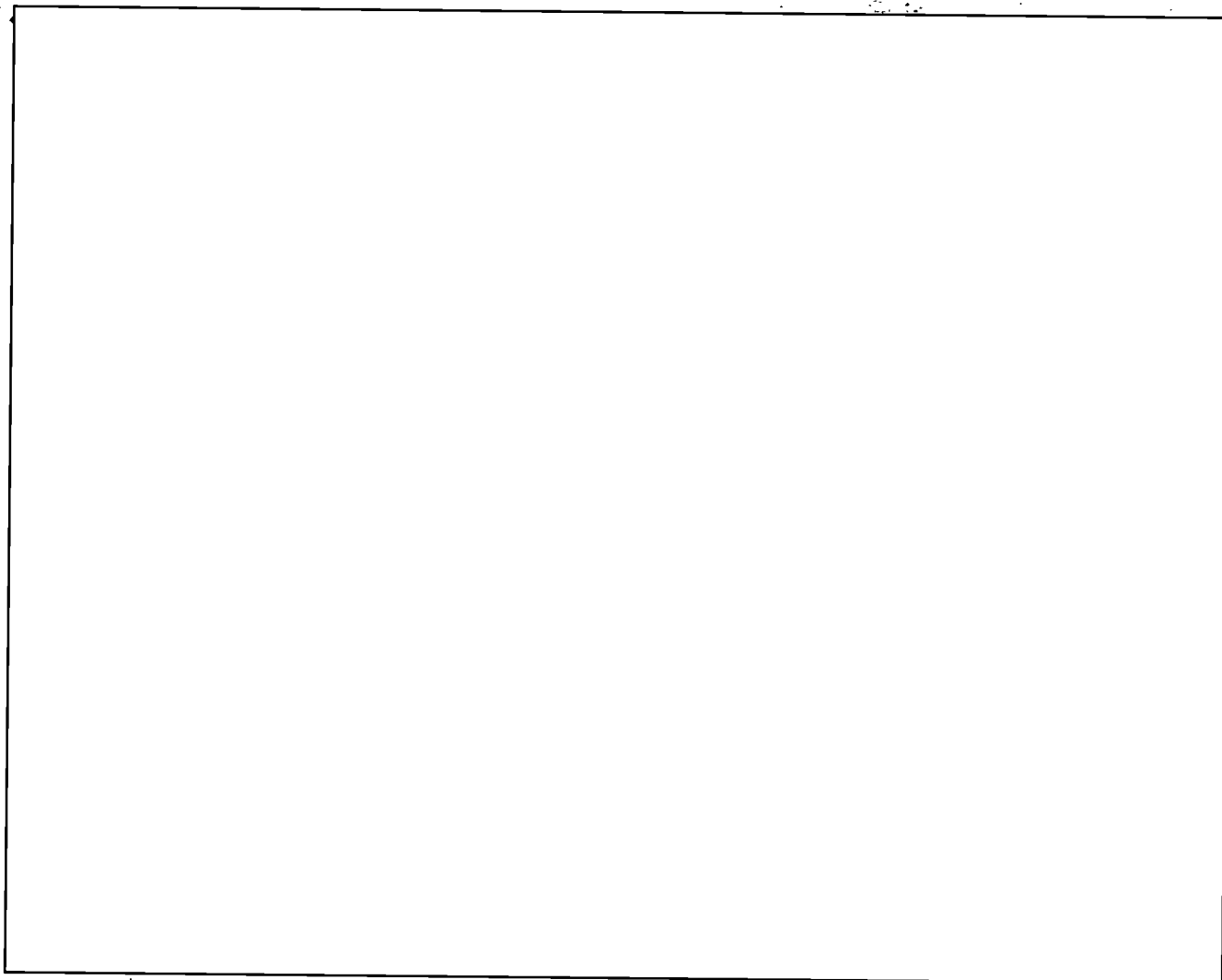
1. Comd Rept, 502d CRG, fy 1955, p40.  
2. Ibid. pp40-41.  
3. Ibid. p42.

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Radio Printer DF - A successful test using the mobile DF net to obtain locations of radio printer targets was conducted 20-26 Sep 54. It was discovered, however, that operators needed further training in the recognition of radio printer signals by means of listening to tapes upon which the various types of signals had been recorded. The net was used frequently, with varying degrees of success, throughout the report period to locate difficult radio printer targets. The same control and tracking procedures used for manual Morse were used for these targets, but identification proved a major difficulty. In many instances, contact by means of FSK Morse was accomplished by target stations before DF stations could find the targets. This left measured frequency as the only identification means, and this was often insufficient.<sup>1</sup>

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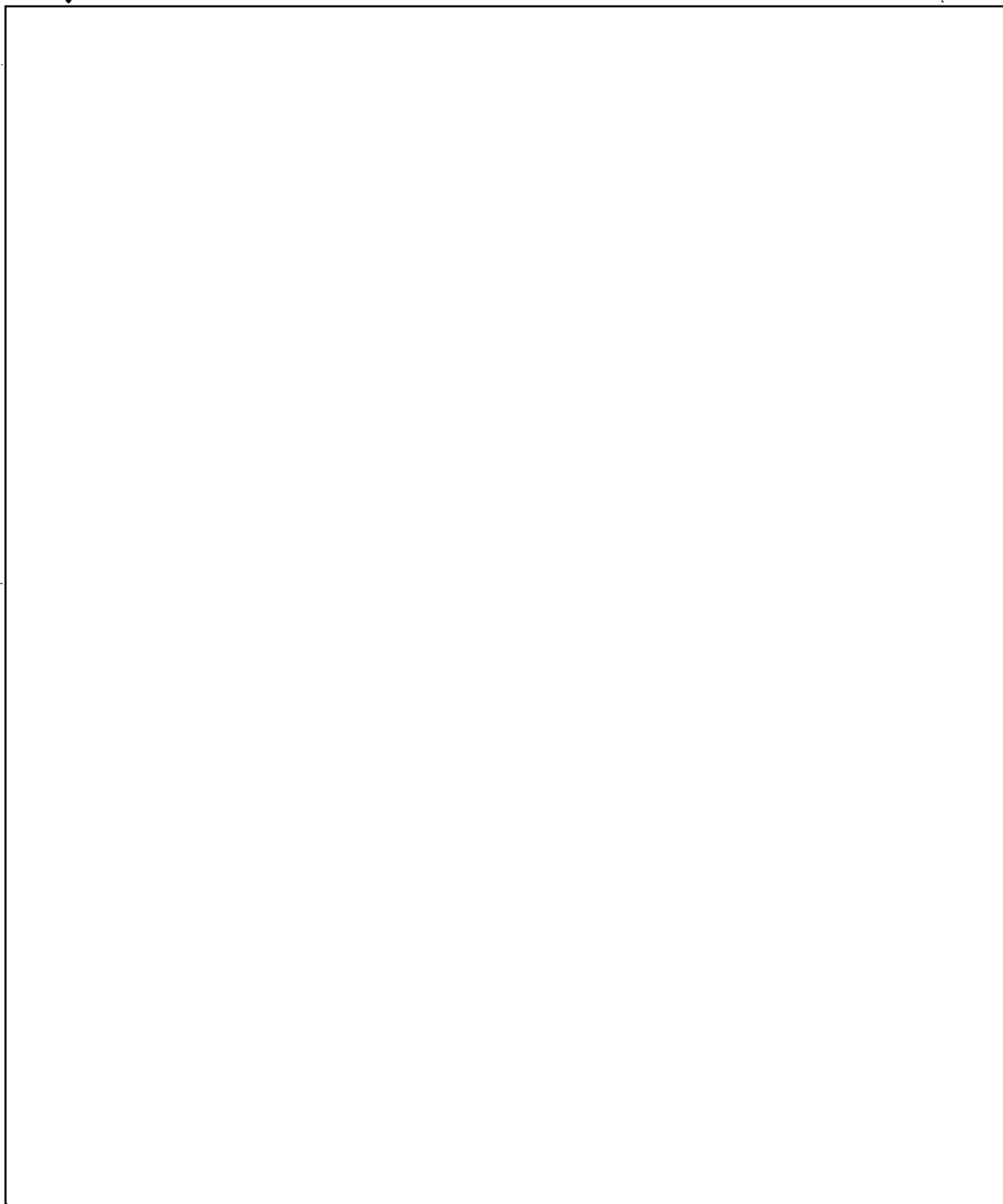
1. Comd Rept, 502d CRG, fy 1955, p43.
2. Ibid. pp44-45.

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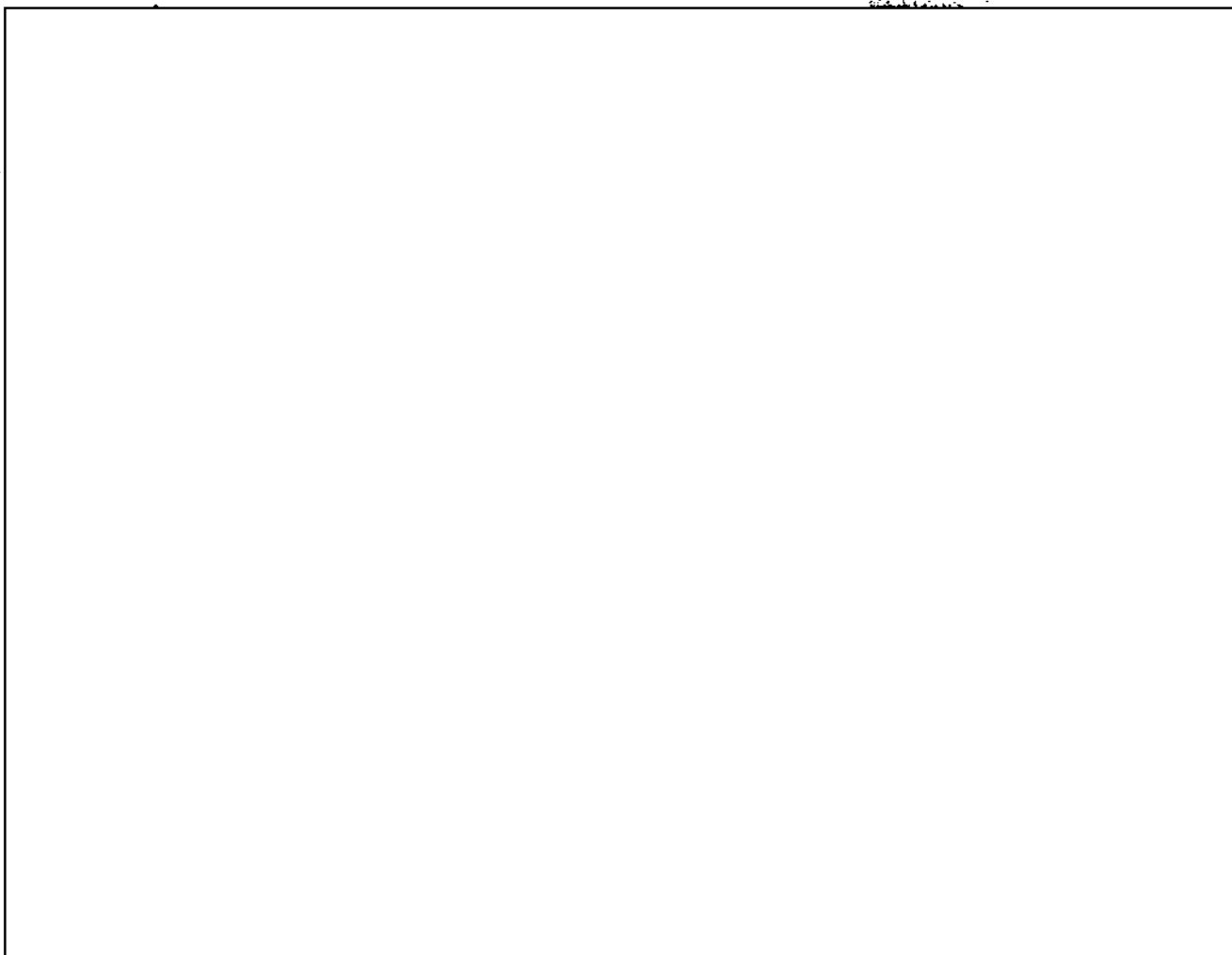
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1. Comd Rept, 502d CRG, fy 1955, p46.
2. Ibid. p47.
3. Ibid. p48.

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4. 328th Communications Reconnaissance Company, Bad Aibling, Germany

Operational elements of the 328th Company were located near Bad Aibling throughout fy 1955. All manual Morse, radio printer, and DF positions remained under the operational control of NSA while the company's voice mission was controlled by a COMINT collection unit in the field.<sup>4</sup>

1. Comd Rept, 502d CRG, fy 1955, pp48-49.
2. Ibid. p49.
3. Ibid. p50.
4. Ann Rept, 328th CRC, fy 1955, Vol II, pl.

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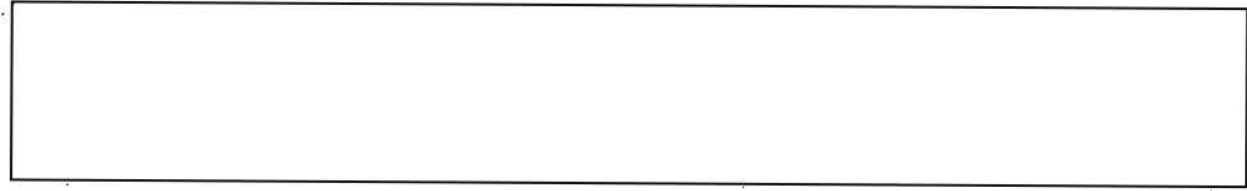
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Intercept was passed only to other COMINT units, as no direct support was provided.<sup>1</sup>

Assigned mission consisted of  manual Morse positions,  DF tip-off position,  voice positions and  radio printer positions. Primary



The general mission of radio printer and radiotelephone was copying links parallel to assigned manual Morse nets, while the majority of DF targets paralleled the Morse mission.<sup>2</sup> No special missions were conducted during the report period.<sup>3</sup>

Operational personnel were divided into shifts, and a "nine and three" working schedule was followed.<sup>4</sup> Individual section accomplishments follow:

Manual Morse

All positions in this section were moved from the airstrip to the main operations building, floor rack-mounted, and put into operation. This resulted in a much more efficient and effective operational set-up. Total groups intercepted increased over the previous year from 2,469,310 gps to 4,013,000 gps. New rhombic antennas being utilized covered the 2.0 - 5.0 mcs band.<sup>5</sup>

Direction Finding

The 328th Company operated four DF sites. The AN/CRD-2 was replaced

1. Ann Rept, 328th CRC, fy 1955, Vol II, pl0.  
2. Ibid. pl.  
3. Ibid. p2.  
4. Ibid. p2.  
5. Ibid. pp3-4.

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by AN/CRD-4 which was more accurate for both visual and aural null types of operation. SCR-399 transmitters were replaced by AN/GRC-26 equipment. The company continued to serve the ASA Europe DF tip-off net and was provided tip-offs on DF, RFP, MOA, and intercept. A landline printer was used for communications on the net and by the end of the fiscal year COMUS cryptosystem was utilized for tip-offs. DF control, located adjacent to the intercept trick chief for convenience in relaying tip-offs, maintained communications with and flashed targets to the following detachments:<sup>1</sup>

Det A - Located at Bad Aibling, Germany.  
Communication by telephone.  
Logistic support by parent unit.

Det B - Located at Graz, Austria.  
Communications by SCR-399.  
Logistic support by British Forces in Austria on a reimbursable basis; payment by Hq USFA.

Det C - Located at Weiden, Germany.  
Communications by SCR-399.  
Logistic support by Grafenwohr Comd.

Det D - Located at Trieste until 9 Oct; arrived Landshut, Germany 6 Dec 54.  
Communications by SCR-399.  
Logistic support by Landshut Comd.

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#### Radio Printer

The Radio Printer Section had  two-channel and  single-channel positions in service throughout the year. In November, the section moved from the operations building to a shelter in the antenna field in order to use newly erected rhombic antennas. In May, when the operations building was remodeled and coaxial leaders installed, the section returned to the

1. Ann Rept, 328th CRC, fy 1955, Vol II, pp4-7.

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operations building. Printer links, parallel to assigned manual Morse links, were copied with a great degree of success.<sup>1</sup>

Voice

voice positions were operated throughout the year. One position was located at the company. Another, Detachment F, was at Vienna, Austria. Detachment G was located at Nottau with two positions mounted in a shelter S-44/G. It used squad tents as billets and operated its own mess. From 31 Oct 54 to 26 May 55, the detachment wintered with the company. It was later redesignated Detachment L. Throughout the operational period low echelon traffic was intercepted.<sup>2</sup>

Traffic Analysis

An improvement in the T/A Section was its new working schedule of three tricks working three swings, three days and then going on break for two days. This enabled the TECSUM to arrive at ASA Austria prior to 0800, thus allowing analysts at ASA Austria to work directly from it at the earliest possible time.<sup>3</sup> REF: VOL. I P. 198

5. 331st Communications Reconnaissance Company, Rothwesten, Germany

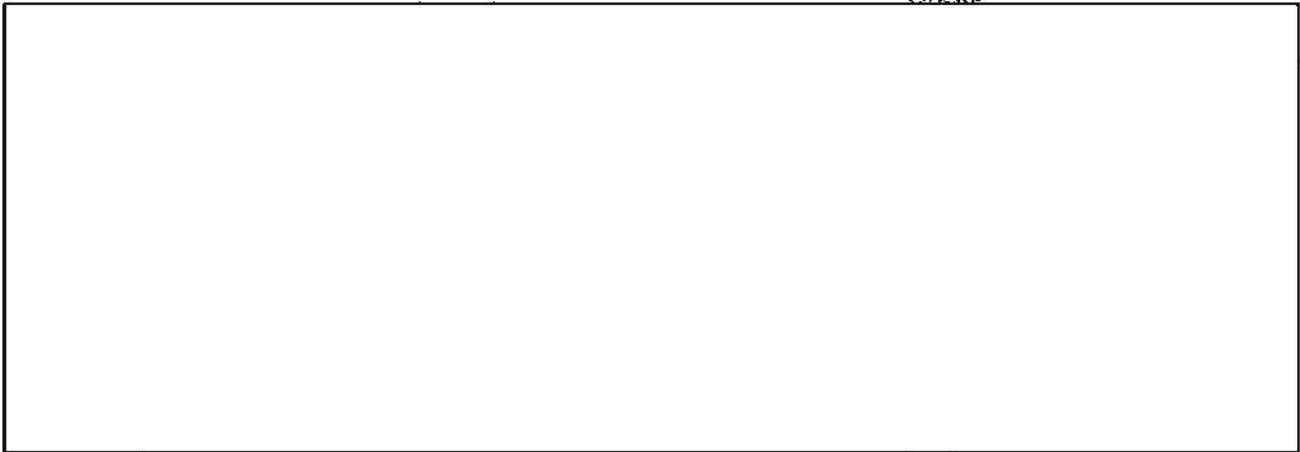
Throughout fy 1955, the mission of the 331st Company was intercept, processing, and analysis of traffic originating with Hq Group of  and its subordinate commands and units. Accordingly, Morse, radio printer, and voice transmissions were intercepted and all types of traffic analyzed; DF was utilized as an intercept support function.<sup>4</sup>

1. Ann Rept, 328th CRC, fy 1955, Vol II, pp7-8.  
 2. Ibid. p8.  
 3. Ibid. p9.  
 4. Ann Rept, 331st CRC, fy 1955, Vol II, pl.

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The company's Morse Section manned an average of  monitoring positions. Multi-couplers available were designed for the 4 to 24 mcs band while most targets used frequencies between 1.5 and 3.5 mcs. From 20 Jul - 15 Aug 54, tests were conducted at Rothwesten to determine quality of intercept and resulted in relocation to Rothwesten. During the year, the company participated in Operation MOBY DICK, but no abnormal effects on Soviet communications were noted.

The company's radio printer facilities consisted of  positions copying single-channel Morse (1TPB), double-channel (2B), and FSK transmissions. On 6 Jul 54, a team was assigned to Fld Sta 8606 to man a RFP back-up position. Results were satisfactory, and the RFP position became part of the COMINT effort.

The Voice Section was assigned low level military voice traffic from



1. Ann Rept, 331st CRC, fy 1955, Vol II, p2.
2. Ibid. pp2-4, 6.

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In August, the COMUS system replaced MACO, one-time-pad. DF equipment, SCR-291, was replaced by AN/TRD-4 in October 1954, and markedly increased efficiency. The AN/TRD-4 was mounted in its own shelter 100 yds from the transmitter and this cut out interference that had previously caused inaccurate bearings. Earlier experiments with AN/PRD-1 had not been successful. During the summer and fall of 1954, unsuccessful attempts were made to locate low level voice transmitters by DF. Use of the mobile net was hampered by inability of Morse-trained operators to locate and identify target voice transmitters and by distance from low-powered target transmitters. On 17 Feb 55, the DF Control Section moved to the intercept site and was collocated with intercept activities. Following relocation, a "Flash" operator at the intercept control console was placed on duty. When the site at Bahrdorf was activated in April 1955, a DF net for voice activity was established. Manned partially by language-trained personnel, it was much more successful and, for the first time, located low-level units

<sup>1</sup> A special mission from the AF on 19-20 May 55 attempted to fix an SOS signal which had been heard, but the net was unable to pick up the signal.<sup>2</sup>

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all positive identification was lost. As a result, four intercept tricks were formed into two platoons working 12-hour shifts. This increased positions from 20 to 40 and provided "saturation coverage." Rapid recovery

1. Ann Rept, 331st CRC, fy 1955, Vol II, pp8-9.
2. Ibid. p3.

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of practically all major command nets followed, and eventual re-establishment of continuity for lower echelon net structure was realized through DF and operator knowledge. Regular track operations were resumed after 15 days.

Progress in net recovery was continuous, largely as a result of the following:

1) Nets and links were intercepted and identified by operators through transmitter tones, "fist" characteristics, and unusual or characteristic operating procedures. Analysts could, at times, confirm tentative identifications by number of active outstations, procedure, and operator chatter. This combined effort resulted in a master  and frequency rotas on some command nets.

2) Calls were not repeated within separate armies, which indicated assignment of separate blocks or non-repeating call signs. Arbitrary block numbers were assigned, and a book of 10x10 pages was later established.

3) After re-establishment of basics for nets using "EASY" call signs, call sign blocks required tabulation. After a time, the blocks were sufficiently recovered to re-establish echelons of unidentified activities, produce intelligence material, and assist operators with predicted call signs.<sup>1</sup>

REF: VOL. I P. 207

1. Ann Rept, 331st CRC, fy 1955, Vol II, pp7-8.

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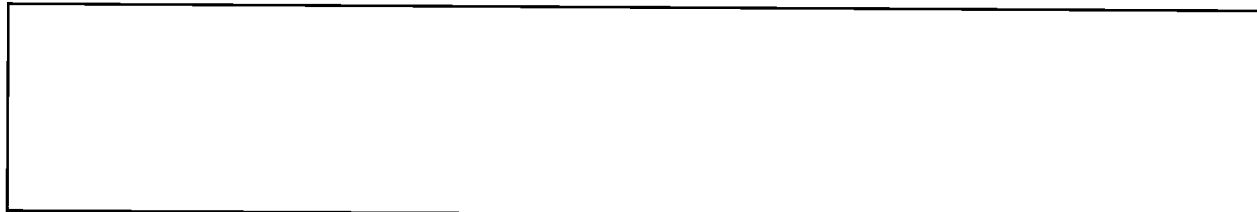
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6. 332d Communications Reconnaissance Company, Bamberg, Germany

Throughout fy 1955, the operational mission of the 332d Company continued to be intercept support of the 502d Group.<sup>1</sup> Until October 1954, each intercept position had two receivers, one of which was a BC-342. Following relocation of the operations building, each position was equipped with one R-274/U or SP-600, and a BC-1004. The BC-342 remained mounted in hutments for alert purposes.

In addition to receivers, the Radio Printer Section employed DEN and Boehme equipment. In October and November 1954, four AN/PRD-1 portable DF sets were utilized for a mission with the 10th Special Forces.<sup>2</sup> For this mission, carried out in November 1954, April, May and June 1955, DF support was supplied aggressor teams of the 10th Special Forces Group in Fld Exercise 54-2.<sup>3</sup> Commercial power replaced 5 and 10 kw power generators by the latter part of October 1954, except at the Furth site which continued to use TOE power units throughout the year. In the antenna field, there remained five double doublets (2.0 - 4.0 mcs); one beverage (1.5 - 3.0 mcs); one folded dipole (1.5 - 3.0 mcs); and two sloping "V" (5.0 - 10.0 mcs).<sup>4</sup>

Specific aspects of the intercept mission, and operational highlights for fy 1955 follow:



- 1. Ann Rept, 332d CRC, fy 1955, Vol II, p3.
- 2. Ibid. pp14-15.
- 3. Ibid. p13.
- 4. Ibid. pp16-17.
- 5. Ibid. pp3-8.

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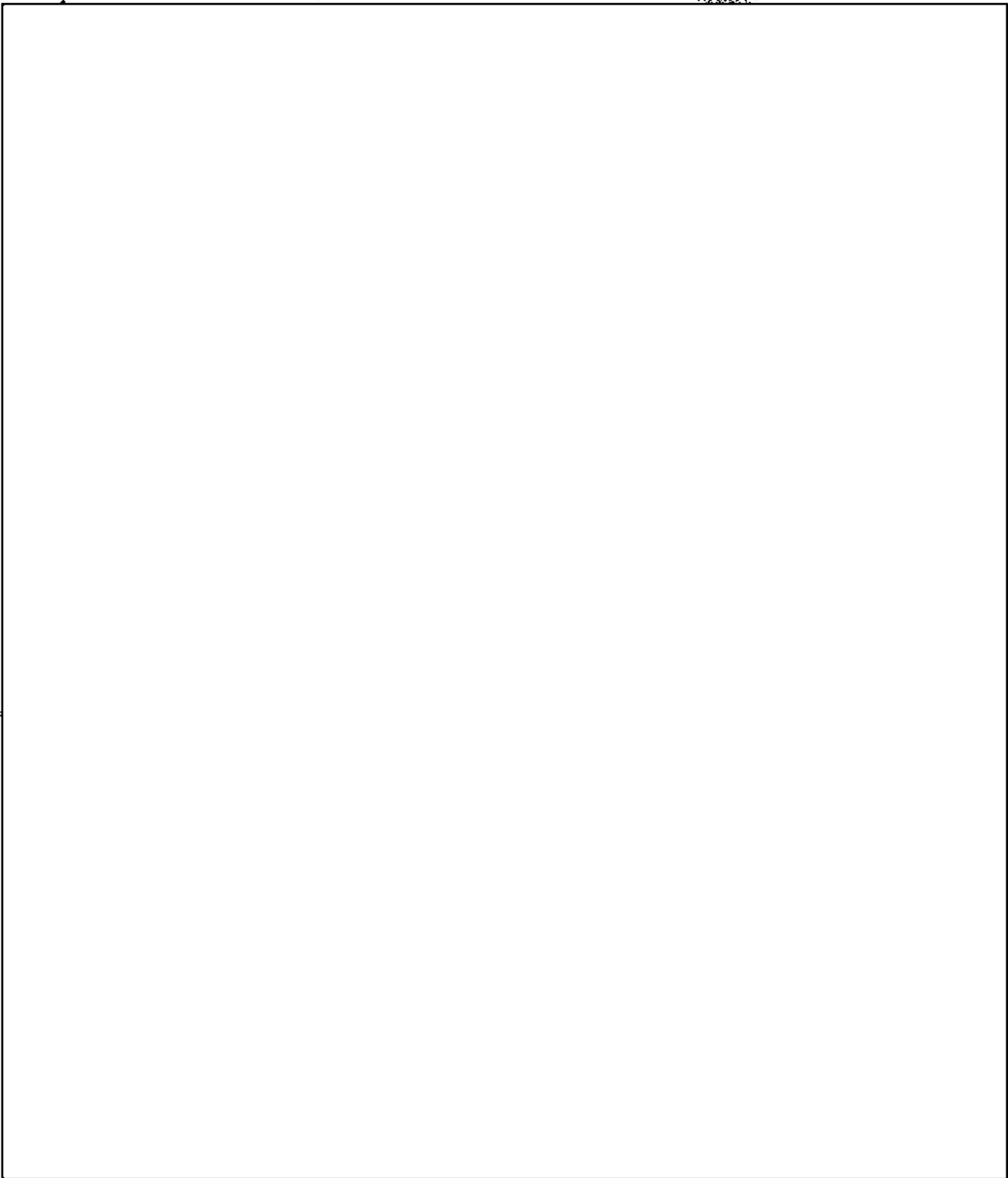
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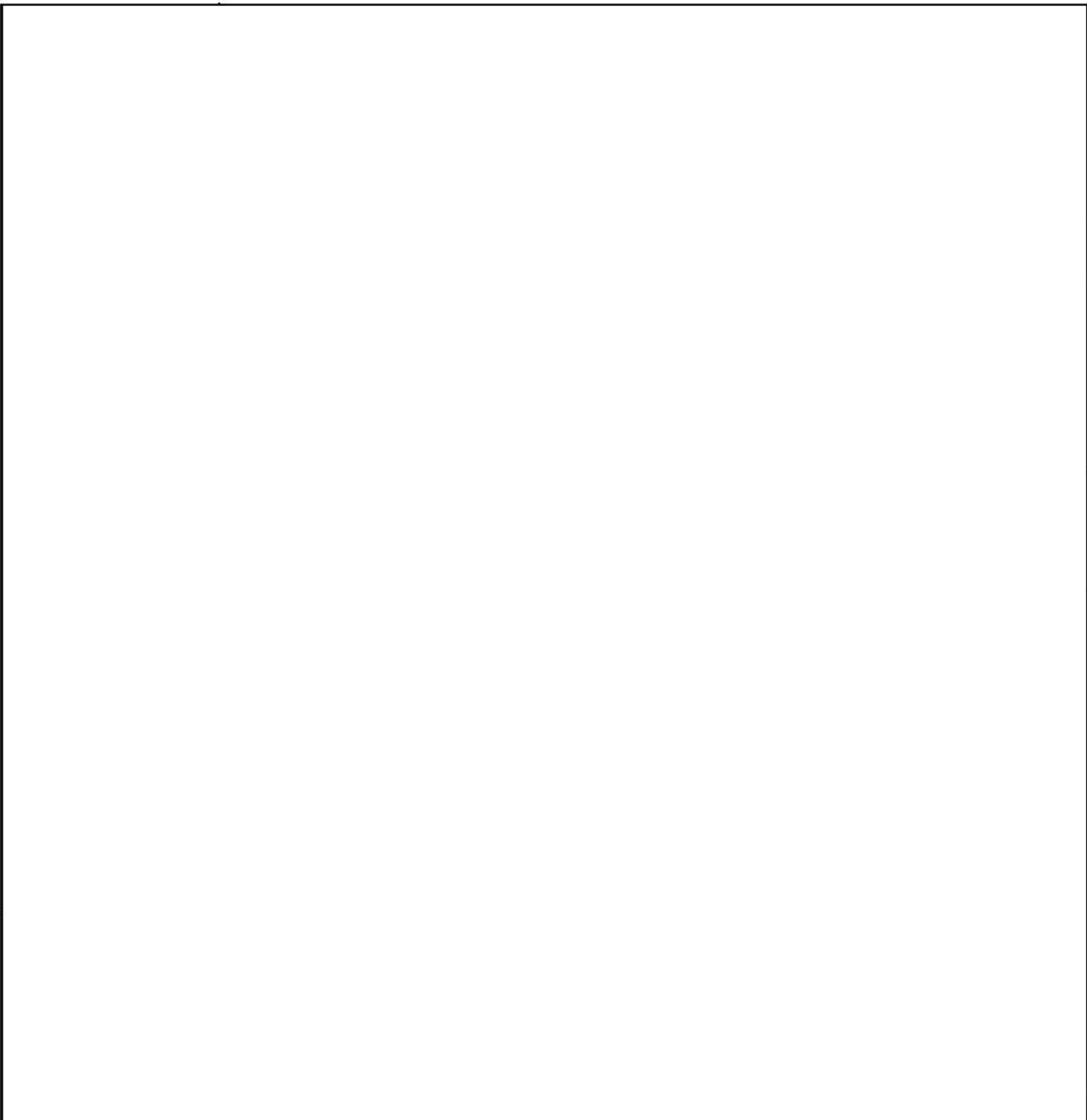


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In August 1954, the company furnished personnel to man a RFP position and a search position to carry out a company mission at Fld Sta 8606. Except for the period immediately following the call sign change in January 1955, RFP was not too helpful in identifying  transmitters at that position.

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This was due to the noise level on the low frequencies preferred by [ ] and weak signal strength. Only main command nets of armies could be identified by RFP. Low echelon nets could not be covered by RFP.<sup>1</sup>

The company's DF Section continued to obtain bearings on current [ ] books, which were reported to 502d Group's mobile net. Stations were located at Schweinfurt, Furth and Straubing and alternate control at Bamberg. The latter flashed all [ ] nets intercepted by DF or intercept sections to outstations. Missions were flashed in a letter one-time system until October, when the COMUS system was put into effect. This improved net operations by shortening bearing reports. An abortive series of tests to discover a location to replace Straubing were carried out, as it was thought to be too far from the company for proper control.

In January 1955, the DF mission was altered to flash and obtain bearings on any net tentatively identified as being [ ] nets were included and results were exceptionally good.<sup>2</sup>

Voice reception at Bahrdorf was excellent throughout the year. A peak was reached in September 1954, during the period of [ ]

Traffic decreased in October and November. By 1 December, winter quarters had been set at Altefeld, Germany with antennas directed toward the [ ]

[ ] Good results were obtained from the four positions operated there during the winter and spring of 1955. Transcription was performed at ASA Europe until May, when four transcribers were assigned to Altefeld.

REF: VOL. I P. 213

1. Ann Rept, 332d CRC, fy 1955, Vol II, pp8-9.
2. Ibid. pp9-11.

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7. 334th Communications Reconnaissance Company, Herzogenaurach, Germany

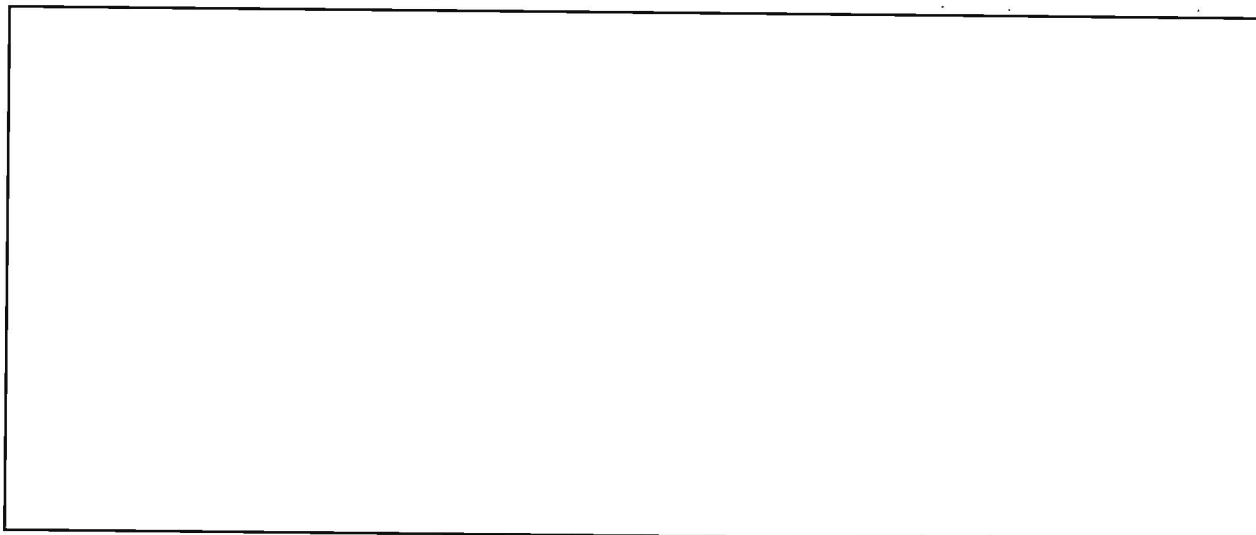
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Effective 20 Oct 54, [ ] assignments of the 334th Company were combined into [ ] positions. This was accomplished in advance of a third quarter, fy 1955 program which called for a reduction of manual Morse positions from [ ] and an increase in single channel R/P positions from [ ].

PCS of the company to Herzogenaurach in November was delayed 10 days to prevent interference with recovery of call sign and frequency changes on the company's [ ] assignment.<sup>1</sup> On 31 Dec 54, the [ ] voice mission was dropped and personnel transferred to the 502d Group.<sup>2</sup> REF: VOL. I P. 217

8. 339th Communications Reconnaissance Company, Herzogenaurach, Germany

Throughout fy 1955, the primary mission of the Manual Morse



1. Ann Rept, 334th CRC, fy 1955, Vol II, pl4.  
2. Ibid. pl6.  
3. Ann Rept, 339th CRC, fy 1955, Vol II, pl.

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## 9. Field Station, 8606 DU, Herzogenaurach, Germany

Fld Sta 8606 continued as a fixed radio intercept station whose primary functions included manual Morse, automatic Morse, non-Morse, radiotelephone and special identification techniques. During fy 1955, the station operationally supported Detachment "6B" at Bremen, "6C" at Berlin, and "F" at Berlin.<sup>1</sup> In July 1954, Detachment "A" was discontinued and its equipment turned over to Fld Sta 8611.<sup>2</sup> Further, the station served as a COMINT-collecting and processing agency of ASA and NSA, and as such operated the ASA Europe fixed DF and tip-off nets.<sup>3</sup>

Traffic Control: This section was composed of four major subsections--Administrative or Repository, Non-Morse T/A, Manual Morse and R/T, T/A and Manual Morse General Search. Assignments were allocated, processed and intercepted traffic forwarded to higher headquarters. Traffic was scanned and graphs, charts and diagrams prepared covering potential enemy transmissions. T/A personnel provided immediate technical support to intercept operators and timely reporting of all COMINT information.<sup>4</sup>

Manual Morse Intercept: Operations in the Manual Morse Intercept Section were split into two areas at the beginning of the year and reunited 19 Oct 54. Under the new arrangement 37 double receiver operator positions were supervised from a dual console.<sup>5</sup> Assigned operators rose from 165 to 201. Receivers utilized included R-274, BC-1004, BC-794, and BC-779. There were also 35 rhombic and 9 doublet antennas wired from 24 direct trunk lines

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1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pl.
  2. Ibid. p20.
  3. Ibid. ppl-2.
  4. Ibid. pp4-6.
  5. Ibid. p29.

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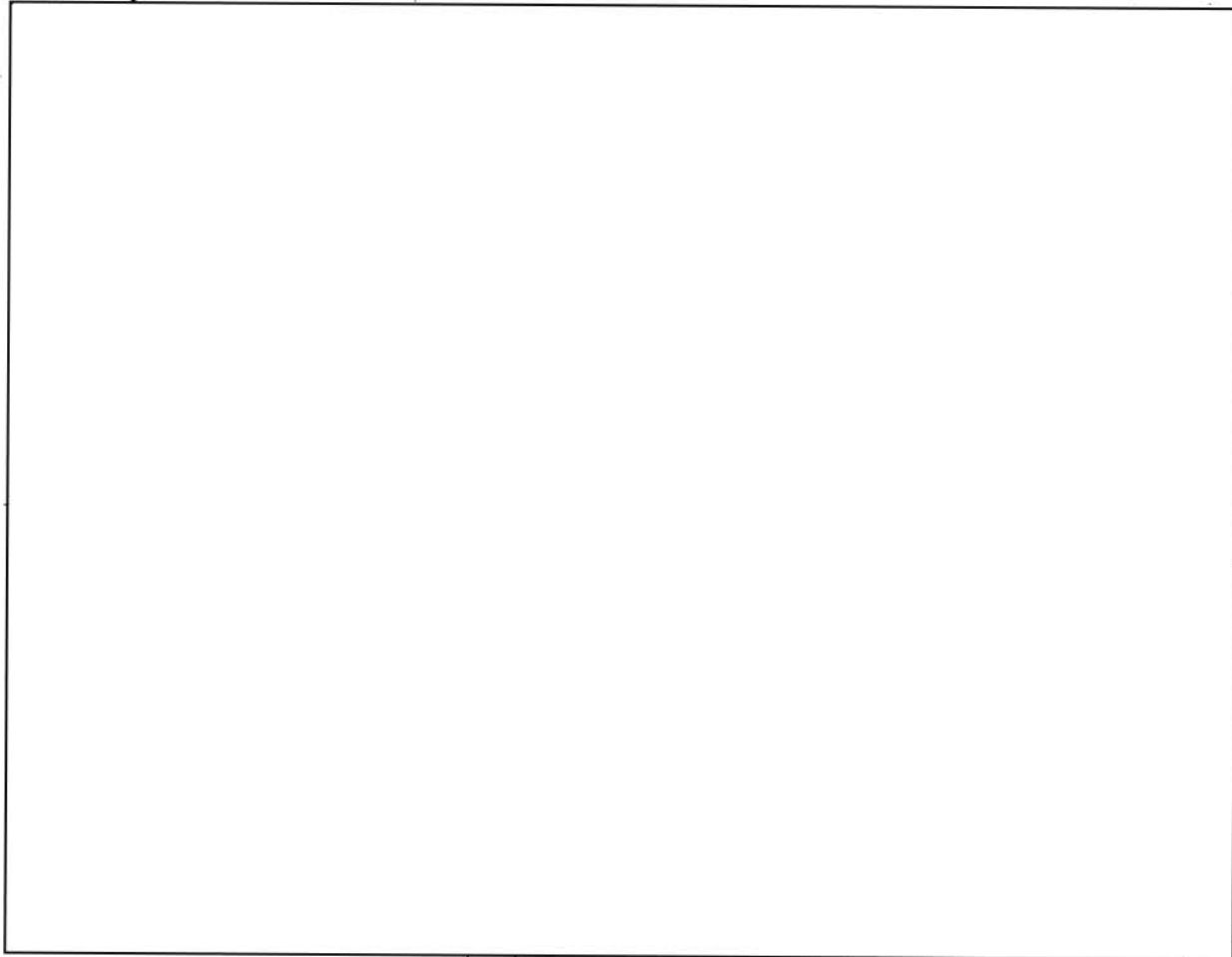


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into two adjacent "RF" racks with 10 CU-119 Multicouplers providing operators antenna selection. Four additional positions were located with Detachment "F," Berlin.

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..... Planning began for the installation of  additional intercept positions on 25 Mar '55. By 1 July,  trick positions,  new operating positions, and 24 additional "RF" trunk lines were operational. By the end of the year there were  operational positions,  supervisory positions and  "RF" positions.<sup>1</sup>



- 1 Ann Rept, FS 8606 DU, fy 1955, Vol II, pp29-31.  
2 Ibid. p58.  
3 Ibid. p53.

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Automatic Morse Intercept: Throughout the report period, this section intercepted and transcribed [ ] radio transmissions. A total of [ ] positions were utilized:\*

- 3: Diversity on-off keying positions utilizing OA-58/FRC units.
- 20 On-off keying positions, utilizing single Hammerlund "Super Pro" type receivers and Waters Conley "BC-1016" undulator tape recorders.
- 8 Low frequency positions, utilizing "RBA Navy" receivers and "BC-1016" recorders.
- 2 Frequency positions utilizing Hammerlund receivers and frequency shift converters; Boehme 5C and CV-62 with "BC-1016" recorders.

However, on 3 Mar 55, orders to cut back to [ ] positions were received.

By the end of the year there were still 24 operating positions:

- 4 On-off keying diversity positions utilizing OA-58/FRC units.
- 12 On-off keying diversity positions utilizing single Hammerlund "Super Pro" type receivers and Waters Conley "BC-1016" undulator tape recorders.
- 6 Low frequency positions, utilizing Navy receivers.
- 2 Frequency shift positions.

\*Note: Additional equipment included [ ] tape transcribing positions, frequency meters, and 15 direct "RF" trunk lines. Personnel varied from 27-38 during the year.<sup>1</sup>

During the year experiments were conducted on General Search on 5-540 kcs, 500-12500 kcs, and 12500-25000 kcs. The project was discontinued because of lack of GREEN items intercepted from COMINT targets.<sup>2</sup>

Non-Morse Intercept: Strength varied from [ ] over the year.

Many minor changes and additions were made to magnetic tape equipment. Four specialists arrived in November 1954 to install precision tuning equipment (AFSAV-D-72) for the 6TP Flex Mux position. Eleven ASAN-15 printers with interchangeable C and D type baskets arrived 11 Jun 54. On 10 July, Boehme

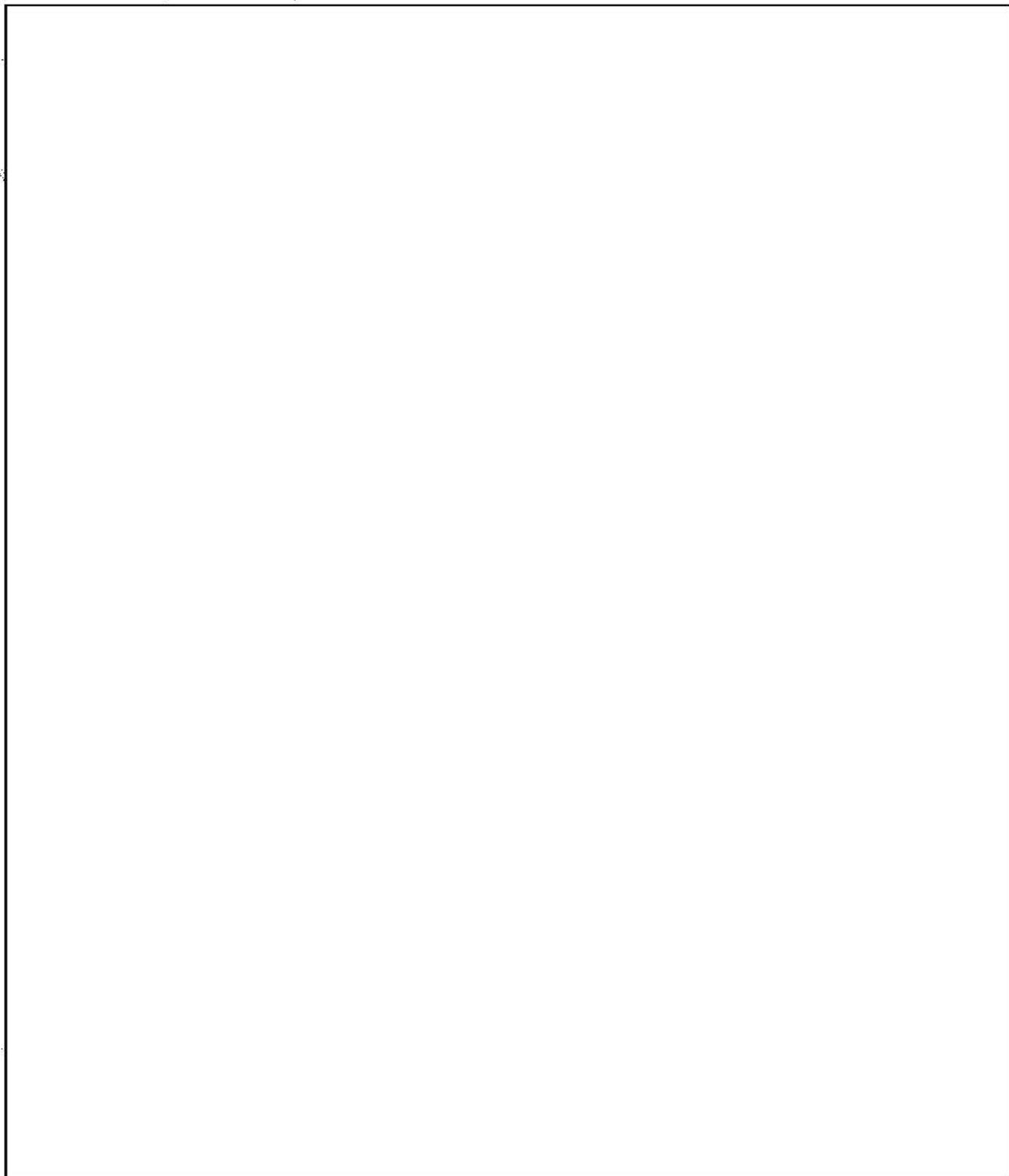
1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pp32-34.  
2. Ibid. pp50-51.

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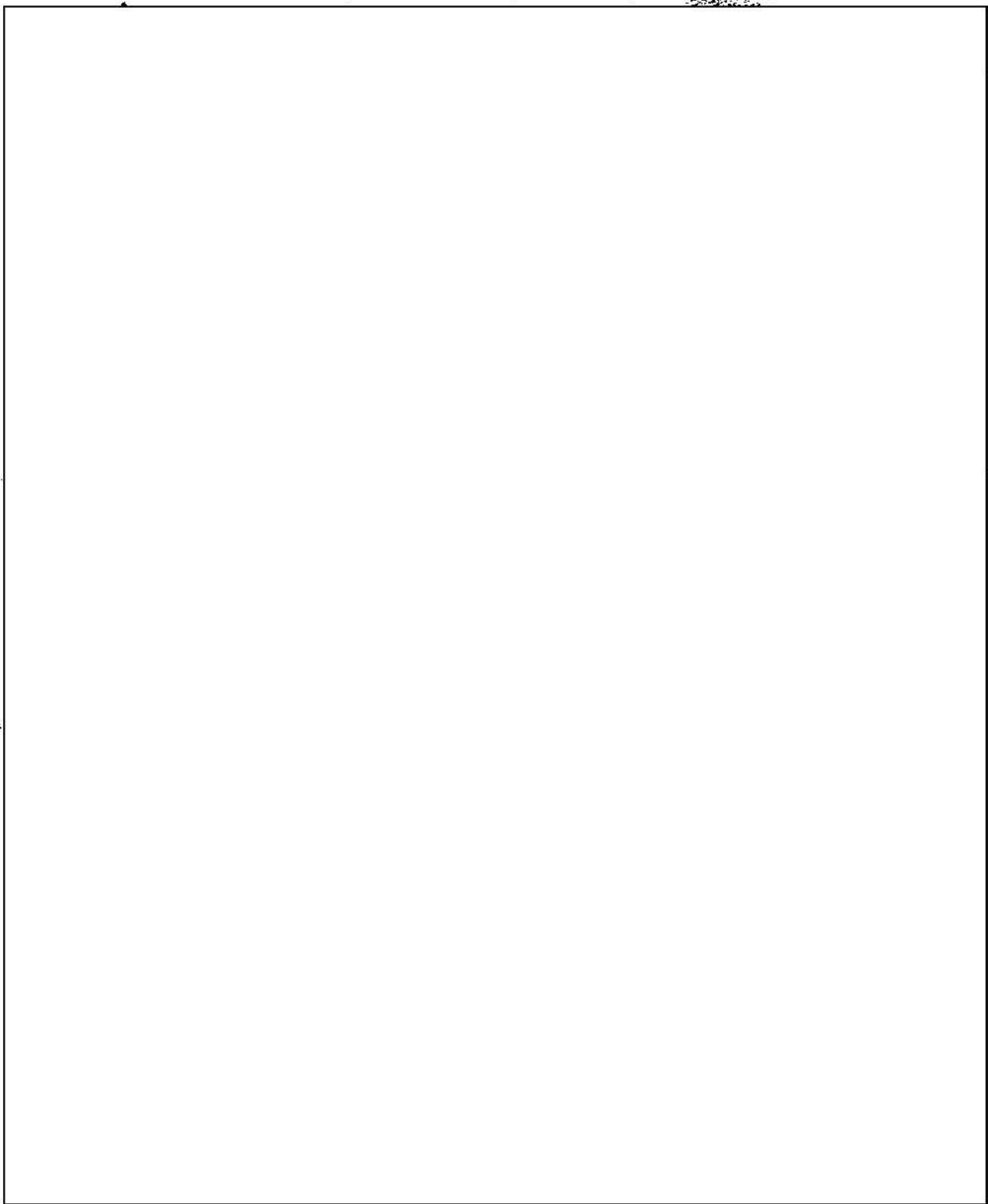
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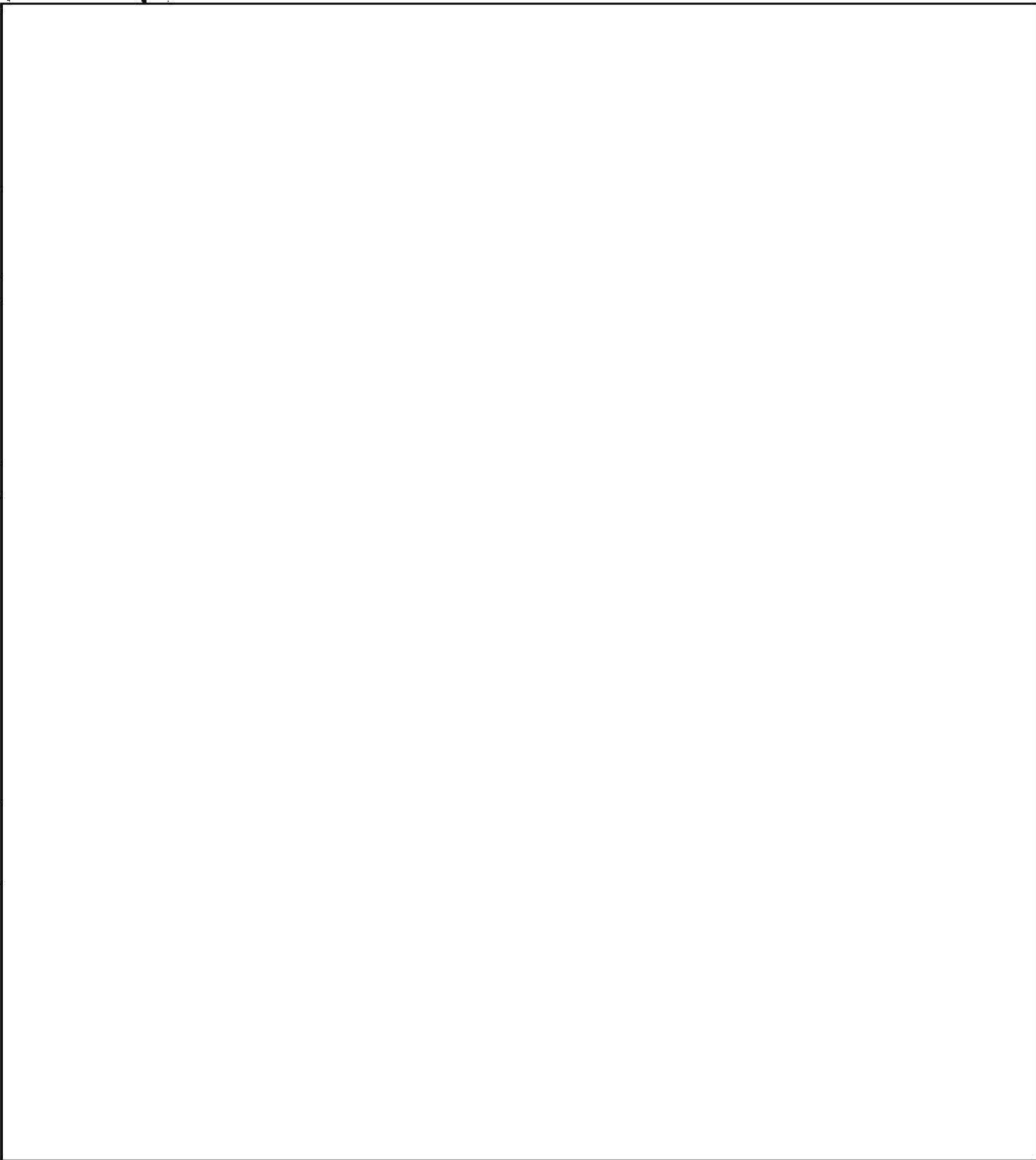
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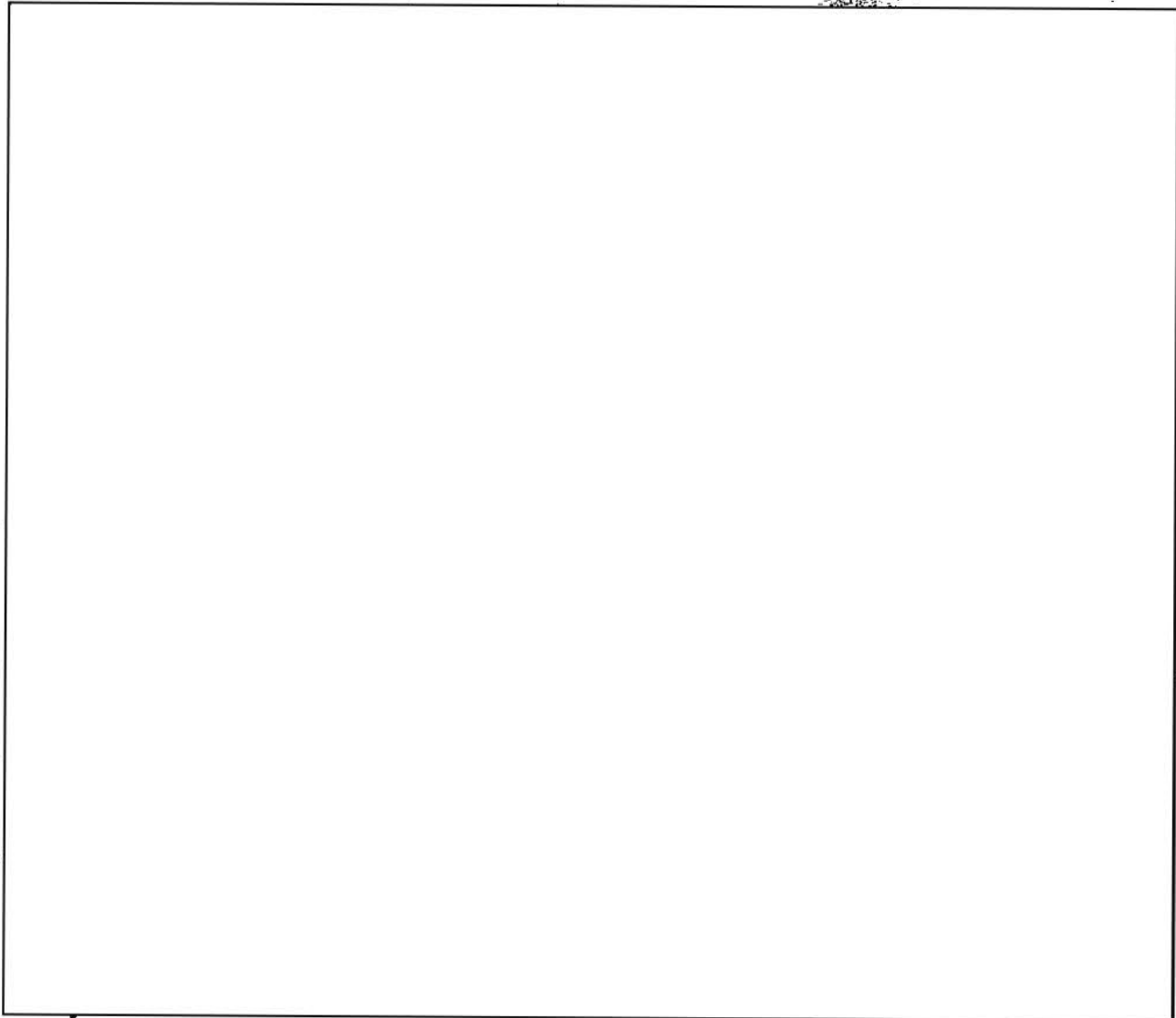
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1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pp36-41.

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Detachment "6F": This detachment, located in Berlin, was operationally controlled by Fld Sta 8606. The detachment was assigned the unique mission of intercepting nets which could not be heard or whose continuity could not be maintained from the US Zone of Germany. This required a large amount of T/A both positive and negative. Primary mission continued to be low-level military transmissions emanating from the

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1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pp41-45.

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Special Identification (RFP): In this section, RFP activity, which was organized as a component part of the DF Section, identified designated transmitters by amplitude and frequency modulation characteristics, through utilization of DEN 17-1 and DEN 17-2.

Prior to March 1955, only two shots for analysis were retained, one of which was placed in a visual classification search file, the other in a basic station trinome file. This system, designed to handle a large volume of shots, depended on obtaining continuity on each transmitter. Due to changes in transmitters from one shot to the next, analysis personnel could not always be sure of the match with only two bauds to compare, particularly on seldom heard cases. After the administrative change, four bauds were retained on each shot. The library was then divided into two sections: a single-file, by classification, for unmatched shots, and a matched file, filed by case then by classification. A total of 7722 shots were taken of which 2763 were saved. Some 32% of the shots saved were matched. Station traffic control personnel verified as matches 612 or a total of 84% correct.<sup>2</sup>

Radio Direction Finding: This section was primarily concerned with the locating of designated transmitters derived from bearings taken by the ASA Europe fixed DF net which included:

1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pp45-47.
2. Ibid. pp26-29.

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Control	- Fld Sta 8606
Alternate Control	- Fld Sta 8608
Detachments	- Berlin
	Bremen
	Sinzig
	Malmsheim
	Memmingen

In supplying positive targets, DF control operators utilized RFP, search positions manual Morse, and tip-offs from other DF stations. While the station's RFP assignment did not parallel the DF assignment, personnel employed on both were able to assist each other upon occasion.

Until 8 Aug 54, ASA Europe tracking code was employed on a conference, half-duplex circuit with results submitted by AFSAM 4A. After that date, COMUS cryptosystem was employed. On 16 Dec 54, circuits were conferenced and AFSAM 4A equipment was replaced on-line by TG-7.

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A total of 13,827 fixes were produced during the fiscal year not including accuracy studies. On 2 Sep 54, the policy of flashing at least five  missions every 24 hours for accuracy studies was changed to  missions. Additional instructions in February 1955 provided for an additional 25 shots per day on a random basis.

Operations were affected during the year by the loss of one outstation. One detachment was inactive from 21 Jul 54 to 3 Sep 54 while equipment was transferred to Sinzig and another ceased operations from 15 Sep 54 to 2 Oct 54 during site relocation tests. Possible relocation of a detachment located at Bremen Airfield was under study and tests were conducted at Nesse, Wittstedt, Adelstedt, Ringstedt, Kohlen, Midheim and Neuenwald. The latter was selected and paper work was pending for land acquisition at the end of the fiscal year.

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The station also discharged responsibility for the ASA Europe COMINT tip-off net which consisted of one control, an alternate, and three out-station. Prior to 18 Oct 54, the net operated by Fld Sta's 8606, 8608, 8611 and the 328th and 331st Companies was not very effective. To improve efficiency, a series of COMUS pads were issued. The net was so established as to conduct tracking activity in event of special mission assignment, suffix call signs, "A" priority target, or a major call sign change.<sup>1</sup>

Signal Supply Maintenance: Principal fy 1955 projects included installation of DEN 17-2, 13 ASAN-15 units, [ ] RFP search positions, a non-Morse search position, a flexible multiplex position, 8 additional racks and associated manual Morse equipment. In July 1954, all German-type R/F cable was replaced with RG-11 cable. In January 1955, AFSAV D31 was removed, and a facsimile position modified to a signal analyzer position. In March, a console search position was replaced with Mux search and simplex search positions. Remodeling of [ ] positions commenced the same month. [ ] new positions were installed by the end of the year. Additionally, all old radio receivers in the manual Morse area were replaced with R-390.<sup>2</sup>

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REF: VOL. I P. 246

10. Field Station, 8608 DU, Scheyern, Germany

No significant change occurred in the operational structure of Fld Sta 8608 during fy 1955. The primary mission of collecting and analyzing COMINT through intercept of manual Morse signals of [ ] networks, and the manual Morse nets and radio printer links of some geographical districts of [ ] continued.

1. Ann Rept, FS 8606 DU, fy 1955, Vol II, pp26-29.  
2. Ibid. pp12-16.

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During the year the bulk of those operational missions concerned with [ ] Morse and radio printer assignments as well as [ ] Morse networks and voice nets emanated from NSA. In these matters, Hq ASA Europe acted as intermediate headquarters between the station and NSA and was charged with the decentralized problem of developing interference and reporting of [ ] Military and Navy networks.<sup>1</sup>

The station's Operations Division maintained an average of [ ] manual Morse, [ ] voice, [ ] single-channel radio printer, and [ ] double-channel positions during the year in addition to alternate control of the ASA Europe DF net.<sup>2</sup> Effective February 1955, interchange of raw product and analysis information was established with the 6912th Rad Sq Mbl whose mission in [ ] voice intercept was similar to that carried out by the station. Accordingly, the station commenced sending a copy of its intercept directly to the Air Force unit and in turn received replies by cable discussing identification of nets and related information.<sup>3</sup>

Operational highlights of the principal sections comprising the Operations Division follow:

#### Intercept

At the close of fy 1954, low-level intercept results had become poor. This trend continued during the opening months of fy 1955.<sup>4</sup> Principal concentration was [ ] nets in anticipation of a major change. Coverage improved in September 1954 due to the easing of atmospheric disturbances

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl.
2. Ibid. p38.
3. Ibid. p37.
4. Ibid. p5.

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that had been hampering intercept.<sup>1</sup> Low-level missions, [redacted] [redacted] were dropped from assignment. To complicate the situation, there was a definite increase in low-level search.

Some improvements, however, were noted at this time. A number of BC-1004 receivers were replaced with Hammerlund SP-600 Receivers. Unfortunately, it was impossible to supply all operators with these receivers; therefore only specialized services such as [redacted] and [redacted] low-level positions were equipped with these sets. Good results were obtained.<sup>2</sup>

In October 1954, conditions grew better and coverage was above average. Low-level search was also above average during this month.<sup>3</sup> Operations appeared normal for all Morse services, and an [redacted] mission was assigned the station at the beginning of the month. These nets afforded an excellent way to train new operators. Receiving conditions were excellent all through November and December. Approximately 1700 msgs were intercepted in November from the assigned [redacted] Military mission and 2500 msgs were intercepted during December. Low-level military intercept also became active during this period. The station's [redacted] mission received adequate coverage, and intercept remained constant.

Increase in low-level coverage was due, in part, to the modification of the station's antenna system. [redacted] in particular, transmitted a great deal of traffic during December, but this was considered normal for the holiday season. December was also the period when operators were told to be prepared for a major communications change,

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p5.  
2. Ibid. p6.  
3. Ibid. p7.

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and expansion of the [ ] communications network was discussed.<sup>1</sup>

In January 1955, it was difficult for station operators to identify most of the mission with exception to mainline [ ] groups due to the expected communications change in the whole [ ] mission. Despite this, intercept increased substantially for the fifth month reflecting considerable volume, little quality. [ ] transmitters could, however, be identified by station operators which, with recovered frequency rota, made it possible to maintain net continuity on these groups and some station to station continuity.<sup>2</sup> [ ] intercept remained average with little or no deviation from the normal pattern. Operator comments aided greatly in establishing net and station to station continuity on [ ] group. Modification of the station's antenna system proved worthwhile as the majority of the [ ] mission started operating below 2500 kcs at the beginning of the year. To combat this, an antenna transformer was installed which passed lower frequencies more readily.<sup>3</sup>

Reception was good and coverage excellent in February. [ ] [ ] low-level military search decreased during this period. Operator's comments increased, but were still considered inadequate. Although receiving conditions were good in March, low-level military search again decreased. The group [ ], the appearance of which was normally associated with impending maneuvers, was heard the latter part of the month and operations were placed on alert for unusual activity in April or May. [ ] activity was also noted during this period, another indication that maneuvers

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p7.
2. Ibid. p8.
3. Ibid. p9.

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were about to commence.<sup>1</sup> Signals were good in April, and twice the normal monthly volume of traffic was intercepted from the assigned [ ] Military mission. A total of 3494 msgs was intercepted from [ ]<sup>2</sup>

Toward the latter part of fy 1955, atmospheric disturbances reappeared. Maneuver activity commenced and, as usual, most of the [ ] groups disappeared. Maneuvers appeared to be on a larger scale than in 1954, and low-level search was abundant principally because [ ] nets were changed from priority to sampling coverage. Alternate assignments were assigned all sampling positions, and the results were gratifying.<sup>3</sup>

#### Non-Morse

Non-Morse mission of the station during fy 1955 was the intercept of [ ] radio printer signal, and printer cases parallel to assigned Morse cases. Coverage and control of the mission was influenced by the fact that it was limited search and that the Non-Morse Section included only [ ] two-channel positions, and [ ] single-channel positions.<sup>4</sup> Duplex positions were utilized to copy two-channel military signals, printer cases parallel to assigned [ ] Morse cases, and [ ] search links. Simplex positions were utilized to copy assigned single-channel links which included [ ] search link. The turnover rate of non-Morse personnel was high, but on-the-job training was effective in preventing interruption in mission. Equipment utilized for non-Morse activity remained intact.<sup>5</sup>

Considerable change occurred in the printer mission during fy 1955.

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p9.
2. Ibid. p10.
3. Ibid. p10.
4. Ibid. p11.
5. Ibid. p11.

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In July 1954, the station was assigned a frequency spectrum of 3000 kcs through 7100 kcs for coverage. Accordingly, all two-channel and ITPB links were copied.<sup>1</sup> [redacted] military links were given new case notations, [redacted] links were dropped. In summary, a sharp reduction in printer intercept occurred.<sup>2</sup>

The station initiated tip-off communication with the 328th Company during the year for the purpose of establishing continuity on the [redacted] [redacted] The intention was to provide instant information over the DF reporting loop when a case held jointly by the station and the 328th was up and when either station had more to copy than its equipment was able to handle. The project was successful with about 20 extra tip-offs being transmitted weekly, but it required a lot of extra time on the part of supervisory personnel. The program ceased following removal of the Central Group of Forces from the station's Morse mission.<sup>3</sup>

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Voice Intercept

Station coverage of [redacted] voice activity was principally devoted to the [redacted].<sup>4</sup> On 12 Feb 55, a new station-[redacted] appeared which repeated slightly altered messages from [redacted] Other stations-[redacted] and [redacted]-repeated messages until May 1955, at which time they discontinued. A number of unidentified nets also appeared after February 1955, thereby increasing general coverage.

Personnel engaged in voice intercept activity increased from 3 to 12

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl2.  
2. Ibid. p38.  
3. Ibid. p25.  
4. Ibid. pl3.

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during the year. As most of these were school-trained, only a period of on-the-job training was required. One problem was the fact that half of the mission was concerned with the [ ] language, and half with [ ] [ ] Although the languages were somewhat similar, assigned personnel were not adequately familiar with [ ] Frequently conditions arose where translation of [ ] was required, but it could not be done with accuracy or ease.<sup>1</sup>

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#### Traffic Analysis and Control

Station personnel assigned to traffic analysis and control activity continued in fy 1955 to study and scan raw intercept traffic, make identifications wherever possible as to case notation, and attempt to establish the axis of communication and related OB. To carry out these functions, analysts were divided into three teams viz: [ ] Morse, [ ] Morse, [ ] Radio Printer.

The primary mission- [ ] Morse--continued. In July 1954, a station report was made concerning signal strength and readability of [ ] Military and Naval networks which proved invaluable in identification because of the many changes that subsequently occurred in these nets.

Continuity of the Police network was accomplished in the first part of October 1954 after being assigned to the station in the last part of July.<sup>2</sup> The entire [ ] communication network discontinued the use of [ ] call sign Book #1, which had been utilized for over two years. Frequency rotas, the call sign generation system, and schedules were developed.<sup>3</sup>

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl3.
2. Ibid. pl4.
3. Ibid. pl4.

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On 1 Jan 55, [ ] Military and Border Guards underwent a complete change of their systems. [ ] Police nets soon followed with a change on 3 January, and the [ ] Navy changed 10 January.

Systems of the [ ] Military networks were gradually recovered during the third quarter of fy 1955. This was greatly aided by good volume from intercept, and close cooperation by local DF. Frequency rotas were first established and station continuity recovered through intercept identifications and local DF plotting. Subsequently, other recoveries were made such as schedules, new call sign books, call sign keys, etc.<sup>1</sup>

[ ] Navy nets were recovered mostly by transmitter and net characteristics and continuity recovered on [ ] Border Guards and Police nets. This was accomplished by the development and application of frequency rotas and schedules. The [ ] net was heard daily and was changing frequencies and call signs approximately two times monthly.

High echelon [ ] Military nets changed basic station dinomes, page selection, and call signs for February, June and October beginning in October 1954. In February and June 1955, this new system was repeated. Because of this change, the net was not cased during the last half of October 1954; however, a net having transmitters and procedure characteristics of [ ] was intercepted with call signs derived from Book "F" with a plus two additive and at least three and possibly four ranges of basic station dinomes.<sup>2</sup>

After this change, five stations were heard. Later, there were eight,

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl5.
2. Ibid. pl5.

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two of which contained Book "F" call signs each month regardless of the predicted Book. In March 1955, these Book "F" call signs appeared on both day and night schedules acting as alternate control.

A fixed call sign [redacted] first noted in August and September 1954, was seen sporadically during fy 1955 in [redacted]. An unexplained silence occurred on this net from 28 Sep 54 to 28 Oct 54 after which it returned to normal operating procedure.

Pertinent information on all known [redacted] Naval nets was received from NSA in Interim Report NSA 90 #321-54. This document was an aid in clarifying the problem as it provided narrative summary of Navy nets in addition to a compilation of technical traffic analysis aids.<sup>1</sup>

Unusual air procedure was noted in [redacted] in November 1954 indicating that operations formerly associated with [redacted] Air nets were newly assigned to Military nets or there was further collocation of stations of Air nets with stations of Military nets.

In mid-April 1955, a new challenge and authentication system was inaugurated on the [redacted] Military and Navy nets. The new system consisted of a [redacted]

number and that one answered by the challenging station with another [redacted] [redacted] number. Through analysis of intercept, "Q" signals, "QTY" and "QRY" were found to be used on these nets as net and station indicators respectively.<sup>2</sup>

The station participated in Operation MOBY DICK 15 Jun 55, in which

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl6.
2. Ibid. pl6.

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15 balloons were launched and the signals they emitted were to be intercepted.<sup>1</sup> This and similar projects did not meet with success at the station since the frequency of 18.06 mcs, it was suspected, was out of the normal range of the station's mission.<sup>2</sup>

#### Radio Direction Finding

At the beginning of fy 1955, the station's DF organization comprised the following:

- 1) Alternate Control--located at station headquarters, Scheyern.
- 2) Detachment "A" at Memmingen.
- 3) Detachment "B" at Malsheim.
- 4) Detachment "C" at Kassel.

Due to consistently poor bearings at the location of Detachment "C," it was discontinued 5 Aug 54. Detachment "B" was transferred to Fld Sta 8611 7 Jun 55 and its personnel returned to Scheyern.<sup>3</sup> By the end of the report period, the station was in control of one DF site at Memmingen and additionally operated alternate control of the ASA Europe DF net.<sup>4</sup> Detachment "A" received support from Kaufbern Detachment until the start of the new calendar year when Ulm Military Post assumed responsibility. Stuttgart Sub-Area assisted Detachment "B."

In July 1954, an \$8,000 building project of one operations building and a generator hut was approved for the Memmingen site. During construction, many changes had to be made and it was not until September that the site was accepted and equipment moved into the location. AN/TRD-4 equipment was installed 11 November and this contributed greatly to the accuracy

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p26.

2. Ibid. p26.

3. Ibid. p17.

4. Ibid. p18.

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of bearings. By the end of September new equipment had also been installed at the other DF site at Malmsheim with good results.

On 1 Aug 54, MACO and ASAEIC system of encipherment was replaced with CENTAUR local operation system for routine and administrative traffic, and COMUS one-time pad system for the flashing and reporting of mission.<sup>1</sup> In January 1955, CENTAUR on-line system was used in conjunction with CENTAUR one-time pad. On 20 May 55, CENTAUR was replaced by DIANA for outstations and control.<sup>2</sup>

A more radical change than usual occurred in the [ ] Military and Naval networks on 1 Jan 55. In previous years, nets were more easily recovered and continuity re-established faster because [ ] forces continued the use of calls from the same book, and the same address trinomes were utilized. In January, however, calls were generated from a new series of 11 call sign books. Other than for transmitter identification by intercept operators, it was difficult to redevelop networks in their former patterns.

Since information was at hand as to previous geographical location of most of the stations in the [ ] Military districts, a project was begun on 20 January to isolate geographical districts and later on, the stations within the nets by local DF plotting in conjunction with intercept recognition and traffic analysis finding.

Approximately 1 February, [ ] OB maps, military district boundaries, and additional former station locations were obtained. One week later basic

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, pl8.
2. Ibid. pl8.

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trinomies on military stations were received from ASA Europe, which provided a procurement basis for identifying mainline stations.<sup>1</sup>

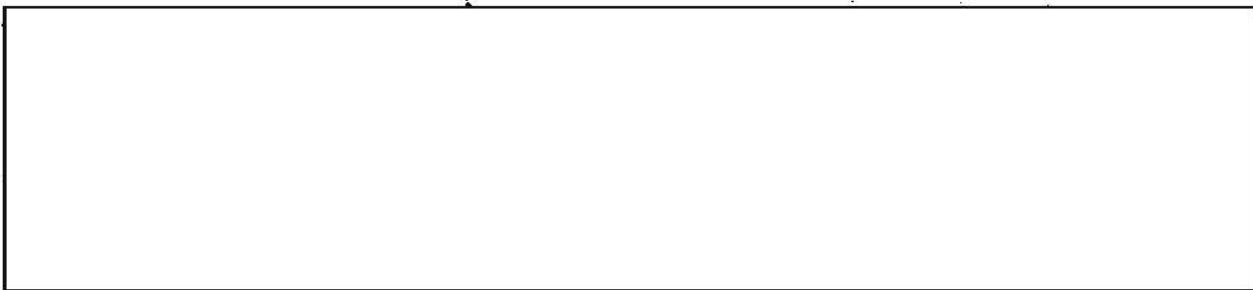
By plotting and evaluating bearings obtained from ASA Europe fixed DF net, definite location of stations were obtained and were of real value in formulating a better picture which would provide analysis personnel proper leads. As the basics had been recovered and station locations were known, it was possible to associate the calls heard daily with the station sending them.<sup>2</sup> This was done at the station by local DF plotting and, as a result, the recovery of the four months call sign keys was obtained more readily.

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..... This coordinated effort which had formulated recovery of the [ ] Mainline Military net was later extended to include lower echelon nets with fair to good results.<sup>3</sup>

#### Detachment K (Formerly Det E)

This detachment, a separate unit, conducted its operations during fy 1955 with emphasis on [ ] Border Guard networks. Continuity was excellent on high-level [ ] Military nets and good continuity was maintained on low echelon military and [ ] Border Guard networks.



1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p26.
2. Ibid. p27.
3. Ibid. p27.
4. Ibid. p23.

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During the year, all [ ] Border Guard nets changed basics monthly, but stayed within the 950-999 mcs range. [ ] Military nets changed basics bi-monthly, and were allocated according to OB. An exception to the bi-monthly system occurred during the May-June 1955 period when all [ ] Military garrison nets repeated basics of the March-April period, while the field training net introduced new basics.

[ ] Military and Border Guard used one set of keys for page, row, column which were changed daily during the year. These repeated monthly from 1 Jul to 1 Nov 54, when a new set of keys were introduced and prevailed until 1 Mar 55. The set of keys introduced 1 March continued in use during the remainder of the year.

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On 1 Oct 54, [ ] Border Guard nets were reorganized. [ ] and [ ] were dropped. Outstations of these nets were incorporated into [ ]

Definite bi-monthly frequency rotas were used by all [ ] Military nets during the year. These changed frequencies five times during the first 15 days of each month and reported during the second half of the month.

[ ] Border Guard nets changed frequency rotas monthly. Four frequencies were used by each during a month, changing every eight days.

On 5 Nov 54, a major reorganization took place within the [ ] Military networks. [ ] dropped his fourth outstation [ ] which was subordinate to [ ] became the third outstation of [ ] which was also subordinate to [ ] replaced [ ] as the third outstation of [ ] became

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p23.

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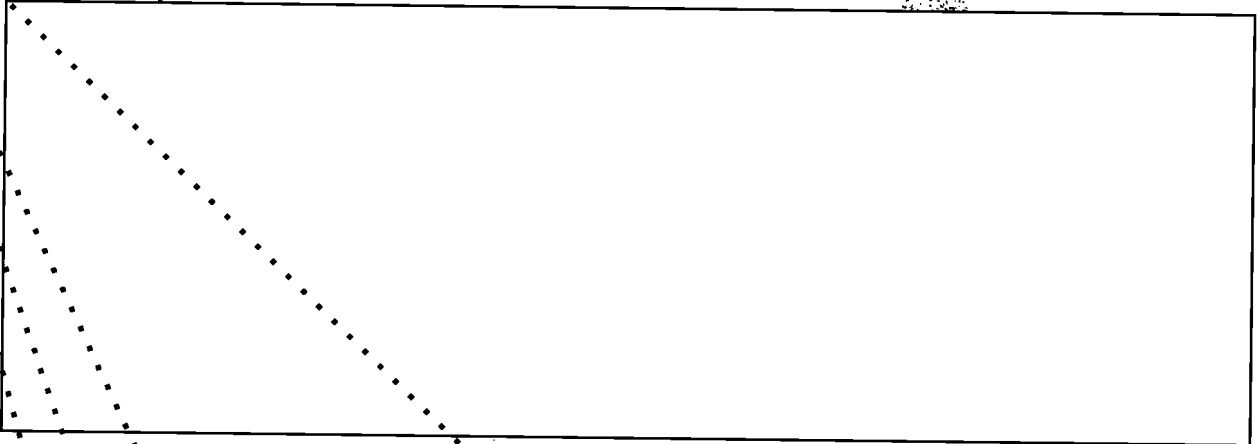
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the third outstation of [redacted]

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On 5 Jan 55, a new system of [redacted] chatter was introduced. Instead of two digit groups, the new system consisted of a combination of two or three digit groups. On 14 January, an unusual preamble first appeared on practice



determined whether the messages were practice or bonafide.

[redacted] introduced complex working on 1 March, and continued to use it throughout the remainder of the fiscal year.<sup>2</sup> This was the first time such a working was noted on any [redacted] net.<sup>3</sup>

[redacted] Military nets began using net calls on 1 March. With the advent of these net calls, there was a decrease in operational chatter on the nets, which resulted in a change of procedure. As the year ended, only [redacted] continued to use a definite procedure.

[redacted] Military nets stressed security from 5 Jan 55 to the end of the fiscal year. This was evidenced by the introduction of a permanent security station which changed its call sign bi-monthly.<sup>4</sup>

REF: VOL. I P. 250

1. Ann Rept, FS 8608 DU, fy 1955, Vol II, p24.
2. Ibid. p24.
3. Ibid. p25.
4. Ibid. p25.

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## 11. Field Station, 8611 DU, Baumholder, Germany

Throughout fy 1955, Fld Sta 8611 continued to intercept foreign communications, to perform DF, to apply special identification techniques, to submit raw material and technical reports, and to perform ancillary tasks as required in support of the National COMINT effort.<sup>1</sup> Little difficulty was recorded in the performance of this assigned mission during fy 1955. Operational effectiveness was not seriously impaired by routine problems of personnel losses and equipment and supply shortages.<sup>2</sup>

Equipment utilization was held to the maximum through control of the intercept mission to insure that tasks were assigned to all of the equipment available. Major installation projects completed during the year included:<sup>3</sup>

- 1) Three Flexible Multiplex positions.
- 2) One  Simplex position.
- 3) Two on-line ITPB positions utilizing two Model-28 Teletypewriters and two SFO, Signal Generators.
- 4) Two on-line 2B positions utilizing AFSAV-D-86A (GOBLIN) and two Model-28 Teletypewriters.

The major maintenance problem encountered during fy 1955 was lack of adequate testing equipment used for repair, alignment, and calibration of high tolerance electronic equipment. Specific equipment items needed included:<sup>4</sup>

- 1) Vacuum Tube Voltmeters.
- 2) Precision Signal Generator (with calibrated output).
- 3) Frequency Standard and Impedance Bridge.

Actual operations at Fld Sta 8611 were divided into four phases: DF, Manual Morse, Non-Morse, and T/A. Following is an account of the conduct of operations in each individual phase:

1. Ann Rept, FS 8611 DU, fy 1955, Vol II, p2.
2. Ibid. p17.
3. Ibid. pp13-14.
4. Ibid. p15.

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Direction Finding: Fld Sta 8611 operated one DF site until 7 Jun 55, when a second site was made operational. The mission of these sites was to take bearings on targets flashed to them by net control. Control for this fixed station DF net was held by Fld Sta 8606, alternate control by Fld Sta 8608. Fld Sta 8611 was assigned primary responsibility for tip-off on activity of specified targets.<sup>1</sup> [ ] priority DF tip-off assignments covered 41 targets in [ ] Military nets.<sup>2</sup>

Manual Morse: At the beginning of the fiscal year, 26 positions were required on a continuous basis and, at the end, 28 positions. Actually, there were [ ] positions installed; 23 of them vertical rack, double receiver type, and 7 of them double receiver, console type.<sup>3</sup>

The number of manual Morse position assignments showed only a decrease of two during the fiscal year, from 33 to 31. In the fourth quarter, these position assignments were redesignated "AM" and "JM," the "A" denoting positions which provided intercept of sole interest to NSA, and the "J" denoting positions which provided intercept of joint interest to NSA, the service cryptologic agencies, and the field processing centers.

Targets listed under position assignments showed a general adjustment during the report period. Whereas [ ] Military nets were covered at the beginning of fy 1955, only [ ] Military nets were covered at the end. Coverage of nets in the [ ] was deleted altogether. On the other hand, coverage of [ ] traffic was added while coverage of [ ] showed a small increase. Coverage of [ ] and Police traffic remained relatively unchanged.<sup>4</sup>

Non-Morse: Non-Morse intercept was significantly affected during the fiscal year by the extensive use of simplex and flexible multiplex signals on [ ] links and simplex and two-channel multiplex [ ] links. At the beginning of fy 1955, coverage of simplex [ ] signals was obtained on an Ampex S-3160 tape recorder. However, only one position was available, and coverage was limited. In October 1954, the section started copying simplex [ ] signals on perforated tape with undulator tape back-up. [ ] positions were utilized to cover this portion of the assignment.

In June 1955, an NSA team visited the station to install special [ ] equipment and to acquaint intercept personnel with the latest intercept procedures. With this equipment much of the work formerly done by the analysts was now done on-line by intercept operators. This included indicating stutter groups, converting cipher counts, indicating [ ] passages, and marking page copy in such a way that alignment could be made.<sup>5</sup>

1. Ann Rept, FS 8611 DU, fy 1955, Vol II, pp2-3.
2. Ibid. Tab 5.
3. Ibid. pp2, 8.
4. Ibid. Tab 3.
5. Ibid. p9.

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A number of major changes in the Non-Morse assignment were made during fy 1955. In July 1954, the RCA 00100 case notation was replaced by a system of trinomes. The new system, by giving a trinome for each city, did away with the use of city diagrams as a means of servicing and identifying traffic.

In October 1954, the entire assignment was dropped, and a new mission assignment established. The new mission assignment consisted of five categories, each category denoting a specific type of signal to be given a specific type of coverage. Categories assigned the station included:

- Category 1 (Simplex).
- Category 2 (Simplex, [ ] to be copied on perforated and undulator tape).
- Category 3 (Simplex, [ ] to be recorded on magnetic tape).
- Category 5 (Military Two-Channel).
- Category 6 (Commercial Multiplex).

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In November, Category 3 was dropped, and Category 7 (Flexible Multiplex) established. In January 1955, Category 9 [ ] Morse Automatic) was established. In June 1955, all categories were changed to Block Groups, and three additional Block Groups were established:<sup>1</sup>

- 1) Block Group AX-12 (Two-Channel Scrambler)
- 2) Block Group AX-13 (Military Two-Channel)
- 3) Block Group AX-14 (Simplex [ ])

Traffic Analysis: Operational end product of the station included raw traffic, both Morse and non-Morse, TECSUM's, DARE's, DANAR's, Technical Support Material, and Weekly Analysis Notes. To meet new reporting requirements effected by the [ ] call sign change, 3 Jan 55, the T/A effort was reorganized, and four traffic analysts per trick were assigned to work directly with Manual Morse and Non-Morse operators. This reorganization greatly expedited the preparation of daily reports such as the TECSUM, DARE, and DANAR.<sup>2</sup>

REF: VOL. I P. 256

1. Ann Rept, FS 8611 DU, fy 1955, Vol II, pp10-11.  
2. Ibid. pp7, 16.

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## F. Pacific

## 1. Hq ASA, Far East, Tokyo, Japan

Throughout fy 1955, the mission of the Operations Division, ASA, Far East was:

- 1) To exercise technical supervision and coordination of intelligence collecting and producing activities of ASA, Far East and subordinate units.
- 2) To maintain liaison with AF and Navy counterparts for coordinating intelligence efforts for the theater G2.
- 3) To supervise special ASA, Far East intelligence activities and detachments.

In discharging this mission, liaison was maintained with local intelligence representatives, the Special Security Representative, AFPE/Eighth US Army (Rear), and Special Security Representative, FECOM both to obtain collateral support as required, and to pass COMINT "end products" to authorized consumers. A direct teletype line was established to Special Security Representative AFPE/Eighth US Army (Rear) at Camp Zama.<sup>2</sup>

Activities of various operational sections follow:

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Control

The Control Section was made up of  throughout fy 1955. Its function of coordinating assignments and forwarding raw intercepted traffic was reduced largely to an "office of record." During the year, DIRNSA continued to direct intercept assignments to Field Stations 8603, 8609, 8610, 8612 and the 327th Company. The 326th, 329th and 330th Companies received their missions from the 501st Group.<sup>3</sup>

1. Ann Rept, ASAFE, fy 1955, Vol II, p2.

2. Ibid. p68.

3. Ibid. p4.

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As of 30 May 54, there were [ ] intercept personnel operating [ ] manual Morse positions. On 30 Jun 55, a total of [ ] personnel operated [ ] manual Morse positions.<sup>1</sup>

In early December 1954, due to the large loss of intercept personnel, ASA, Far East requested subordinate units to go on a 3-trick system; however, NSA permission to drop some manual Morse assignments allowed the stations to resume 4-trick schedules. An airlift from the ZI greatly alleviated the critical personnel shortage, and an overstrength of Chinese linguists made it possible to put [ ] linguists on TDY with the Navy for duty afloat, and several with the AF on Okinawa. After [ ] intercept was intensified, the overage was largely nullified. The Navy agreed to train seven Army personnel to operate an MOA position at Fld Sta 8603 for which no qualified personnel were available.<sup>2</sup>

Following notification by NSA that a former site survey on Kyushu was inconclusive, a site survey team was sent to Camp Hakata on 20 May 55, moving to Camp Wood a month later. The team operated one Morse and voice general search, one voice, one RP, and three manual Morse positions.<sup>3</sup>

Chinese

This section consisted of [ ] Civ (1 on DS from NSA, Far East) at the beginning of fy 1955 and [ ] Civ and [ ] EM for on-the-job training at its end. With the return of the [ ] problem to NSA, increased research and development responsibility on the Third Field Army Problem, and assumption of responsibility for translating

1. Ann Rept, ASAFE, fy 1955, Vol II, p9.
2. Ibid. pp8-9.
3. Ibid. p7.

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and publishing WC 501 commercial intercept, a redistribution of personnel was effected.<sup>1</sup>

Throughout the year the T/A Subsection processed material from four problems: PVA (North Korea), Third Field Army (East China), Northeast China, and Voice Morse (North Korea and China Mainland).<sup>2</sup> Developments follow:

### Peoples' Volunteer Army<sup>3</sup>

PVA was a most productive source at the beginning of the year. It supplied consumers with geographical locations and relocations of PVA branch units and Armies, and identifications of CCF divisions and North Korean Corps. Machine aids were increasingly exploited, largely on long range studies and development of unknown calls. They were used extensively by four traffic analysts who attempted to procure continuity of any [ ] calls in North Korea. Intercept was supplied by [ ] and [ ] positions at the 329th Company. Evidence supported the presence of 11 CCF Armies, 9 CCF Artillery Divisions, 3 CCF Army Groups, 4 North Korean Corps and 25 CCF Infantry Divisions in North Korea during July 1954. Prior to 9 Jan 55, 2 CCF Armies, 3 CCF Artillery Divisions, and 4 CCF Infantry Divisions were accepted by COMINT as having left North Korea.

A major change in Chinese Communist communications occurred 9 Jan 55, and procedure was revised in addition to a complete call sign system change. This completely eliminated previous T/A capabilities of identifying units and network reconstructions. After 9 January, call signs used on suspected PVA communications changed twice daily, whereas previous procedure was unchanging utilizing substitutional alphabets. As a result, large scale machine aids were initiated and a number of tentative continuities or associations of nets having characteristics of former PVA communications systems were resolved.

By June 1955, 5 nets [ ] and 13 nets [ ] were determined as possibly serving PVA. With these notations traffic analysts began recovering station continuities directly from raw intercept as it was received. Four nets notated as [ ] were tentatively identified as PVA Rear Hq, encompassing 9 outstations which were believed serving armies. After 1 Apr 55, only 7 outstations, and 3 nets suggested as possibly serving the 2d Branch Hq were observed in communication with the 9 outstations.

1. Ann Rept, ASAFE, fy 1955, Vol II, p9.
2. Ibid. p10.
3. Ibid. pp10-13.

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After 1 June, a semi-major call sign change occurred on all PVA links. Positive identification of former [ ] notations was not accomplished. All former notated links appeared to have changed their NR blocks to a 1000 type. Research on the call sign system, allocations, and repeated calls made it possible to maintain continuity on previously observed nets, although not as complete as prior to 1 June.

Most nets notated as possibly serving PVA were located by DF in the general Pyongyang area. Available information 30 Jun 55 was insufficient to establish positive identifications or numerical designations of any PVA units in Korea.

### Third Field Army<sup>1</sup>

Importance of analytical effort on Third Field Army communications network increased primarily because of increased activity of Chinese Communist military units along the east coast of China Proper; particularly in the area adjacent to the Formosa Strait.

Close technical support of Fld Sta 8603 and the 327th Company involved the daily processing of raw material and subsequent publication of noteworthy information pertaining to T/A results. These publications included "ASAFE Weekly Technical," consisting of pertinent information of a current nature; "ASAFE Technical Support Letters" and ASAFE Informal Technical Comments," normally containing information accumulated over a longer period; and "Weekly Status Reports," which contained significant developments in the Third Field Army network, for internal distribution within ASA, Far East.

Third Field Army communications network, as recovered 1 Jul 54, represented five major headquarters: Third Field Army Hq, Nanking; Third Field Army Public Security Hq, Shanghai; Seventh Army Group Hq, Hangchow; Tenth Army Group Hq, Foochow; and an unidentified Army Group Hq, Shantung Peninsula. Nets identified as serving these headquarters and their subordinate units consisted of approximately 20 permanently notated cases and 18 temporary cases. These 38 nets encompassed approximately 135 stations with about 40 equated to their equivalent units.

Procedure signals consisted of encoded "Q" and "Z" signals, usually effective for three months. In most cases encoded meanings could be recovered. Three types of station or relay indicators were used. Two were in effect for a three-month period, however the effective period of the third was little known. Call signs of a repeating type were effective from 10 to 15 days. Exact time that a given call sign period would be repeated could not be accurately predicted however. Intensive research resulted in equation of many relay indicators to specific stations or headquarters. This was a valuable aid in tracing relays, and in establishing station continuity since relay indicators remained static for several call sign periods.

1. Ann Rept, ASAFE, fy 1955, Vol II, ppl3-21.

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On 10 Jan 55, a new station or relay indicator system was introduced using dual tetranomes, representing an addressee or an originating station, depending on the position of the groups in the message preamble. Many groups were recovered, and equated to specific stations or units. After preamble addressee groups had been reduced to call signs or basic indicators, they were helpful in establishing relay patterns and maintaining station continuity.

Twice daily-changing call signs were introduced on the communications network about 1 Nov 54. At that time, two Nanking nets were affected, but despite difficulties, continuity was maintained. On 10 Jan 55, a major change in communications procedures occurred on all nets. Previous call sign, procedure, authentication, and other systems ceased to be observed. New analytical methods were initiated, and the recording system revised in an effort to recover continuity. After 10 January, greater emphasis was placed on machine processing and, in company with other basic analytic tools, isolation of many nets was made possible. RFP and DF material was extremely valuable in the re-establishment of continuity.

Nanking nets were recovered 13 January and some of these having a total of approximately 30 outstations were isolated. Three Hangchow nets consisting of approximately 10 outstations were also isolated and identified. Continuity on 4 or 5 Foochow nets with 11 to 15 outstations was recovered 12 January. No definite continuity was established on Shanghai nets after 9 January; however, several nets believed to be associated with them were observed using a 10-day call sign period in March 1955. Nets in evidence after 20 April employed twice daily-changing calls. Four suspected nets of approximately 15 outstations were isolated. Continuity on Shantung Peninsula nets was established 9 January. Three additional nets with approximately 14 outstations possibly associated with Shantung Hq were isolated. These were believed to have been employing twice daily-changing calls after February 1955.

About 10 May 55, a large number of practice nets was observed in the Third Field Army area. Continuity was maintained on the majority of these nets which employed a seven-day call sign period. In addition, all major Third Field Army controls were observed passing practice traffic in conjunction with regular traffic. Unique number blocks employed on the practice traffic rendered it easily identifiable.

To prepare for the 1 Apr 55 implementation of "NSA Emergency Plan for Formosa," an analyst visited Fld Sta 8603 in March to ascertain the needs of the station. Traffic analysts employed on the Third Field Army problem were transferred from Hq ASA, Far East to Fld Sta 8603. All records maintained subsequent to 10 Jan 55 were duplicated and forwarded to the station. In addition, responsibility for publication of "Weekly Technical Notes," on the problem was transferred. These measures curtailed T/A efforts; however, complete T/A records were maintained, and limited research performed at the headquarters. Loss of experienced men was partly overcome by their replacement with new men. First traffic from the 327th Company was received in

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late March 1955 and in a short time became extremely valuable in the analysis of Fukien traffic. DF bearings from the company beginning 15 Jun 55 were expected to be an additional source of valuable analytical aid.

### Northeast China and the China Mainland<sup>1</sup>

In September 1954, the Northeast China Section was enlarged to include China Mainland, less Third and Fourth Armies. [ ] analysts were added to bring the section up to [ ] men.

Prior to 9 Jan 55, Peking Mainline traffic was intercepted by the 327th and 329th Companies. After the 327th moved to Formosa, the 329th increased its effort and additional positions were made available at Fld Sta 8610. At the end of the year positions at Fld Sta's 8609 and 8610 and the 329th Company serviced mainline traffic.

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A definite and distinctive military radio network serving Peking Hq was developed by analysis. Partial existence of communications links from Peking to senior military commands was confirmed. Peking communicated with Central and South, Northwest, Northeast, Southwest, and Tibet Military Districts during 1954. After 9 Jan 55, a number of links were established in Peking to Northeast, Southwest, and Central and South Military District links.

Approximately 25 stations were identified as serving the readily exploitable Northeast China Radio Network. [ ] were considered the highest military echelon. Tentative activities were reported in the Antung, Tungwa and Liaotung Peninsula sectors. No specific identifications or geographical locations of Armies, or sub-units, were recovered. A cryptosystem from one net was isolated [ ] defense activity, assumed to be a function of the public security units within the Liaotung Peninsula. The 115th CCF Infantry Division and a 52d Regiment were identified. As the 52d Regiment was subordinate to the 18th Public Security Division it was assumed to be a public security unit. Only part of the complex was recovered after the major communications change of 9 Jan 55.

Limited T/A intelligence made North and Northwest China least exploitable of the mainland areas during 1954. Consequently, when the 9 January change occurred these areas remained unrecovered. Extensive T/A attack with the aid of special identification technique information allowed a small number of links to be tentatively identified as serving North and Northwest China.

1. Ann Rept, ASAFE, fy 1955, Vol II, pp21-23.

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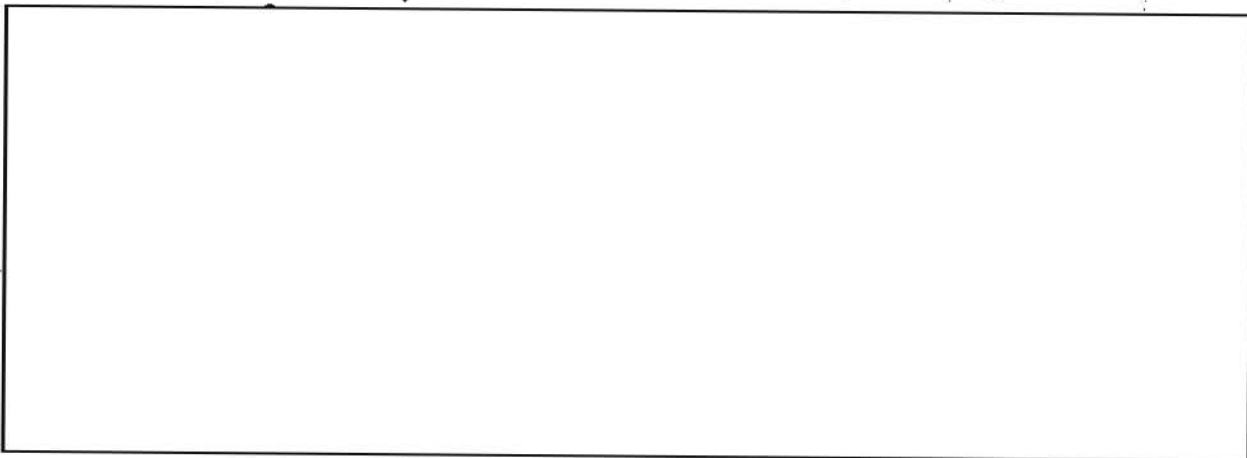
Voice Morse<sup>1</sup>

One analyst was assigned this task throughout fy 1955. Traffic received from the 329th Company was largely air and practice with some weather, naval and a small amount of military. Two significant nets were recovered, one of which dealt with flood conditions along the Yellow River. The other was a previously heard air defense net which reappeared 1 Nov 54 using the same cryptosystem and characteristics. This was the only significant voice net carried by the 329th Company at the end of the year. Intercept from the 327th Company was almost entirely air. Here, the only significant net was an administrative air net believed located between Wusung and the Santu River Estuary. Message content indicated exchange of pre-flight information on Communist patrol and point-to-point flights.

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EO 3.3(h)(2)

The Cryptanalysis and Language Subsections had [redacted] assigned for on-the-job training to start the year; [redacted] assigned for on-the-job training to end it. Fiscal year 1955 showed an appreciable decrease in messages in readable systems, which, excluding [redacted] traffic, never exceeded the 240 mark in any month. Of the fiscal year's six readable systems, three were short-lived: [redacted] msgs in December 1954; [redacted] msgs in December; and [redacted] msgs during the three-month period September through November 1954.<sup>2</sup>

A resume of remaining active systems follows:



1. Ann Rept, ASAFE, fy 1955, Vol II, pp23-24.
2. Ibid. pp25-26.
3. Ibid. pp26-27.

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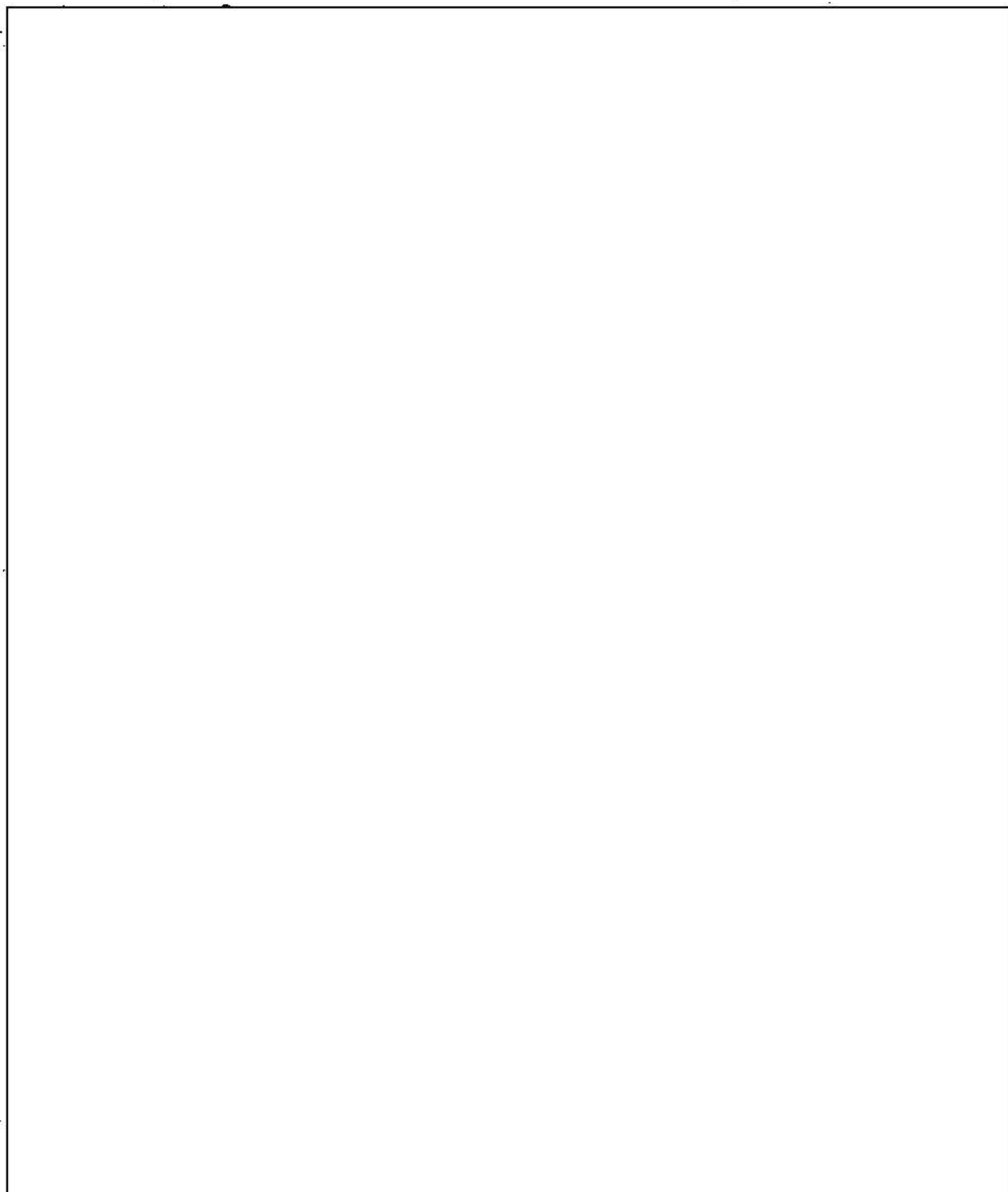
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1. Ann Rept, ASAFE, fy 1955, Vol II, pp28-29.
2. Ibid. pp29-31.

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Electronics Dictionary and a Chinese Import-Export Commodities List. Work was undertaken to convert them to Ming numbers, and plans called for their incorporation into a comprehensive Chinese Terms List.<sup>1</sup>

No formal cryptanalytic training was given, but on-the-job training was available for some personnel. A formal training course for linguists was given, which was influenced by three developments: (1) The shelling of Quemoy which indicated the desirability of linguists with the Seventh Fleet at sea--in time [ ] were assigned to cruisers or carriers of the Seventh Fleet; (2) Exploitation of [ ] by field units which brought about a program to train scanners for field units--the original four weeks course increased to ten-to-twelve weeks; (3) Redeployment of the 327th Company to Formosa which made it necessary to send a large number of specially trained linguists. Requirements such as these made it advisable to administer a certain amount of basic training in language problems of the theater to all linguistic personnel.<sup>2</sup>

A total of [ ] linguists arrived at ASA, Far East during the year. Additionally, [ ] linguists were recalled from Korea where they were deployed on the low level voice program. These were needed for expanding [ ] traffic, and the 327th Company's voice problem.<sup>3</sup>

The OB Subsection increased from [ ] EM during fy 1955. Principal accomplishments were analysis and reporting of Chinese Forces intelligence information, recording and indexing CCF and UN OB, and the footnoting and publishing of Chinese Communist commercial translations of military interest.

1. Ann Rept, ASAFE, fy 1955, Vol II, pp31-33.
2. Ibid. pp33-35.
3. Ibid. pp38-39.

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Expansion in Chinese commercial traffic permitted identification and location of a number of CCF units. Included were:

Army Group Hq	1
Division Hq	11
Regimental Hq	8
Air Army	1
Air Divisions	2
Airborne Divisions	1
Public Security Divisions	2
Public Security Regiments	2
Motor Transport Regiments	5
Railway Divisions	5
Agricultural Construction Divisions	4
Engineer/Construction Regiments	9
AAA Regiments	3
Armored Regiments	1
Military Schools	8
Military Hospitals	5
Cavalry Regiments	1

Additionally, [ ] early warning traffic located radar, air spotting and air warning CCF units along the northwestern Korea coastline.<sup>1</sup>

[ ]

This section provided direct technical support to the 501st Group on the [ ] problem. Its personnel strength was increased by 3 WO during the year bringing assigned strength to [ ] EM, and [ ] Civ. C/A and T/A were performed to enable [ ] units to properly exploit current intercept traffic in order to produce COMINT. [ ]

[ ] traffic intercepted by the 327th Company and later by Fld Sta 8610 was processed after 20 Feb 55. Until June 1955, when NSA assumed all first instance reporting, [ ] traffic was scanned for possible solution of new cryptographic systems and publication of pertinent messages.

1. Ann Rept, ASAFE, fy 1955, Vol II, pp40-41.

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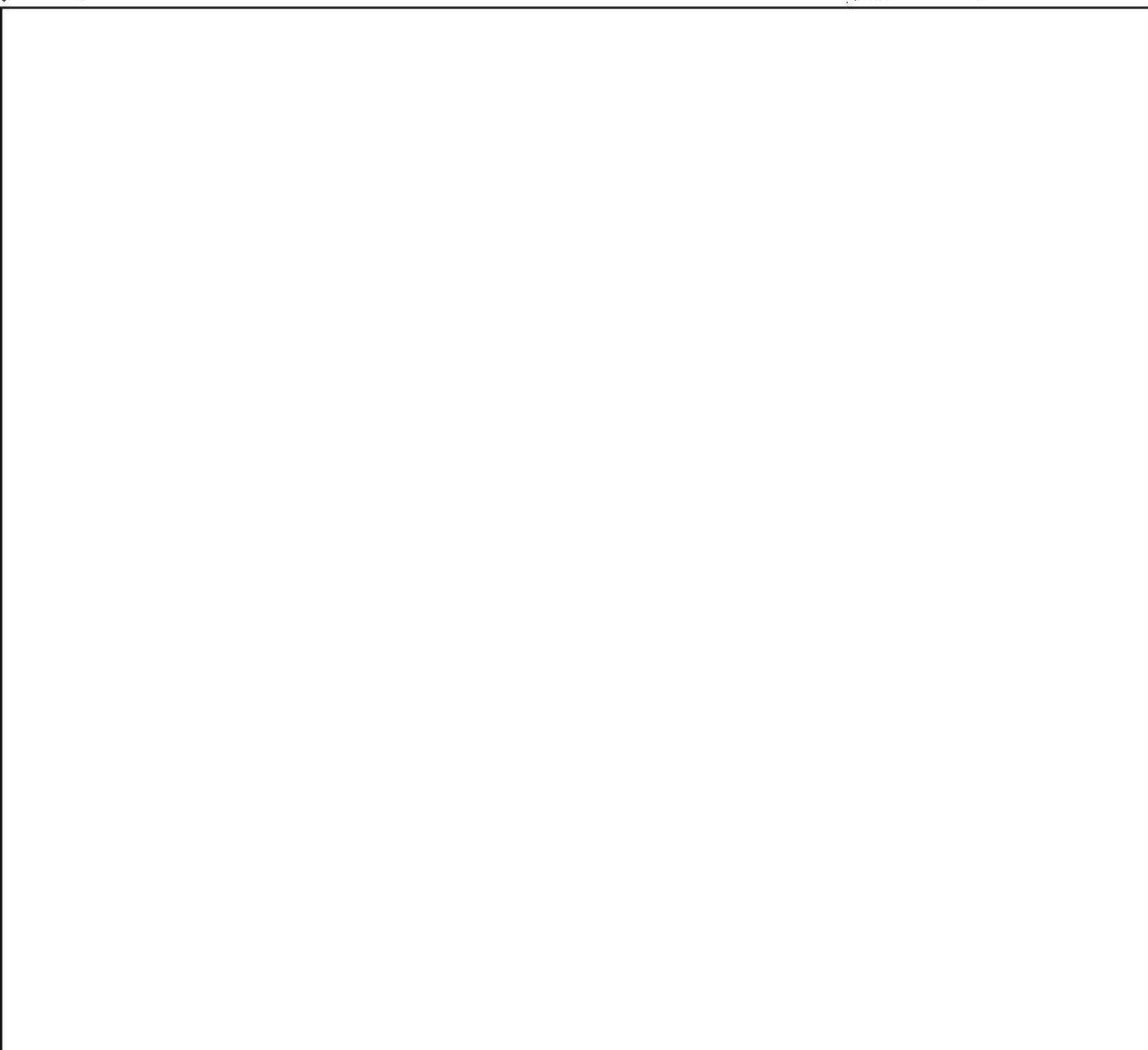
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[redacted] was received and identified, but not processed; however, technical information was prepared for immediate use in event of an emergency.

All linguists arriving from the ZI entered a 30-day training program to prepare them for assignment as crypto-linguists. These men were shipped to [redacted] to assist field processing units and some were later returned for duty as language researchers or "bookbreaking" analysts.

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1. Ann Rept, ASAFE, fy 1955, Vol II, pp41-42.

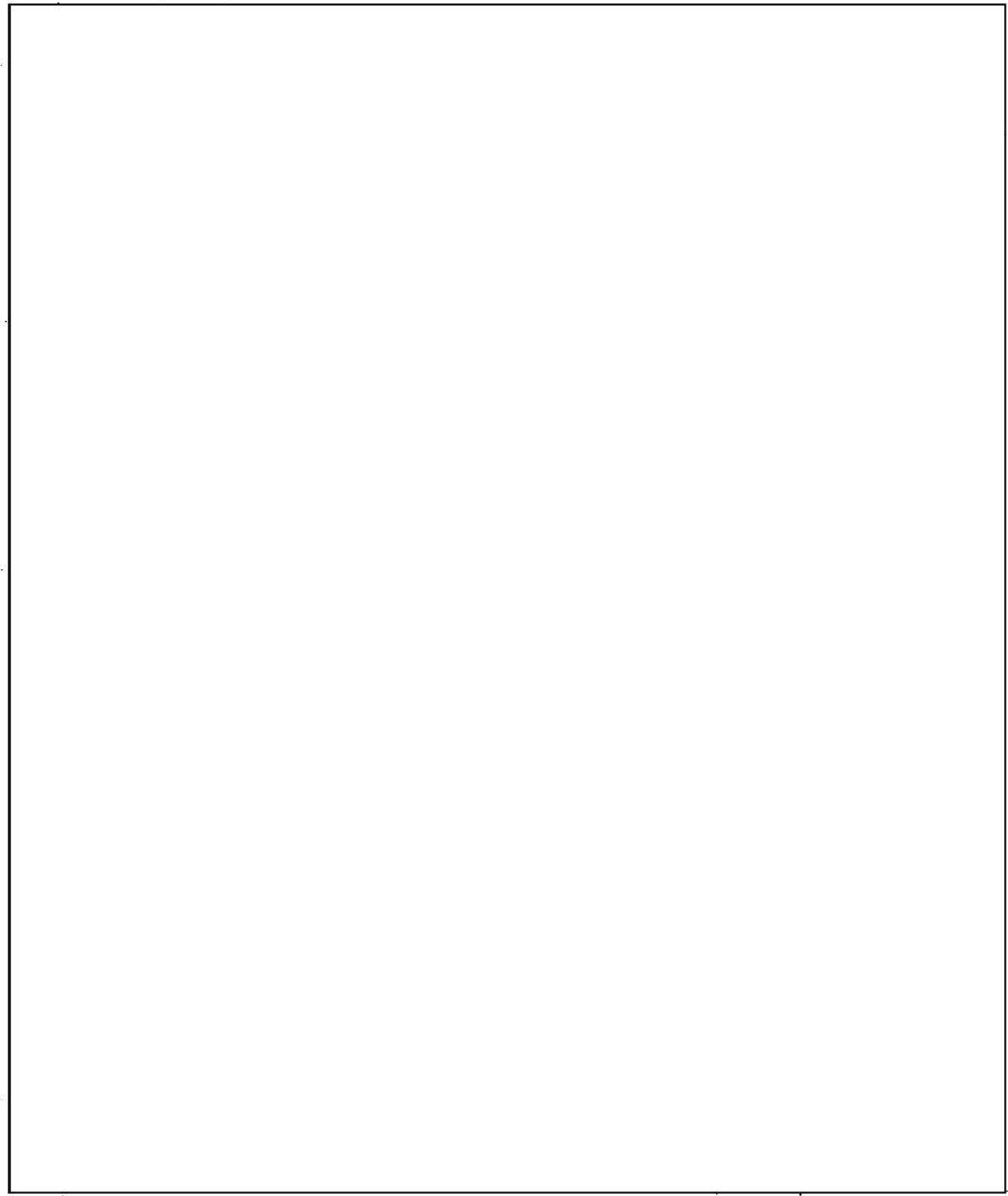
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1. Ann Rept, ASAFE, fy 1955, Vol II, pp43-47.

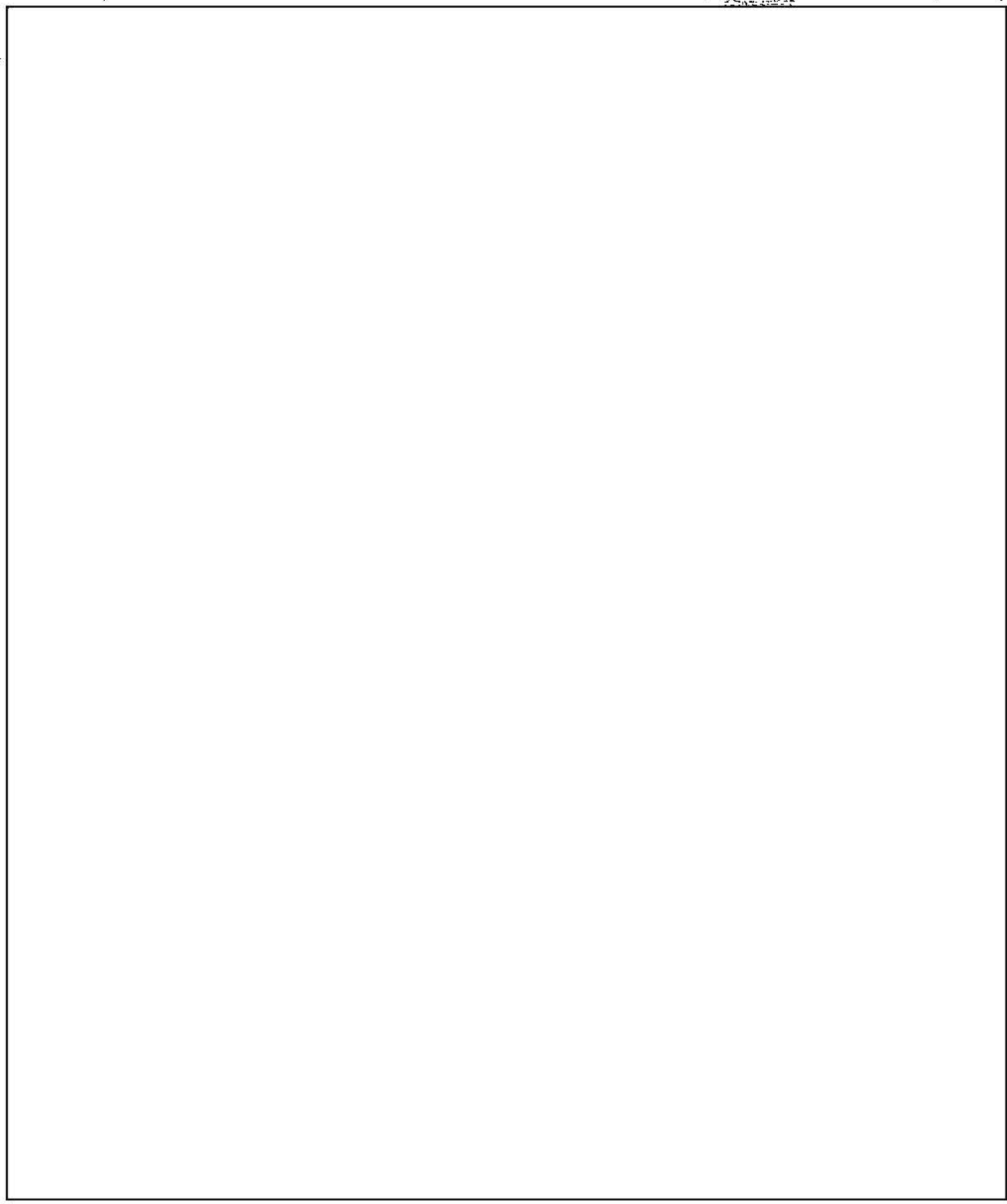
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1. Ann Rept, ASAFE, fy 1955, Vol II, pp47-48.

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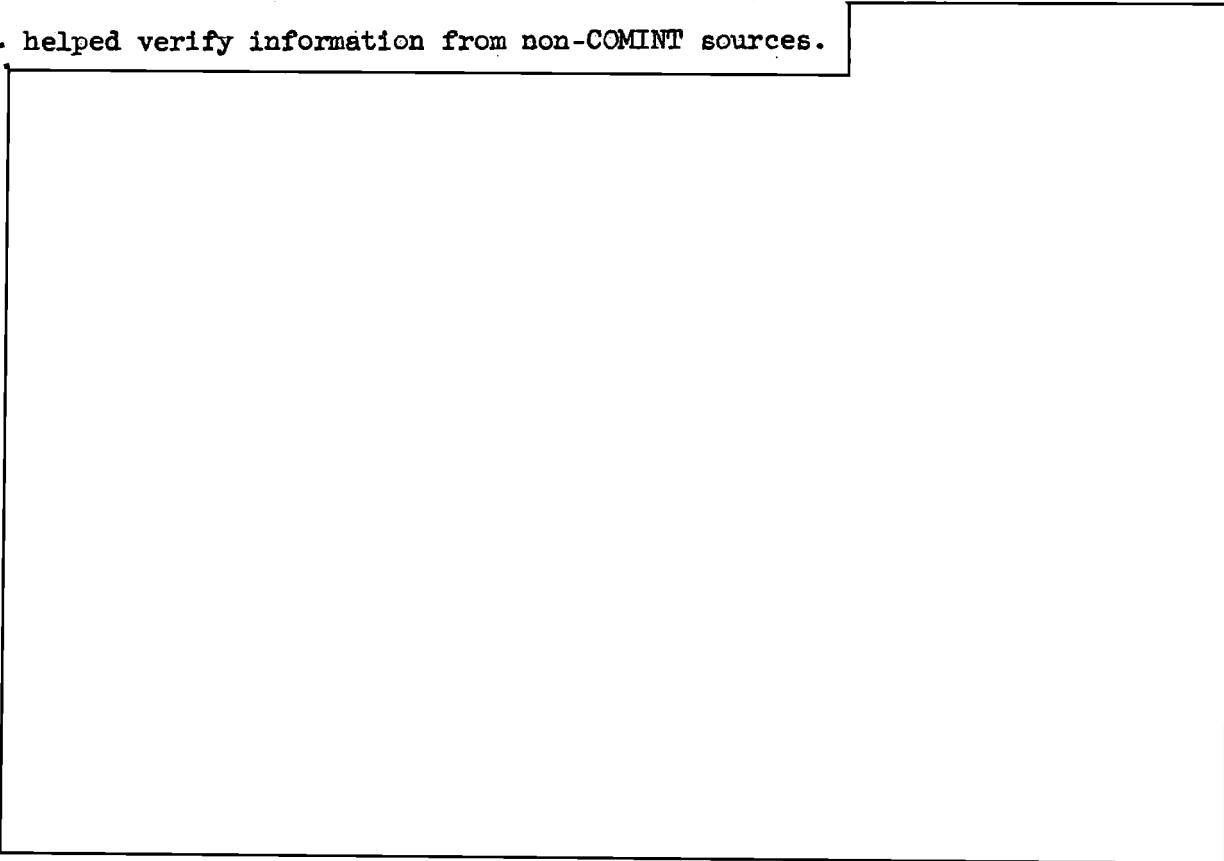
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cryptosystems. Following this development, some [ ] traffic was found to be [ ] traffic, and vice versa.<sup>1</sup>

Intelligence Production and Order of Battle

EO 3.3(h)(2)  
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In this field, COMINT and non-COMINT information was received during the year from all sources and studied to provide consumers with usable and pertinent intelligence. Weekly contributions were made to the COMINT summary, and periodic reports were based on special studies. Normal source of material was translations by various COMINT centers. COMINT continued to produce considerable original and reliable OB information, and helped verify information from non-COMINT sources.



1. Ann Rept, ASAFE, fy 1955, Vol II, pp49-51.
2. Ibid. pp51-52.
3. Ibid. pp52-53.

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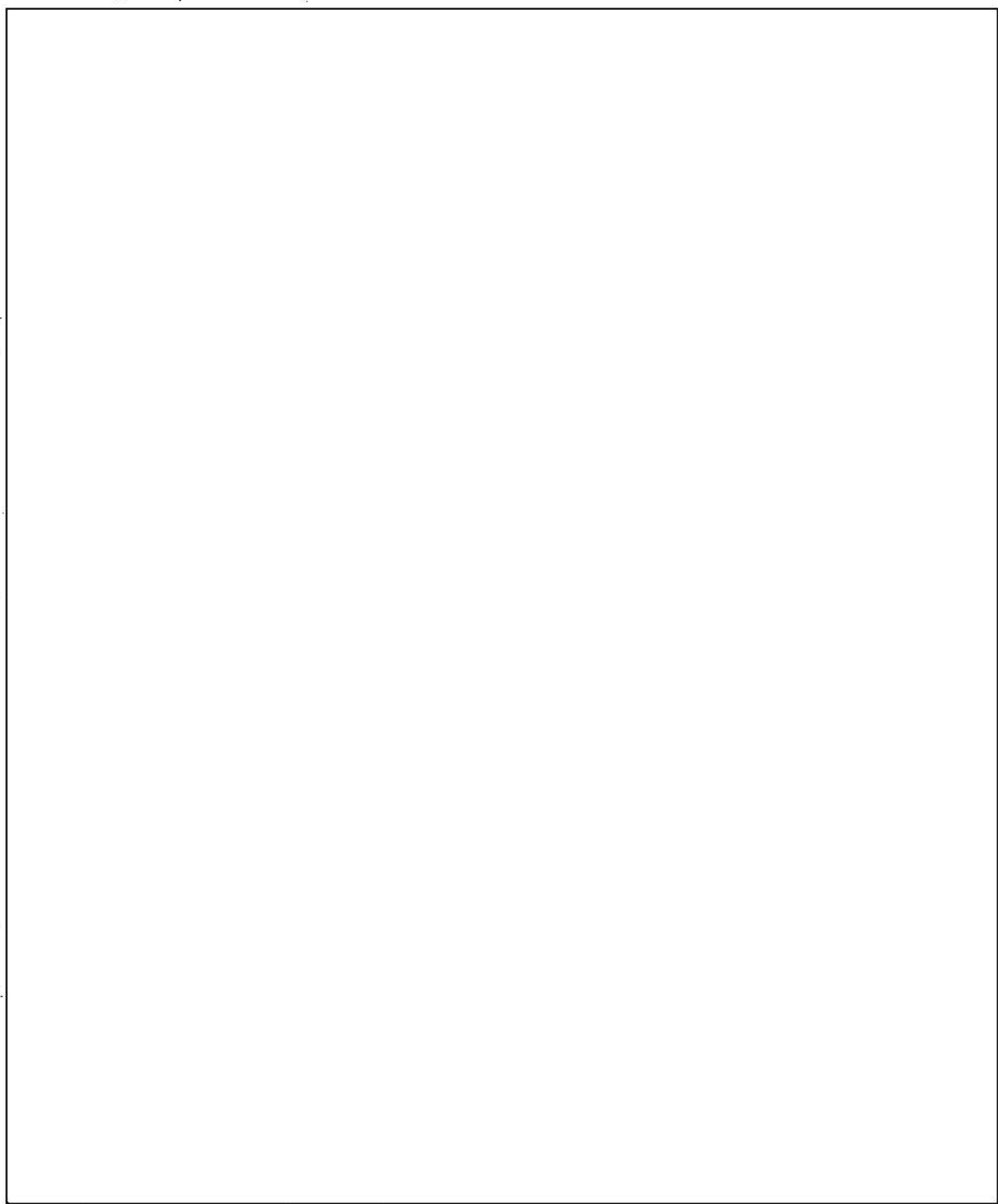
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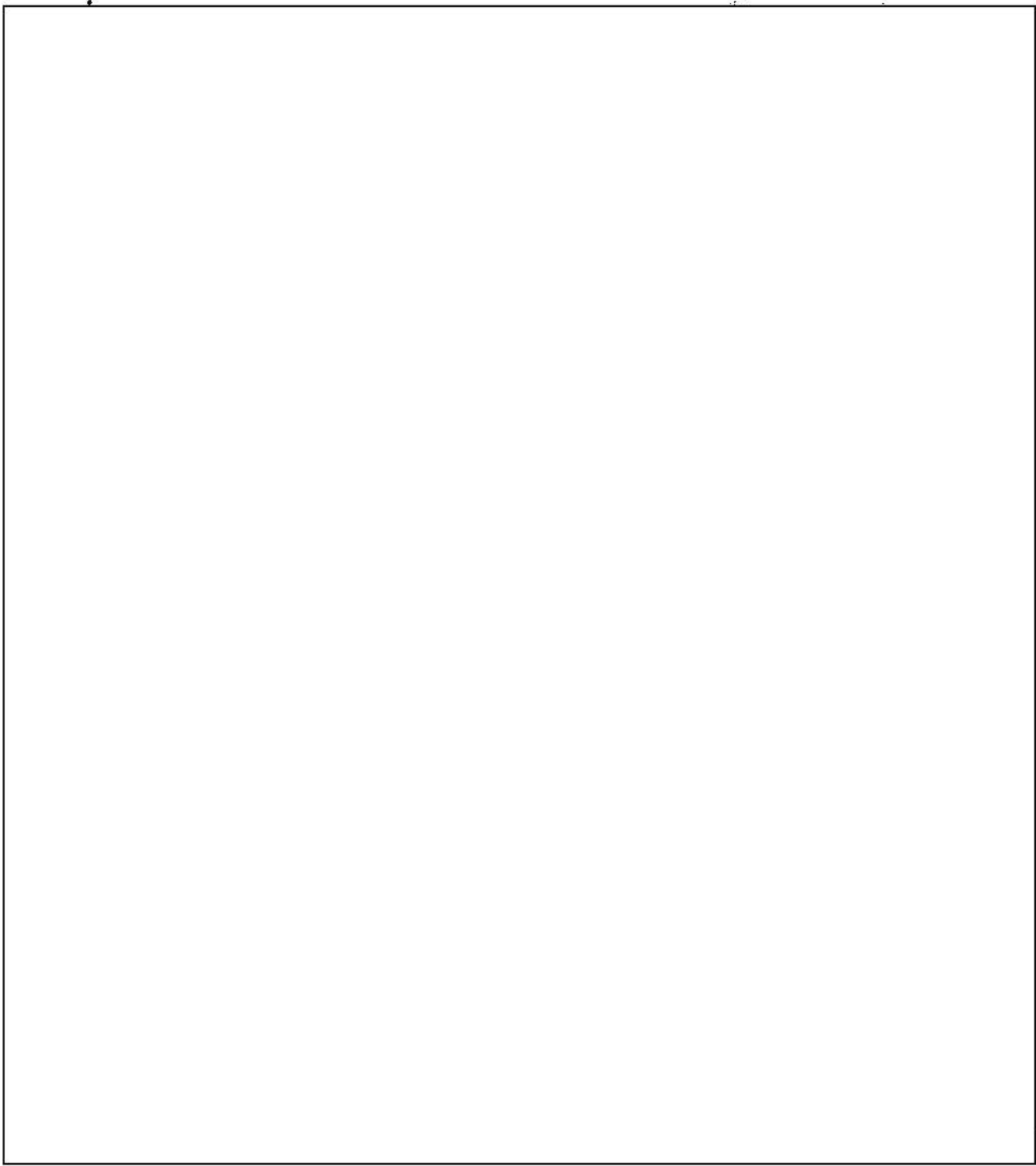
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1. Ann Rept, ASAFE, fy 1955, Vol II, pp54-55.
  2. Ibid. pp55-57.

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1. Ann Rept, ASAFE, fy 1955, Vol II, p57.
2. Ibid. pp57-58.
3. Ibid. p58.
4. Ibid. p58.
5. Ibid. pp58-59.

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EO 3.3(h)(2)

The Radio Printer Subsection conducted analysis and identified [ ] radio printer intercept as to known assigned, unassigned or unknown links throughout the year. Studies were performed on traffic volume, types of traffic, translations procedures, schedules, and frequencies to derive technical information for operational support to field stations, and for publication to interested consumers. An IBM run of radio printer aid, listed by case and frequency, was forwarded monthly to stations engaged in [ ] intercept. A revision of operator characteristics was necessary after an increase in Soviet operators in the [ ] during April 1955.

NOTE: A change in mainline procedure was observed in March 1955. Prior to that date, a station would become active, send one message, and then close down. After March, stations were observed sending numerous messages before closing down. Activity on the [ ] in [ ] radio printer link decreased decidedly in message volume. Heaviest activity was during July, August and September 1954 with sparse activity in December 1954 and May 1955. Addressees observed were [ ]

Fy 1955 activity of the Voice Subsection consisted of the review of transcripts of [ ] language radio transmission. Local linguistic and communications analysis was applied to such material to produce technical information for distribution to consumers. A total of 156 technical reports was released on low echelon activity as reflected in radiotelephone intercept.<sup>3</sup>

NOTE: Principal low echelon activity was field training of [ ] tank and artillery units under simulated battle conditions. Special identification techniques indicated the [ ] areas as the main sites. Sparse activity was also noted in the [ ] area. The amount of artillery traffic was greatly increased over the previous year, and was attributed to expansion of intercept facilities.

1. Ann Rept, ASAFE, fy 1955, Vol II, p59.
2. Ibid. pp59-60.
3. Ibid. p60.

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Reference to atomic weapons was noted for the first time in Far East communications. CBR training was noted on several occasions. A decrease in traffic began in August, and continued through October 1954. No activity was observed in November and December. However, in January 1955, a decided increase over the previous January was noted, and the volume of intercept during February and March 1955 was approximately double the equivalent period of the previous year.<sup>1</sup>

Fy 1955 activity of the Intelligence Production/OB Subsection consisted of developing information of the end-product type from technical reports by intercept subsections. Abnormalities and unusual occurrences in Far Eastern communications were reported weekly. Spot reports were released immediately upon any indication of unusual or abnormal communications activity. Majority of the 170 spot reports for the year involved low echelon military field training exercises. Others were highlighted by the communications change of 4 Jan 55, and the movement of [redacted]

Machine

This section increased its personnel from 2-0 and 34 EM to 3-0 and 43 EM during fy 1955. Supplementary equipment was requested, but not received. Four new major jobs were undertaken including: bi-weekly distribution of Type EASY call sigas; punching of daily [redacted] traffic; and a list of [redacted] personalities. A total of 1,569,260 cards was keypunched during the year.<sup>3</sup>

Direction Finding

During the first half of fy 1955, ASA, Far East DF nets operated in much the same manner as the previous fiscal year. In November 1954, AN/TRD-4 equipment installation began, and was completed by March 1955.

1. Ann Rept, ASAFE, fy 1955, Vol II, pp60-61.
2. Ibid. pp61-62.
3. Ibid. p63.

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Following correction of minor defects, AN/TRD-4 was found far superior to AN/CRD-2 equipment. The DF net was reorganized in November with only a few minor problems encountered. The division of the net proved of great value. The quality of results was improved and the number of bearings increased from 165 daily to 325 daily.

At the close of the year, net organization consisted of two separate and distinct strategic nets and one mobile net each consisting of five DF stations and a varying number of flash stations. Each net had one control station and one plotting center. Strategic nets were referred to as the ASAFE Northern and Southern DF Nets. The mobile net was called the Korean DF Net. ASAFE DF Control Section assumed responsibility for overall control, technical supervision and coordination for all three nets. Each net was individually controlled by its respective control station.<sup>1</sup>

The Northern Net consisted of:<sup>2</sup>

- 1) Site at Uijongbu, Korea operated by the 301st Battalion.
- 2) Site at Kumamoto, Japan operated by Hq ASA, Far East, 8621 DU.
- 3) Site at Adak, Aleutians operated by Hq ASA, Alaska, 8614 DU.
- 4) A tip-off station at Kyoto, Japan operated by Fld Sta 8610.
- 5) A tip-off station at Chitose, Japan operated by Fld Sta 8612.

NOTE: Three sites reported to control via landline teletype circuit, one via radio (CW), and one through ACAN channels.

The Southern Net consisted of:<sup>3</sup>

- 1) Site at Clark AFB, Philippines operated by Fld Sta 8609.
- 2) Site at Taipei, Formosa operated by 327th Company.
- 3) Site at Yonton Airstrip, Okinawa operated by Fld Sta 8603.
- 4) Site at Seoul, Korea operated by 326th Company.
- 5) A Flash Station in Okinawa operated by Fld Sta 8603.

1. Ann Rept, ASAFE, fy 1955, Vol II, pp64, 67.  
 2. Ibid. p65.  
 3. Ibid. pp65-66.

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- 6) A Flash Station in the Philippines operated by Fld Sta 8609.
- 7) A Net Control Station and plotting center in Okinawa operated by Fld Sta 8603.

NOTE: One flash and one report circuit were used. Three sites reported by radio (CW), one via landline telephone and one via ACAN channels.

The Korean Net consisted of:<sup>1</sup>

- 1) Site at Paengyong-do, Korea operated by the 501st Group.
- 2) Site at Tosari, Korea operated by the 326th Company.
- 3) Site at Chonjuk, Korea operated by the 301st Battalion.
- 4) Site at Chunchon, Korea operated by the 501st Group.
- 5) Site at Yang Yang, Korea operated by the 501st Group.
- 6) Flash Station at Chonjuk, Korea operated by the 301st Battalion.
- 7) Flash Station at Seoul, Korea operated by the 326th Company.
- 8) Flash Station at Seoul, Korea operated by the 330th Company.
- 9) Net Control Station at Seoul, Korea operated by the 501st Group.

NOTE: One flash and one report circuit were used. All stations reported to control via radio (CW).

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2. 501st Communications Reconnaissance Group, Seoul, Korea

Throughout fy 1955, the 501st Group received operational assignments through Hq ASA, Far East. These, as received, were further delegated to subordinate units. Continuing missions included Chinese Communist Forces (CCF) in Korea, [redacted] and the [redacted] mission was transferred to the 327th Company in Japan midway through the report period. For the most part, coverage of the mission by the group itself was realized through operation of four intercept positions at Paengyong-do, four at Chunchon, and two at Sokch'ori, utilizing BC-794, BC-1004, R274A and R274C receivers. Liaison was maintained with Hq ASA and NSA. Local liaison existed between ASA, Far East, NSA Far East, and the Eighth US Army through its Special Security Representative at that

1. Ann Rept, ASAFE, fy 1955, Vol II, p66.

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headquarters. Active liaison was also carried on with [redacted] Flight "A," 15th Rad Sq Mbl. Several changes in overall intercept assignments were made during the year. Principal among these was responsibility for all non-North Korean and PVA intercept which was placed with the 329th Company who then covered Chinese commercial and [redacted] nets, certain Chinese radiotelephone circuits, and some circuits suspected of association with PVA nets.<sup>1</sup>

The group's COMINT Branch was composed of three sections viz: [redacted] CCG (PVA), and DF. These supervised, analyzed, and evaluated intercepted traffic and DF material. Additionally, a weekly COMINT summary was published. This was slightly revised in March 1955 to include more information derived from T/A. A Low Level Voice (LLV) Section was discontinued and personnel reassigned to either the Chinese or [redacted] Sections. Near the close of the fiscal year the Branch was reorganized under TOE 32-51R; however, these changes did not affect the overall mission. Section accomplishments follow:<sup>2</sup>

[redacted] This section was composed of Administrative, C/A, T/A, OB and Translation subsections. During the year, it processed the 280,000 pieces of traffic intercepted by the 330th Company, [redacted] and Detachment 1, 6922d Rad Sq Mbl. A major problem was receipt of traffic from the sites for weather conditions and inaccessibility frequently resulted in delays of one or two weeks. This situation increased workloads particularly at times when traffic from all sources came in simultaneously, and required

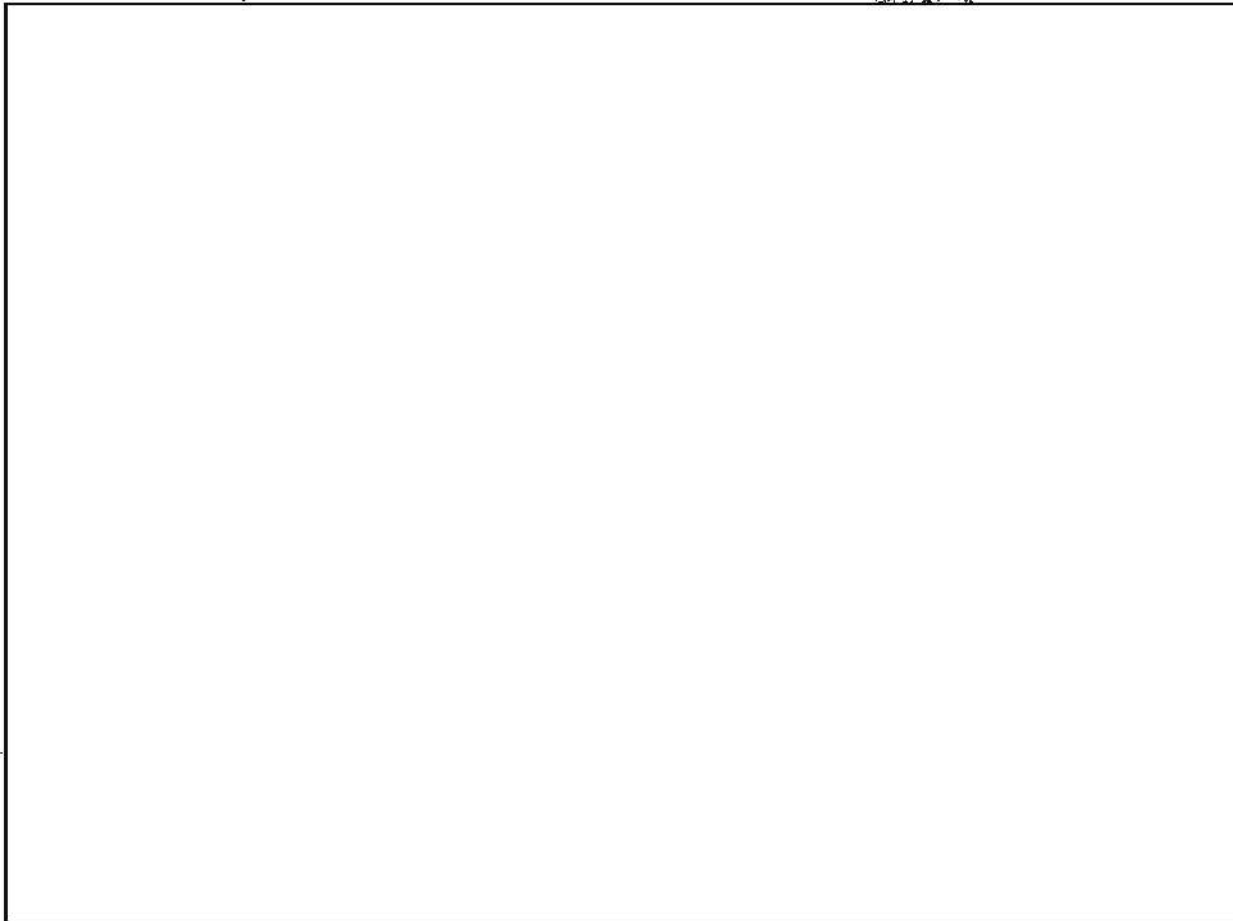
1. Ann Rept, 501st CRG, fy 1955, Vol II, pp3-6, 39.
2. Ibid. pp6-7.

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early processing.<sup>1</sup>



Efforts to utilize DF results to more advantage on the T/A problem were not highly successful during the year. However, in some instances, DF results provided substantial aid to analysts assuring good future possibilities.



1. Ann Rept, 501st CRG, fy 1955, Vol II, p8.
2. Ibid. pp8-9.
3. Ibid. p9.
4. Ibid. pp10-12.

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information, and DF plots.

As the final processing center for over 14,500 translations of messages intercepted, the subsection added information concerning personalities, units and locations to approximately 75% of the translations. In addition, to complete files on all units covered by COMINT, records of 1,500 new personalities were placed in its files. Fifty-two COMINT summaries and five technical letters were also produced. These reported activities (deployment, movement, strength, and personnel) of major [redacted] elements.<sup>1</sup>

Chinese Communist

This section exploited PVA communications throughout fy 1955. On 15 Aug 54, the PVA problem was decentralized and the section was given complete responsibility for current and short term T/A on PVA nets utilizing traffic from available sources. The section was also responsible for cryptanalytic processing and exploitation of systems delegated by ASA, Far East, as well as brevity and other minor signal systems appearing on PVA nets. Full translations of plain language operator chatter and decrypted texts from PVA intercept were made as well as scanning commercial intercept traffic from intercept stations and translating messages of military significance. Linguistic support was furnished by ASA, Far East while NSA was responsible for overall technical support.

The section was organized into five subsections: Administrative, OB, T/A, C/A, and LLV.<sup>2</sup> Accomplishments follow:

The principal function of the Administrative subsection was coordinating and publishing a daily T/A variorum (DTAV), an [redacted] T/A report, and informal technical letters. The DTAV, originally produced every other day, ceased publication from 9 Jan to 21 Jan 55, when it was resumed on a weekly basis.<sup>3</sup>

1. Ann Rept, 501st CRG, fy 1955, Vol II, ppl2-13.
2. Ibid. ppl4-15.
3. Ibid. ppl5-16.

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The OB subsection's principal function was confirmation of COMINT material supplied by analysis and translation of radio intercept, and comparing it with collateral information received from non-COMINT agencies. To accomplish this, a situation map was maintained along with personality, unit, and place name files which at the beginning of fy 1955 reported the following PVA units:

Army Groups	4
Branch Unit Hq	5
Armies	11
Infantry Divisions	34
Artillery Divisions	9
Artillery Regiments	34
Armored Regiments	6

COMINT indicated the departure, on dates shown below, of the following:

64th AAA Division	13 Aug 54
33d Independent Inf Division	15 Sep 54
47th Army	20 Sep 54
67th Army	29 Sep 54
III Army Group	15 Nov 54
65th AAA Division	2 Dec 54
22d Rocket Launcher	4 Dec 54

NOTE: During the same period, the 1st CCF Army moved off line to an unknown location in the 2d Branch Unit Area with two of its divisions, the 2d and 7th. The 1st Division moved into the 1st Branch Unit Area. No other Army took the place of the 1st on line, its former area being equally divided between the 23d and 46th Armies.

After the communications change of 9 Jan 55, COMINT sources of information were lost, and the subsection concentrated on recording any available intelligence from non-COMINT sources. When two armies departed from Korea about 31 Mar 55, two outstations on a presumed PVA Rear Hq radio net were not longer heard. When the 1st CCF Army was reported redeployed in the Sukchon area, T/A was tentatively able to support the move.

In February 1955, an enemy OB situation map of the Chinese mainland was set up to observe unit redispositions, and watch for new units that might have been formerly based in Korea. In April, when responsibility for first instance spot translations of commercial intercept was given to the 501st Group, OB files were further increased to include China proper with information on China-based units mentioned in commercial traffic; most of which came from Tibet, Sinkiang, and Sigang Provinces with very little from Northeast China or the coastal provinces.

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Despite special emphasis on LLV, few results were produced due to garbles in personality and place names as well as Chinese pronunciation of Korean place names. Areas could be tentatively located, and general type of unit ascertained, but no identifications could be made. DF fixes indicated some unit locations to be the same as prior to the major communications change. After intercept from subordinate units was processed, OB information was published and forwarded to consumers. Information useful to intercept stations i.e., call signs, frequencies, net characteristics, was fed back to aid in maintaining coverage.<sup>1</sup>

The T/A subsection was by far the most important and productive part of the Chinese Communist Section. Because Chinese communications, although cryptanalytically secure, were susceptible to T/A, the subsection maintained two teams. An analytic team processed traffic from the 326th and 329th Companies on notated cases, and a search team worked on those cases not notated to develop and tie them into the overall communications complex.

In July 1954, continuity was maintained on 65 active PVA manual Morse nets of division echelon or higher. A gradual rise to a peak of 73 nets had taken place by October. This was followed by a decline to 59 on 9 Jan 55. Eleven stations serving PVA armies continued to be identified. Numerical designation of each was constantly determined and most major Chinese headquarters serving these armies, along with their organic divisions, were recognized. Withdrawal of units from Korea was closely followed. Apart from group, the PVA manual Morse problem was covered by an average of 28 positions at the 326th Company and 22 positions at the 329th Company until April 1955. Assignment of Chinese Commercial to the 329th Company reduced its position potential to 10.

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EO 3.3(h)(2)

The major communications change of 9 Jan 55 made recovery of PVA nets a severe problem however. While a change had been expected, the extent of change was almost overwhelming. Following a period of radio silence, certain stations began transmissions which intercept operators stated sounded like PVA transmitters. With the aid of information from other agencies, it was possible to establish certain characteristic of PVA nets. These were notated as cases, and continuity established. Further, the T/A subsection spent 30 days TDY with the 326th Company in February and March 1955 working in close conjunction with intercept operators. A number of nets were developed on which continuity could be maintained, thus giving a foothold on the problem. Upon completion of combined studies, a tentative recovery was published and released which disclosed a headquarters serving nine outstations as possibly being a PVA Rear Hq with its outstations believed to be armies. Another headquarters was found serving

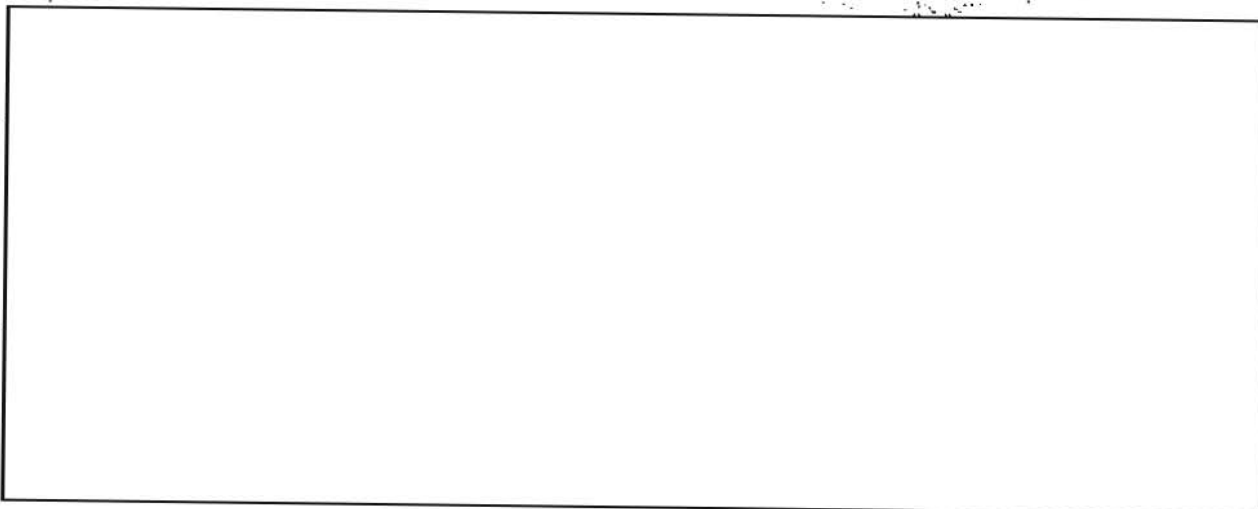
1. Ann Rept, 501st CRG, fy 1955, Vol II, ppl6-19.

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2d Branch Unit Hq with ten outstations.

A message number block change on 1 April of the suspected nets proved a setback, for a net recovered as possibly serving PVA Rear Hq had only seven outstations which indicated possible withdrawal, or redeployment of two PVA armies. After this change, some nets showed prospects of further development concerning call sign systems, encoded secret procedure signals, and net workings. By the end of May, T/A had a total of 17 active nets suspected as serving PVA forces. On 1 June, message number blocks for all nets changed. Previously identified nets could not be recovered for some time thereafter. Nets serving 2d Branch Unit Hq showed a sharp decrease in activity, and a change in encipherment of secret procedure signals. There also existed the possibility that the call sign system changed. Before the end of June, certain identifying characteristics in procedure appeared, and studies in conjunction with the 326th Company established continuity again on the PVA Rear net. Others were recovered by the same method, but some which were lost remained so.



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On 25 Jun 55, the Chinese Communist problem underwent a major reorganization which placed increased T/A and C/A responsibilities on the 301st Battalion. The 501st continued T/A on PVA communications. Traffic on commercial networks, nets in North China, Naval complex nets, and those intercepted on RIT were transferred to the 301st.<sup>1</sup>

The LLV subsection was responsible for processing traffic and publishing translations obtained from division and below, traffic intercepted by the 303d and 304th Battalions, and the 329th Company. Traffic was processed from both T/A and C/A viewpoints. Items such as place names, mention of units, net workings, personalities, etc, were recorded and close liaison maintained with the OB subsection. Continuity was maintained on

1. Ann Rept, 501st CRG, fy 1955, Vol II, pp20-28.

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several pilot training and air-to-ground nets until May 1955 when this traffic was passed to the 6920th Scty Wg for analysis and processing. C/A and translation continued to be performed by the subsection. One of these nets [redacted] was tentatively identified as pilot training communications.

During January 1955, an average of 350 stations (possibly aircraft) were reported in contact each week. The net utilized Chinese voice transmissions together with occasional use of Russian language. Chinese LLV transmissions were in voice Morse, spoken Chinese numbers, and spoken Chinese. DA civilian linguists, who had a random search mission, intercepted the signal with AN/PGRC-9, AN/PRC-8 and 9. Following this, Chinese and English equivalents were prepared. C/A effort consisted of logging and making analysis of the messages and scanning the traffic for place names and personalities.

After the armistice agreements, use of LLV waned and it was felt that the Chinese were making maximum use of landlines. Several RTT nets were observed, and T/A continuity maintained; however, it was not possible to make positive unit identifications. Mentions of regiments, battalions and companies were noted, but T/A attempts to prove continuity was complicated by spoken Chinese call signs and DA civilian linguists were experiencing difficulty in agreeing as to what to call a particular call sign. Types of traffic at the close of the period were air warning, miscellaneous digit messages, communications checks, and chatter. Traffic was largely of a training nature, and of little value in developing COMINT. As a result of this situation, RTT and LLV intercept responsibilities and personnel were transferred to the 301st Battalion effective 25 Jun 55.<sup>1</sup>

P.L. 86-36  
EO 3.3(h)(2)

Throughout fy 1955, the C/A subsection was primarily concerned with analysis of message internals and translations of readable traffic. Manual Morse traffic was received from the 326th and 329th Companies; voice traffic from the 329th Company, and LLV from the 303d and 304th Battalions. Upon receipt, traffic was rapidly scanned for exploitable [redacted] systems. Exploitable traffic was analyzed and forwarded to ASA sources while readable traffic was given to translators who selected and published translations of valuable messages.

1. Ann Rept, 501st CRG, fy 1955, Vol II, pp28-31.

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Group. In February 1955, a program of forwarding all traffic intercepted on the net to the 6920th was initiated. During April, NSA advised group to watch for messages revealing a change in [redacted] system employed in air-spotting reports, passed on the net. On 17 May, translation disclosed [redacted]

Monitoring of manual Morse commercial traffic by the subsection increased and automatic Morse was added in April 1955. The principal net under surveillance was a member of the International Telegraphic Union whose call signs, frequencies and locations could be found in the "Berne Book." During the first part of the year, traffic was scanned and translations of pertinent military information published. On 18 Apr 55, group was given first instance spot reporting responsibility on all [redacted] intercept.

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On 4 Aug 54, ASA, Far East requested group to relay information from traffic concerning summer floods on the China mainland. Translation of plain text flood traffic was assumed 5 August. Translations from two nets passing flood messages included flood reports, flood defense, weather reports, and reports of the flood problem in the Huai and lower Yangtze River areas of Anhwei and Kiangsu.<sup>1</sup>

#### Direction Finding

Throughout fy 1955, the DF Section and control stations of the 501st Korean DF net were located at Group Hq in Seoul. Primary mission was plotting and evaluation of bearings taken on targets applicable solely to the intercept mission.

At the beginning of the year, the Korean DF net consisted of one flash circuit using multiple flash procedure and one report circuit. These were retained throughout the fiscal year. Flash circuit and DF sites as of 1 Jul 54 were:

Net Control	Hq 501st Group
Tip-Off Station	USM 30 - 326th Company
Tip-Off Station	USM 35 - 330th Company
Tip-Off Station	USM 652 - 329th Company
Tip-Off Station	USM 652E - 329th Company

1. Ann Rept, 501st CRG, fy 1955, Vol II, pp31-33.

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## Sites

USM 30 A	Paengyong Do	124° 43' 15" E 37° 58' 10" N
USM 30B	Sucham-ni	126° 37' 20" E 37° 40' 15" N
USM 652A	Kwang son-ri	126° 59' 2" E 37° 49' 11" N
USM 652B	Chip o-ri	127° 17' 34" E 38° 37' 42" N
USM 652C	Yonchon	127° 4' 36" E 38° 3' 32" N
USM 30C	Chunchon	127° 43' E 37° 54' N
USM 35B	Yang Yang	128° 38' 30" E 38° 4' 53" N

There was an additional DF site in the ASA, Far East net controlled by the 330th Company and located five miles east of Seoul. USM 652E was inactivated 10 Jul 54. On 13 July, USM 652C was inactivated and on 1 August, control of USM 30A was transferred from the 326th Company to the 330th and redesignated USM 35C. USM 35B was inactivated 13 September and relocated at Sochor-ri where it resumed operations 30 October. USM 652B discontinued operations 9 Feb 55 and was collocated with USM 629A where it became operational in the Northern ASA, Far East DF Net. On 10 February, all unit designators were changed. On 25 June, three sites were transferred to group and designated USM 601A, B, and C. At the end of the year the net was as follows:

Net Control	USM 601 - 501st Group
Tip-Off Station	USM 626 - 326th Company
Tip-Off Station	USM 641 - 301st Battalion

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Tip-Off Station		USM 630	330th Company
Sites			
USM 601A	Paengyong Do	124° 37'	43° 15" E 58° 10" N
USM 601B	Sochor-ri	128° 38'	24° 00" E 19° 45" N
USM 601C	Chunchon	127° 37'	43° 27" E 54° 20" N
USM 626B	Sucham-ni	126° 37'	38° 15" E 43° 00" N
USM 641A	Kwangson-ni	126° 37'	58° 45" E 52° 30" N

AN/TRD-4's were distributed by group to subordinate companies on 15 Oct 54, and were in operation a month later. In December, aural null procedure was begun, but by February 1955, visual operation was resumed after gonimeters were put back into use. In March, all antennalading discs were removed from Adcock antennas thereby improving validity of bearings, and preventing swinging visual observations. Results in accuracy increased toward the end of the fiscal year. Added targets and improved equipment were partly responsible. Chief problems were the low frequencies used by some targets being heard only by one or two sites, and a lack of ability to identify targets being tracked as being related to the general mission.<sup>1</sup>

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3. 301st Communications Reconnaissance Battalion, Uijongbu, Korea

Although the 301st Battalion's COMINT Section was only in existence for five days and its major accomplishment was its establishment

1. Ann Rept, 501st CRG, fy 1955, Vol II, pp34-38.

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as a functioning unit, an initial COMINT mission was assigned effective 25 Jun 55. Technical directives were received from the 501st Group, ASA Far East and NSA, and reports submitted via the same channels. Specifically, the battalion's mission was analysis, exploitation, and reporting of high and low level Chinese Communist traffic, and the operation of a DF platoon which was formerly a part of the 329th Company. The platoon served both group and ASAFE Northern DF nets whose operations were similar.<sup>1</sup>

Within the confines of the COMINT Section, a Control and Integration Subsection passed directives to operational units and coordinated its activities with subordinate and higher COMINT units. Efforts were also made to consolidate intelligence information produced from communications analysis, collateral intelligence received from outside sources was consolidated, and OB maps and information was maintained.<sup>2</sup>

In the C/A Subsection, CCF high and low echelon traffic was analyzed. Likewise, scanning of traffic [redacted] was carried out. Translation Subsection personnel working closely with C/A personnel confined their efforts to [redacted] All Chinese commercial traffic was scanned and pertinent messages of military significance extracted.<sup>3</sup>

The T/A Subsection performed message externals analysis on both high and low level traffic. High level effort was directed at two major and two minor problems. The latter consisted of analysis of [redacted] traffic plus logging and compiling statistics on [redacted] (commercial) traffic. A major

1. Ann Rept, 301st CRB, fy 1955, Vol II, ppl-2, 4, 7.
2. Ibid. p4.
3. Ibid. p5.

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effort was holding continuity of PVA traffic. Analysts followed notated cases [ ] while others made special studies in an attempt to recover new nets. An additional effort was undertaken on cases [ ] and [ ]. Units transmitting this traffic were not positively identified, but were located as somewhere in north central and northeast China. Daily T/A reports were prepared on both major problems and a weekly net diagram report submitted to group headquarters.

High level traffic was received from intercept sections of "A" and "B" Companies of the battalion, and forwarded to NSA after 48 hours. Traffic from operational platoons was also received and forwarded after being analyzed by an LLV intercept section of the T/A Section. On the medium and low voice plane, analytic effort was devoted to study of Chinese air spotter nets [ ] located in North Korea. Voice traffic, intercepted in the vicinity of the DMZ, was analyzed and reports submitted.<sup>1</sup>

REF: VOL. I P. 392

a. Company "A," 301st Communications Reconnaissance Battalion

Company "A," 301st Battalion was organized 25 Jun 55.

Due to a relatively short period in conducting operations, information was limited as to results achieved. Although plans for changes in the operational mission were underway as fy 1955 ended, a definite mission which included intercept of Chinese Communist Military Morse radio communications, and LLVI Chinese Communist and [ ] Military communications was assigned.<sup>2</sup>

1. Ann Rept, 301st CRB, fy 1955, Vol II, p5.

2. Ann Rept, Co "A," 301st CRG, fy 1955, Vol II, ppl, 5.

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In fulfillment thereof, a 24-hour basis coverage period was established utilizing four tricks. Equipment included BC 779-B, R-274A/FRR, PRC's (8,9,10) and AN/GRC9. Each radio receiver was equipped to operate with multicoupler units CU 52/URR for antenna coupling.<sup>1</sup>

Manual Morse and radiotelephone positions and coverage follow:

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EO 3.3(h)(2)

Nr of Positions



Extent of Coverage

- PVA
- Chinese Military Search (DF located in Korea)
- Chinese Communist Military (Northeast Manchuria)
- Chinese Communist Military (believed northern Manchuria)
- Chinese Communist Military Search and Development
- Chinese Communist RT nets (believed air spotter nets)

Low level voice intercept was carried out by the 1st and 2d Platoons, who supplied intelligence relative enemy low echelon units to I US Corps (Gp) and subordinate units. This included enemy chatter, possible troop movements, and any information on combat effectiveness. T/A was conducted principally on traffic intercepted on PVA nets, whose call signs and frequencies changed three times a day. As fy 1955 ended, no derivation of the generation or allocation of call signs, frequencies, or schedules, was possible.<sup>2</sup>

REF: VOL. I P. 297

\*Identified by preambles consisting of tetranomes or preamble addressee gps.  
 \*\*Procedure similar to above.  
 1. Ann Rept, Co "A," 301st CRB, fy 1955, Vol II, p2.  
 2. Ibid. pp3-5.

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b. Company "B," 301st Communications Reconnaissance Battalion

Company "B," 301st Battalion, prior to 25 Jun 55, was the 329th Company whose primary mission was PVA intercept.<sup>1</sup> Preliminary to modification of its mission, personnel tested sites in the I Corps area and satisfactory findings resulted in relocation of operations.<sup>2</sup>

Prior to 25 June, the company operated  CW positions,<sup>3</sup> but due to a shortage of intercept operators, was unable to operate a four track system.<sup>4</sup>

Following reorganization and redesignation, intercept effort was as follows:<sup>5</sup>

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EO 3.3(h)(2)

Nr of Positions

Extent of Coverage



- PVA
- Chinese Communist Search and Development (North Korea)
- Chinese Commercial (Chinese Mainland)
- Chinese Commercial Search and Development (Chinese Mainland)
- Chinese Naval

The Voice Intercept Section dropped two of its  positions on 9 Jul 54 changing them to CW as a result of a decrease in voice traffic. After the  remaining positions returned to the company area in September, their primary mission was intercept of Chinese Communist air traffic spotter nets from which a net of 60 stations was developed. Intercept at Uijongbu proved problematic due to interference from the tip-off transmitter of the DF net and the CommCen. As a result, operations were relocated to the 303d Battalion area, where better reception was possible. No voice intercept was undertaken after 25 Jun 55 as the Voice Section was

1. Ann Rept, Co "B," 301st CRB, fy 1955, Vol II, p3.  
 2. Ibid. pp5-6.  
 3. Ibid. p15.  
 4. Ibid. p7.  
 5. Ibid. pp18-19.

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transferred to Company "A" of the 301st and became part of their operations.<sup>1</sup>

Company "B"'s T/A Section was divided into three subsections: An analysis subsection worked as intercept control, performed analysis on assigned cases, and developed intercepted search traffic. A processing subsection processed, separated and packaged intercepted traffic. A daily coverage report subsection prepared reports.

Prior to 9 Jan 55, the major T/A effort was PVA, and [ ] Chinese Military traffic in northeast China. Call signs, frequencies and schedules of PVA stations could be generated or produced and almost all the units served were identified and located. After 9 Jan 55, none of these were heard for a nine-day period. After this period, those heard were using new and unidentified procedure to pass what appeared to be practice traffic. Valid traffic passed about 18 January was temporarily notated [ ] Nets were then developed and, on 3 May, NSA renotated five [ ] and tentatively identified them as nets serving PVA units. The system of generation for the three times a day changing of call signs and frequencies was not discovered as fy 1955 ended.<sup>2</sup>

Reassignment of two [ ] positions from the 330th Company to the 329th Company was effected 7 Mar 55. Only a minimum T/A effort was made on this problem by Company "B" personnel. Simultaneously two [ ] positions were reassigned from the 326th Company to the 329th and on 23 April, these were dropped and eight positions of [ ] added. Recording equipment was

1. Ann Rept, Co "B," 301st CRB, fy 1955, Vol II, pp7-8, 19.
2. Ibid. pp9-10.

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necessary for the assignment, and equipment difficulties ensued as RD-74 recorders proved unsatisfactory for prolonged operations.<sup>1</sup>

The company maintained two DF sites during fy 1955. Results were believed to be exceptional; however, all DF ceased with the 25 Jun 55 re-organization.<sup>2</sup>

REF: VOL. I P. 305

4. 303d Communications Reconnaissance Battalion, Uijongbu, Korea

Throughout fy 1955, the Operations Section of the 303d Battalion continued its mission of LLV intercept. Due to the withdrawal of the 1st CCF Army from the line opposite I US Corps and a continued tightening of COMSEC on the part of the Chinese Communists, the volume of information gathered steadily declined. Additionally, enemy observations of UN forces activity stopped completely, and occasional spot observations by CCF operators proved valueless due to effective transmission security practices. On the other hand, traffic passed by [ ] Peoples Army [ ] operators showed a lower level of COMSEC than CCF traffic. Here, more OB was obtained, locations tentatively settled, and personalities linked with certain units. On 28 Dec 54, a mobile intercept team was organized for a ten-day test, east of I US Corps, to determine the extent of the westward movement of [ ] in replacing CCF Armies. Better security practices were noted as well as evidence of extensive use of landlines. As a result, no valuable information was obtained. From analysis performed on intercepted traffic from both GCF and [ ] nets, daily intelligence summaries were prepared.<sup>3</sup>

REF: VOL. I P. 310

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1. Ann Rept, Co "B," 301st CRB, fy 1955, Vol II, pp10-11.
2. Ibid. pp12, 20.
3. Ann Rept, 303d CRB, fy 1955, Vol I, pp14-18.

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5. 304th Communications Reconnaissance Battalion, Uijongbu, Korea

Until 11 Oct 54, at which time operations ceased, the mission of the 304th Battalion remained to intercept, analyze and disseminate intelligence gained from LLV transmissions of CCF and [redacted]. The battalion was in direct support of IX US Corps. The Operations Section received and distributed material to and from subordinate units and detachments. Processing consisted of collection and analysis of intercepted traffic, publishing a daily intelligence summary and furnishing technical support to intercept teams. Intercepted transmissions were written in the language intercepted and later translated. Traffic of immediate tactical value was passed to a liaison officer who notified battalion and Corps G2.<sup>1</sup>

REF: VOL. I P. 314

6. 326th Communications Reconnaissance Company, Siksong-ni, Korea

Throughout fy 1955, the primary mission of the 326th Company, as passed from ASA, Far East through the 501st Group, was intercept and recording of specific CCF manual Morse transmissions [redacted], and unidentified CCF manual Morse transmissions [redacted]. Additional assignments continued from the previous fiscal year were: the MOA project, special USM 30J UHF/VHF (dropped 31 Aug 54 due to power and personnel shortages); and [redacted] commercial transmissions (dropped from assignment 16 Mar 55). Special missions assigned during the fiscal year were [redacted] Chinese Controlled Liaison Activities in the Far East, assigned 20 Dec 54 (dropped 30 Jun 55), and [redacted] assigned 12 Jun 55. At the close of the

1. Ann Rept, 304th CRB, fy 1955, Vol I, pp11-12.

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year the intercept mission included [ ] trans-  
missions and the MOA project whose intercept product tapes were forwarded  
to USN Communications Facilities.

Other intercept products i.e., [ ] were pre-  
pared in quintuplicate. First copy was held 24 hours then forwarded to  
ASA, Far East; second and third were forwarded direct to NSA at the close  
of the intercept day; the fourth was forwarded to 501st Group, held 30  
days, and then forwarded to [ ]  
the fifth was held 48 hours by the company then forwarded to the 501st  
Group.<sup>1</sup>

Individual section accomplishments follow:

Intercept

Approximately [ ] intercept operators, organized into four tricks  
manned [ ] positions during the year. New operators were oriented  
and assigned positions with experienced operators for about three weeks.  
Operators copied everything heard on a traffic sheet, filled out a log,  
and prepared a daily station coverage report.<sup>2</sup>

Traffic Analysis

The T/A Section, comprising subsections devoted to control,  
analysis and trick, analyzed pertinent traffic and maintained TEXTA and  
other technical data required for local intercept purposes on CCF targets  
in Korea. Similar work was done on a secondary basis for targets elsewhere.  
After January 1955, all traffic was diarized and transmitted by electrical

1. Ann Rept, 326th CRC, fy 1955, Vol II, pp2-3, 15.
2. Ibid. pp7-8.

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means to ASA, Far East and NSA.

Throughout the first half of fy 1955, the section was interested only in strict continuity of CCF nets, and developing intelligence by proving identities, collocations, order of call-up and other special studies. The CCF nets were employing a call sign generation system that changed keys five or six times a month. To maintain continuity, a net diagram was made immediately after a call sign change and forwarded to group, where it was checked and published. The nets also employed

Two X-ray

alerts were called because of aggressive actions by Communist units on 19-21 Aug and 5-8 Sep 54.

The major communications change of 9 Jan 55 involving all known PVA nets was all inclusive: call signs, frequency rotas, procedure, secret procedure signals, station designators and nets were all completely altered. A Baker alert was called by group. The chief effort of the T/A Section after the change was directed at reconstruction of the CCF net and the maintenance of continuity on those portions successfully constructed. CCF

A severe decline in traffic volume caused the 501st Group to declare a Baker alert on 3 Apr 55. Collateral information supported the assumption

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that two Chinese Communist armies were in the process of withdrawing from North Korea on or about 31 March. The alert was lifted the following day when traffic volume returned to normal. A study  resulted in collocation of PVA Rear and Fwd Hq and the integration of several other net complexes into the communications network of PVA Rear and Fwd Hq. During May, a frequency rota for certain notated cases was recovered which consisted of three basic frequencies employed for a 32-day period that was subdivided into four 8-day recurring periods. At the end of 32 days, the three basic frequencies changed. As of 1 June, 20 cases were being followed with definite continuity, tentative identification was made of PVA Rear and PVA Fwd Hq and the Second Branch Unit. Analysis was conducted on call signs, frequencies, addressee groups, schedules and procedure signals with limited success. On this same day, however, a minor communications change occurred in the CCF nets. Eight notated cases (PVA Rear and Fwd Hq) left the air. Continuity was later recovered for PVA Rear, but not for PVA Fwd Hq.<sup>1</sup>

#### Direction Finding

At the beginning of the year the company had three DF sites. In addition, a "tip-off" position was maintained. Operational control was exercised by the 501st Group. Targets were obtained from the company's tip-off position and results from the sites were reported to group. On 1 Aug 54, one site was transferred to the 330th Company. Another was transferred to group on 25 Jun 55, and a site from the 330th, part of the ASA, Far East DF net, was transferred to the company. Net control station for the new site was on Okinawa with secondary control in the Philippines.<sup>2</sup>

REF: VOL. I P. 317

1. Ann Rept, 326th CRC, fy 1955, Vol II, pp10-14.
2. Ibid. pp8-10.

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7. 327th Communications Reconnaissance Company,  
Shu Lin-Kou, Taipei, Formosa

Until February 1955, the 327th Company was located in Japan where operational techniques rarely changed, and only problems of a minor nature were encountered. At that time, the mission assignment was highly diversified. Five target countries were on assignment in the company's Manual Morse Section. The Traffic Control Reports Section was divided into subsections for each target country and, if possible, further divided to a given service. As a result, many analysts were highly trained to carry out special assignments. In Formosa, it was necessary to revise operational techniques. Many [redacted] nets were not notated, therefore reducing the mission to search type coverage. Further, it was difficult to maintain continuity, and operators were encouraged to co-operate with the analysis effort by preparing net diagrams and other information pertinent to circuits being copied.<sup>1</sup>

In March 1955, the company's operational mission was changed and specifically included:<sup>2</sup>

- 1) The provision, operation and control of designated intercept facilities.
- 2) The conduct of such processing as directed in support of the national COMINT effort.
- 3) The conduct of such processing as required to produce COMINT in direct support of the US Seventh Fleet and [redacted]
- 4) [redacted] The conduct of processing as required in general support of US Commands in the Far East and Pacific area.

1. Ann Rept, 327th CRC, fy 1955, Vol II, pp12-13.  
2. Ibid. p2.

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Accordingly, assigned fixed responsibilities and accomplishments were as follows:

Intercept - DF

Intercept and DF were accomplished on designated Chinese Communist targets at all levels of command involving manual Morse and radio-telephone.<sup>1</sup> The Manual Morse Section was relatively stable with regard to manned positions. At the end of the year [ ] qualified operators were assigned, [ ] were in training. Manned positions remained constant at [ ] (Chinese) from March through June 1955. Missions and positions prior to March were:<sup>2</sup>

Month/1954

July  
August  
September  
October  
November  
December

/1955

January  
February

The company started DF operations 19 Nov 54, when it entered the Northern ASA Far East DF net using the same transmitter as Fld Sta 8610. Training was necessary as only three men had previous DF experience. On 5 Jun 55, a temporary site, using crossed U Adcock antenna, was set up 3,400 ft from the company. Although only line bearings could be taken, arrangement of target areas was such that differentiations between areas was often possible and served as a valuable aid in maintaining continuity.

1. Ann Rept, 327th CRC, fy 1955, Vol II, p2.

2. Ibid. pp4-5.

\*Include one Category "Dog" position.

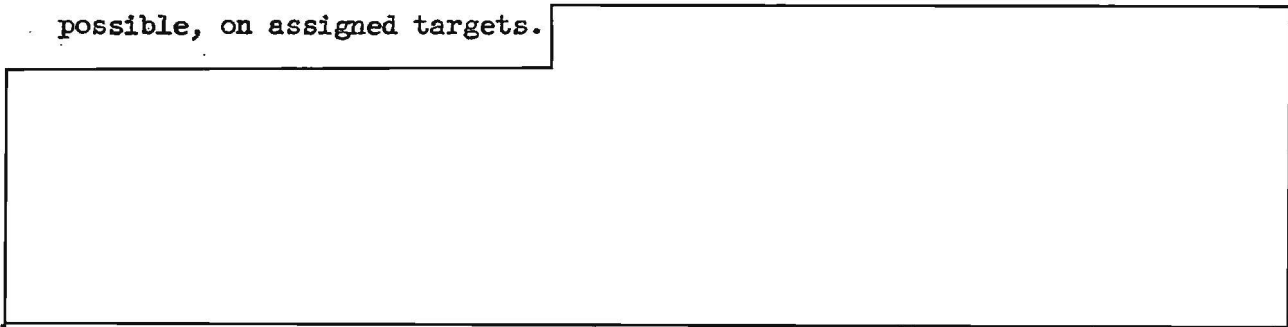
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A net of three sites on Formosa was planned pending land-right negotiations.<sup>1</sup>

Following the move to Formosa, a voice intercept mission was added, and recording and transcribing of Chinese Communist activity began upon arrival. Initially, only Army Language School linguists were used but, in April 1955, 40 Chinese Nationals were employed. Later, this figure was increased to 64.<sup>2</sup>

Traffic Analysis, Cryptanalysis, Translation, and Reports

Traffic analysis was performed and TEXTA information maintained for all intercepted traffic. Low level cryptanalysis was performed, when possible, on assigned targets.



The Traffic Control Reports Section continued to perform three types of analysis (T/A, C/A and translation), and to report results through TECSUM's, DCR's, technical field letters, etc. Emphasis remained on T/A. However, after the move to Formosa, greater attention was given to translation of Morse and voice traffic. The manual Morse mission prior to the move consisted of: [redacted] Police, Shipping, and Illicit; Chinese Naval, Military, and Commercial; [redacted] Police, and Illicit; [redacted] Military, and Police; and a [redacted] net with Peking. After the move, coverage was exclusively Chinese Communist Military, Naval, and

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1. Ann Rept, 327th CRC, fy 1955, Vol II, pp8-9.
2. Ibid. p5.
3. Ibid. pp2-3.

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Shipping with emphasis on [ ] The voice mission consisted of Chinese Communist Administrative Air, Air Defense, Naval, Commercial and unknown.

Few trained analysts were assigned and continuity was difficult to maintain after the 9 Jan 55 revamping of Chinese communications. Despite these problems, the results achieved were encouraging. In addition to [ ] assigned to Formosa; a Navy officer and [ ] were attached for analysis of naval intercept. [ ] these men identified traffic for the Intercept Section while the remainder were distributed in Chinese Shipping, Naval, Voice and unidentified subsections.<sup>1</sup>

#### Operational Liaison

Liaison was maintained with US COMINT units in the area as required for successful accomplishment of the mission. The company worked closely with Fld Sta 8603, Naval Security Group Detachment of Formosa Liaison Center, and Det 1, 6925th Rad Sq Mbl. The Naval Auxiliary CommCen Pacific provided the company with Chinese National Voice and Morse intercept raw traffic, which was separated into material to be processed locally and material to be forwarded.<sup>2</sup>

REF: VOL I P. 323

8. 330th Communications Reconnaissance Company, Seoul, Korea  
Throughout fy 1955, the mission of the 330th Company remained the intercept of [ ] targets as directed by the 501st Group, and included 24-hour search and development. In addition, NNSC nets were intercepted by two positions until March 1955. Intercepted traffic

1. Ann Rept, 327th CRC, fy 1955, Vol II, pp5-7.  
2. Ibid. pp3, 14.

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averaged about 8,000 msgs per month. Until they were transferred to the 501st Group effective 25 Jun 55, the following sites were maintained by the company:<sup>1</sup>

<u>Site</u>	<u>Location</u>	<u>Operational</u>
Jig	329th Co compound	July 1954 to March 1955
King	Paongyaeng-Do Island	June 1954 to 25 Jun 55
Love	5 miles west Sok-Cho-Ri	April 1955 to 25 Jun 55
Mike	Chunchon	1 May 55 to 25 Jun 55
Dog	2 miles northwest of company	1 May 55 to 25 Jun 55

From the beginning of the fiscal year until February 1955, [ ] tions were manned. During this month, lack of personnel caused positions to be reduced to [ ] As new personnel arrived and were trained, manned positions rose to [ ] in March, and [ ] in May and June. Transfer of [ ] positions at the sites, [ ] June, reduced this number to [ ] of a total of [ ] authorized.<sup>2</sup>

A major operational problem was a lack of sufficiently experienced operators to copy KC nets and traffic analysts to prepare a TECSUM. A new system relative compilation of TECSUM information on mid-shift was initiated which allowed T/A to achieve an overall picture of a day's activities. In September 1954, additional analysts were assigned who were given permanent tricks and assignments, and mid-shift preparation of the TECSUM was discontinued.<sup>3</sup>

The principal project accomplished was a case identification book which helped to acquaint new traffic analysts and intercept personnel with cases on assignment and also provided compact reference material. It was

1. Ann Rept, 330th CRC, fy 1955, Vol II, pp2-4.  
2. Ibid. p5.  
3. Ibid. pp8-9.

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revised periodically, and a section on operating characteristics was added. Analysts concentrated on research and development after January 1955, and several frequency rotas, call sign rotas, and unknown nets were followed.

Beginning in 1955, a major change occurred in [ ] operating procedure. Deviations were largely in call-up, frequency allocations, and preamble characteristics. It was determined that most [ ] nets used five frequency rotas. In general, the change caused no trouble, and many identifiable characteristics remained constant. Several alerts were executed during which personnel were warned to be on the lookout for deviation from normal operations.

During the first month of experimental operations at site "Love," TECSUM's were prepared. After the site became permanent, the 501st Group assumed TECSUM responsibility for the site.<sup>1</sup>

DF efforts of the company during the year were conducted by outlying sites. Sites "King" and "Love" were in the Korean DF net with control at group. Both were transferred to the group 25 Jun 55. Site "Dog" was a part of the ASA, Far East DF net with control at Tokyo. This site was transferred to the 326th Company 25 June. At the end of the fiscal year no DF capability existed, however under reorganization plans, a DF "tip-off" position was authorized.<sup>2</sup>

REF: VOL. I P. 329

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1. Ann Rept, 330th CRC, fy 1955, Vol II, p11.
  2. Ibid. pp8-9.

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## 9. Field Station, 8603 DU, Sobe, Okinawa

Throughout fy 1955, ASA Far East maintained administrative control and NSA exercised operational control over Fld Sta 8603. All mission assignments were issued by NSA except for ChiCom Naval [ ] which became a category "C" assignment 24 Apr 55, with mission control delegated to USN-27.<sup>1</sup>

Operational highlights within the various sections comprising the station's operational organization follow:

Radio Printer

Within this section, [ ] positions were programmed for intercept of [ ] Military, Naval, Air, and Commercial non-Morse including search for other non-Morse signals. Signals copied were [ ], two-channel baudot, [ ] Service links, [ ] printer, all [ ] links not covered by other stations, and new, experimental noise transmissions.<sup>2</sup>

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Traffic volume was comparatively constant during the year. Service traffic showed a slight increase, while [ ] multiplex decreased. [ ] page copy decreased from a high of 1,116 tapes in February 1955 to three in June due to a change in priority category from page copy to LTPB [ ]. During July 1954, [ ] service printer had more traffic and made more identifications than in any previous month, using schedule studies worked out by 6920th Scty Wg on five Far Eastern Military links working out of [ ].

In September 1954, work began on a flexible multiplex position. Four SP-600 Receivers were modified to use with two Northern variable master

1. Ann Rept, FS 8603 DU, fy 1955, Vol II p2.
2. Ibid. p6.

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oscillators. Two DEN-35's, two Ampex 375 Magnetic Tape Recorders, two BC-1016 Ink Recorders and one DEN-72 were also added. No assignment for this position had been received as the year ended.

In December 1954, a new system of logging  traffic was authorized to include link, call signs, type keying and transmissions, frequency, time intercepted and copiability figures. In March 1955, separate time entry for each channel was stipulated except for those utilizing a transmission net assigned or copied.<sup>1</sup>

A special cyclic coverage on Category 3  was assigned as a special mission 6 Apr 55. Lack of ST 35 equipment to distinguish between clear text and  prevented mission accomplishment.<sup>2</sup>

#### Voice

Until August 1954, the Voice Section was engaged in test searching for ChiCom voice and voice Morse nets, for which temporary case notations were assigned. Four air-ground nets, and one suspected military net using voice and voice Morse were assigned 15 August. Two of these were never heard, and no military nets were developed. A large part of the intercept was airwarning nets, often active 16 to 24 hours a day. Although some voice Morse was intercepted, the majority of assigned and copied cases used voice transmissions. One of the five intercept positions was dropped in September, and the section was transferred to the 327th Company 23 Feb 55.

Because the Voice Section was comparatively new, it encountered many problems, among which was a lack of trained personnel. As a result, T/A

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp31-34.

2. Ibid. p9.

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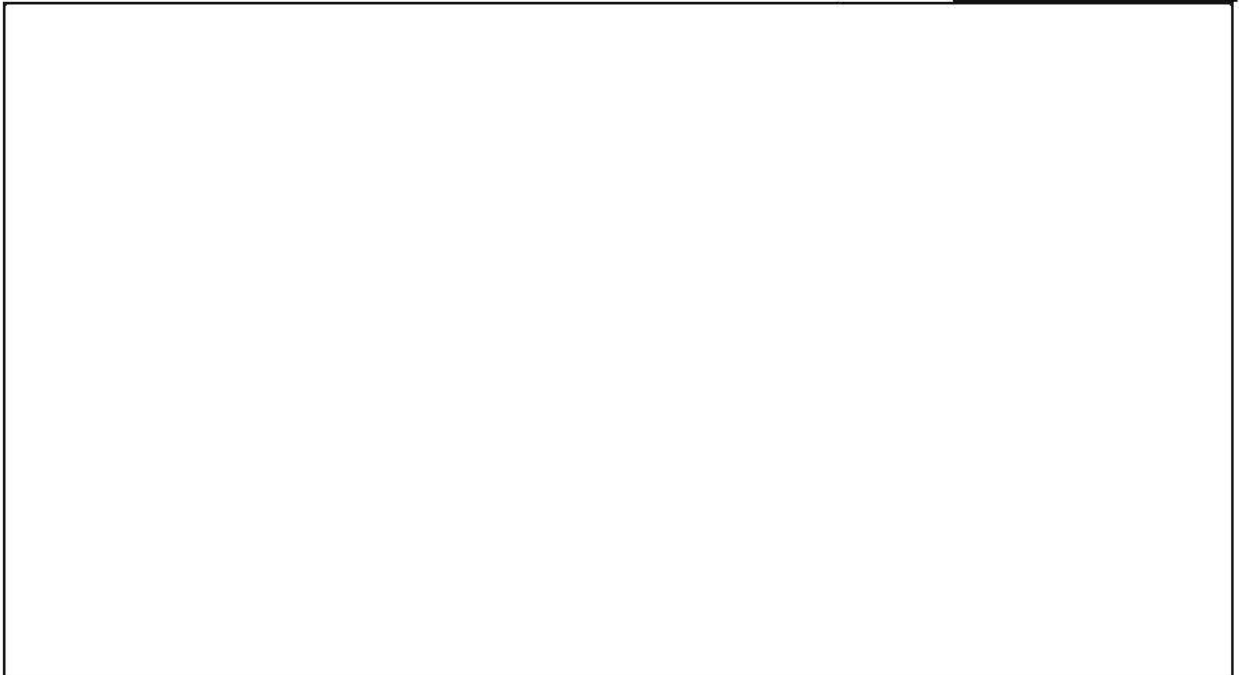
could make little headway in organizing and compiling intercept material and reports. Further, operators were unfamiliar with the work and many tapes had to be sent to Tokyo for further translation. By January 1955, 185 tapes were being translated monthly and voice, which was placed on top priority, was being supplied with approximately 50% of requested DF bearings.

As much intercept material was airborne in nature, the 6920th Scty Wg was placed on the distribution list for all findings and greatly aided the identification of unassigned air-ground nets.<sup>1</sup>

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Automatic Morse

Considerable change occurred in mission assignments of the Automatic Morse Section during the year. Missions dropped included



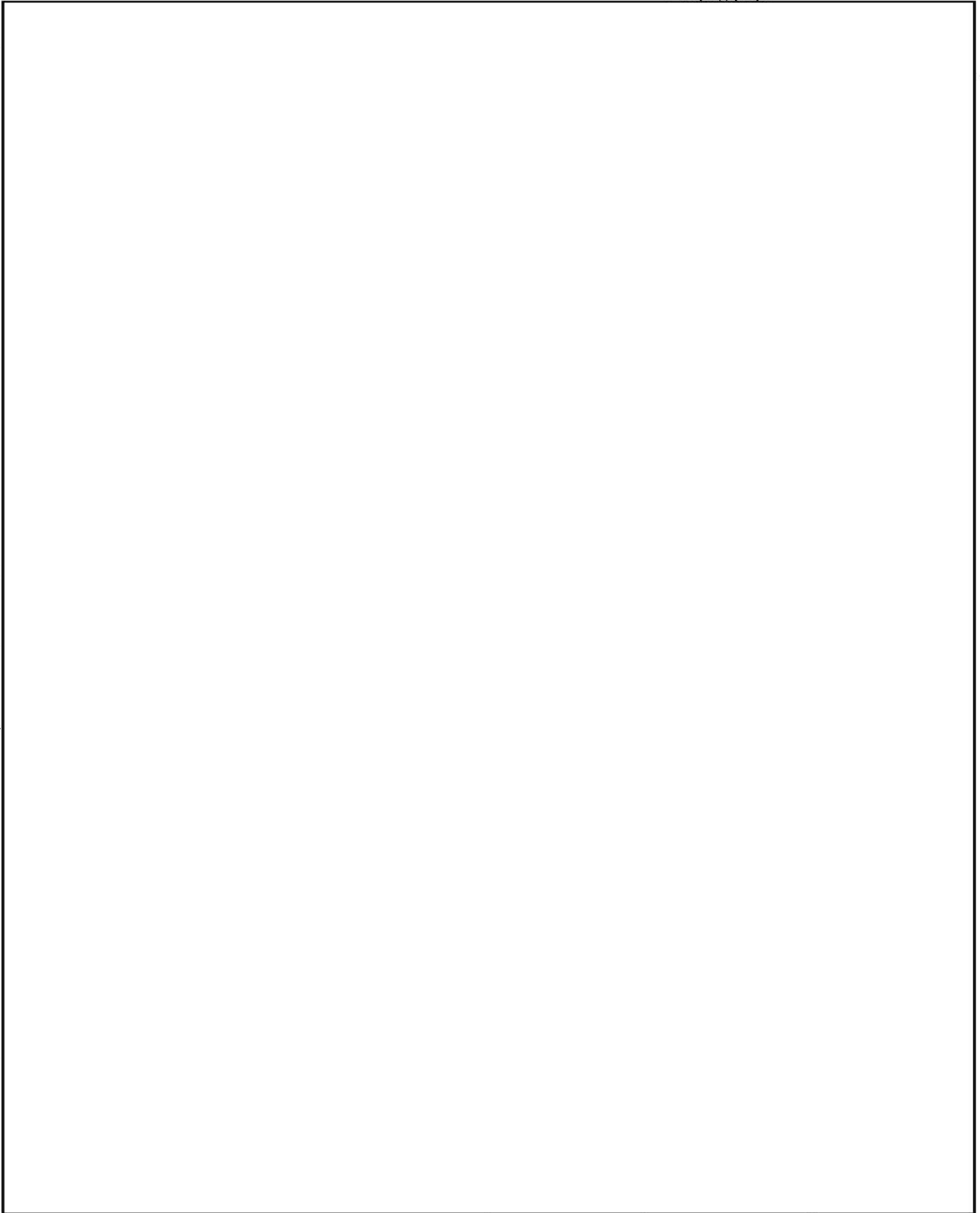
1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp91-93.
2. Ibid. pp4-5.

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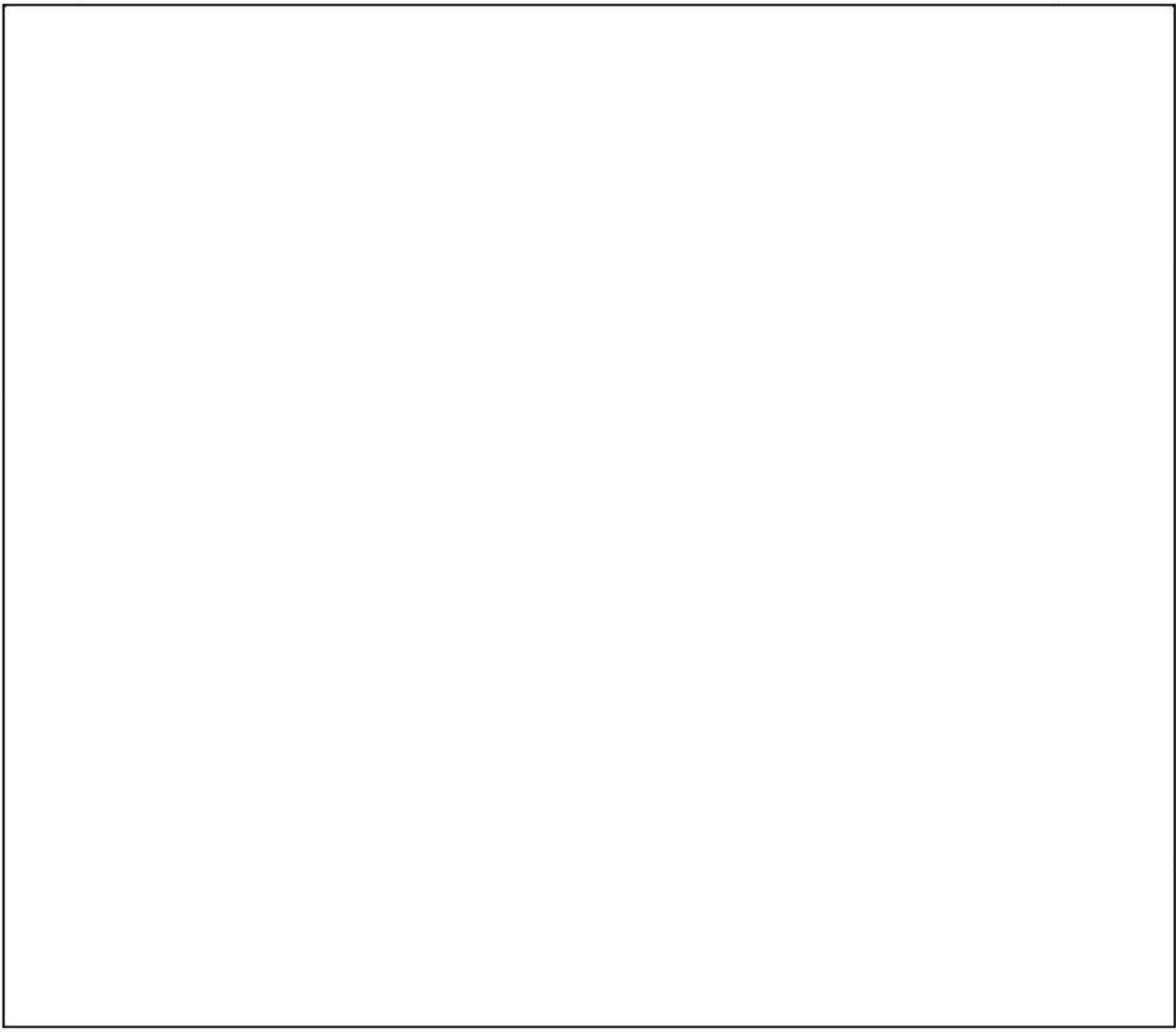


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Manual Morse

The station's manual Morse mission during the year included ChiCom  
Military  Naval  Air  Air Defense  Shipping

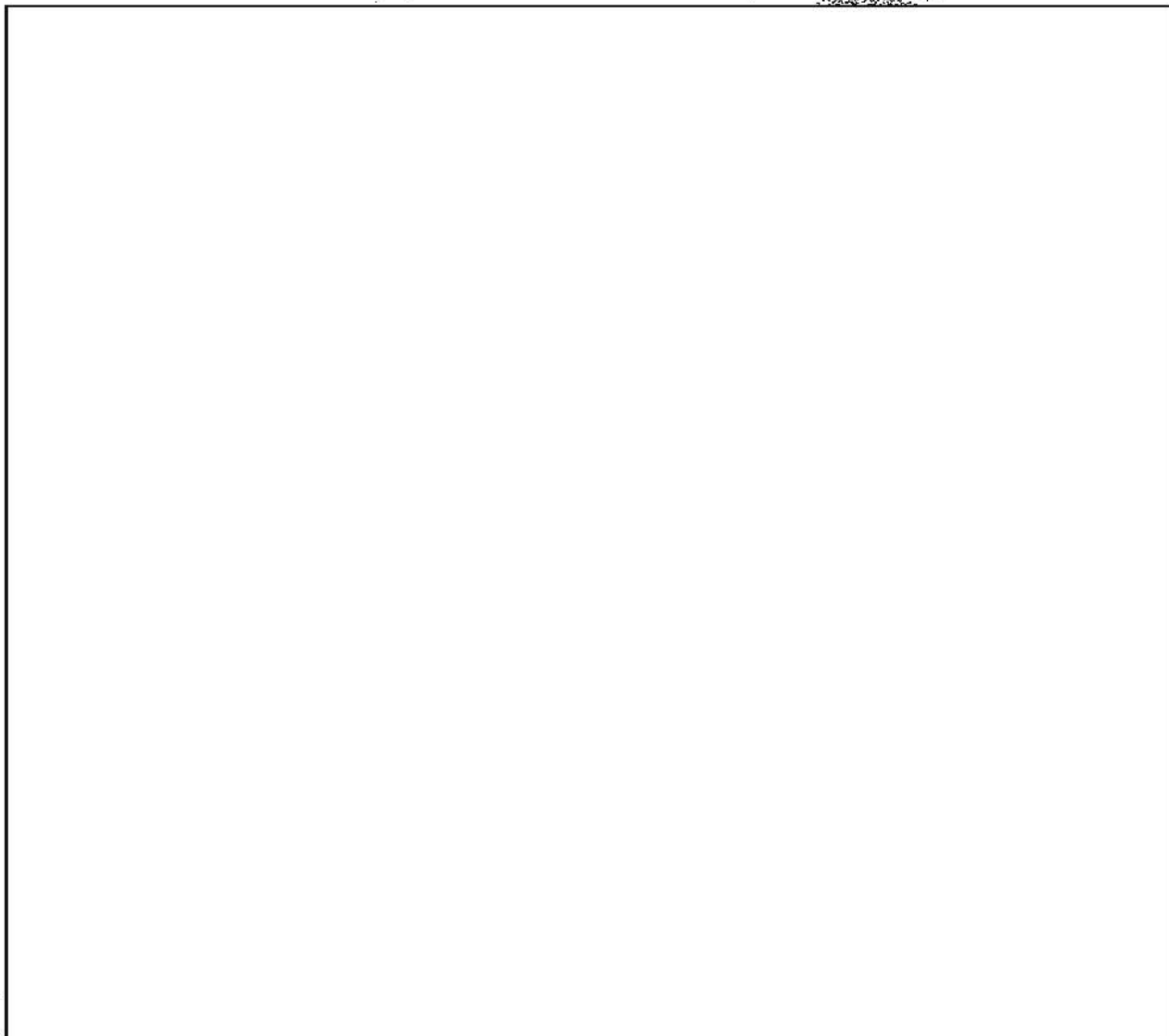


Provinces.  included all North, East and Central/South China.  nets  
were dropped at the end of the fiscal year.  assignment covered Peking

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp4-5.
2. Fbid. p11.

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Attached transmitters were to periodically send out a call sign on a specific frequency. Although a position was set up, this project was never heard at the station.<sup>2</sup>

On 1 Jul 54, only [ ] operational positions were manned. By 7 August, [ ] additional were assigned. Generally, the number of manned positions varied from a low of [ ] to a high of [ ] depending on personnel

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp5-6.
2. Ibid. p9:

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available. The sixty-third position became available when voice positions were transferred in February 1955. Twice during the year normal four tricks were reduced to three for short periods, due to a lack of personnel. Typhoon "Grace" disrupted normal trick rotation, but intercept was continued. Personnel varied from [ ] in July 1954 to [ ] in June 1955.

Factors causing variations in monthly message totals were the number of positions manned for a given period, types of cases on assignment, current activity or lack of activity of CCF concerning Formosa, major and minor communications changes effected by the Chinese, receiving conditions, and availability of experienced personnel. As a result of the tense situation in Southeast China and Formosa, one air warning case averaged about 800 short messages a day from January to July 1955.

On 10 Jan 55, ChiCom Military, Administrative Air, East China, and manual Morse [ ] nets underwent a major change involving daily-changing call signs and frequencies, a new Chinese full-cut number system, encoded procedure [ ] and structural changes of established nets. As early as November 1954, nets notated as [ ] nets--were heard using a more complete cut number system; these nets worked and sounded like ChiCom manual Morse circuits. During December, [ ] activity increased with two positions assigned coverage. [ ]

Intercept of the correct ChiCom Military nets was not difficult after the change, but determining specific cases was a problem for special identification and analysis personnel. When an intercepted target was matched

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by RFP with an assigned case transmitter in the RFP library, the case was transferred to the proper position. The operator, who had copied the case prior to the change then became re-oriented with his net and its new characteristics. The process was slow, but operators were able to maintain their own case continuities. Recovery of nets was slow and sporadic for a period, but soon continuity was maintained on most major controls largely as a result of operators' ability to recognize sounds of transmitters used on their nets. This was of major importance due to daily-changing frequencies and call signs.

Even with the complex problem after 10 January, recovery of Third Field Army nets was very satisfactory. Changes in Administrative Air nets did not pose so large a problem, as they had used twice-daily changing call signs and frequencies throughout calendar year 1954, and operators were accustomed to maintaining case continuity through circuit characteristics and net workings. Once the structural change was determined, operators maintained continuity as before the change.

On 1 Apr 55, an expected major change on ChiCom Naval nets occurred. Though primarily the same as the changes in military and administrative air nets, recovery of most naval nets was effected within three weeks. Recovery was also aided by the few structural changes within nets and the use of call sign periods by other nets, plus early recovery of procedure matrices. DF was also a help to operators on naval nets.

All assigned ChiCom service cases changed from winter to summer frequency ranges during April 1955. These occurred at the same time as in fy 1954, and to approximately the same ranges.

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During the year, the [redacted] was separated from the Automatic Morse Section and assigned two positions in the Manual Morse Section. Activity was limited to weekly transmitter checks except when seasonal floods and freezing conditions disrupted landlines. At these times, large volumes of traffic were intercepted. Inability to use diversity reception resulted in some loss when signals were not strong and free from interference. Heihow to Canton, Shufu to Wulumuchi, and Hankow to Chungking links were the only circuits passing radio traffic at the year's end.

Search and development positions were most helpful in the recovery of the ChiCom East China military problem. As these positions developed activity associated with known complexes as well as unknown nets in the Third Field Army area, they were important as they provided station facilities for immediate coverage and attempted continuity on nets that could be isolated from the large number of unknown nets within the immense geographical limits of the Third Field Army.<sup>1</sup>

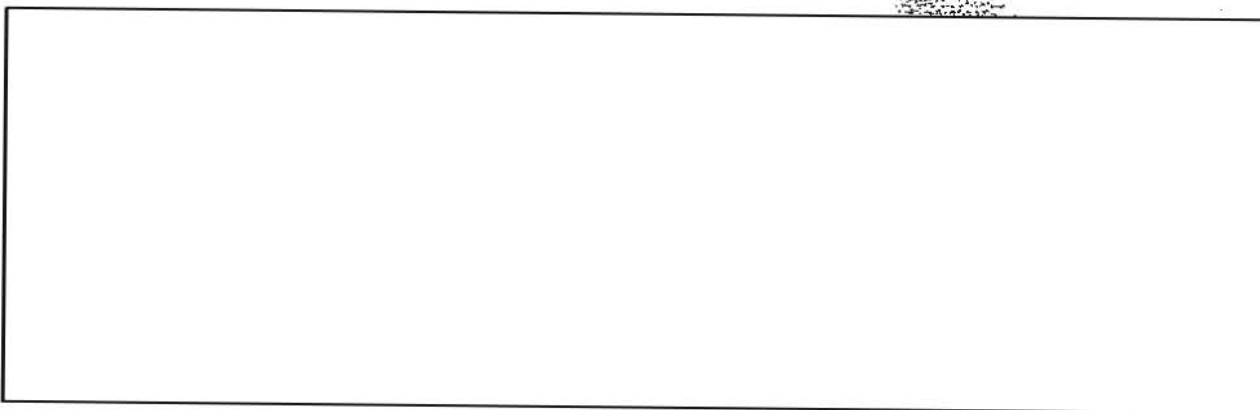
#### Special Identification

Prior to 3 May 55, DF and RFP had separate missions. On that date, a mission including parallel DF and RFP was instituted in place of previous missions and included [redacted].<sup>2</sup>

The function of special identification personnel was identification of radio transmitters on the station's intercept mission. Through tip-off, DF flashed the identification to all units of the DF net, who then passed any bearing obtained back to the station for plotting fixes. Radio finger-

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp22-27.
2. Ibid. p7.

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Accomplishments of the various subsections prior to consolidation  
to be  
follow:

Direction Finding: From 1 July to 15 Dec 54, the station operated as an outstation of ASA Far East DF net. There were two positions: the flash net position in the operations building, and the scope position located  $1\frac{1}{2}$  miles away at Yontan Airfield. Bearings were sent to ASA Far East via ACAN. Bearings were received from 81% of the missions flashed, and fixes were received on 37%.

In July 1954, the station was assigned target priority indicators for flashing emergency "A" and "B" targets. This enabled a flash station to interrupt any mission to flash a higher priority target, providing the initial mission had been in progress for at least three minutes.

On 15 December, a major reorganization put the station in control of the new Southern ASA Far East DF net. Implementation of the new responsibility was carried out from four operational positions: plotting-evaluation, flash net, report net, and scope.  were assigned to these positions, all of which, except scope, were in the operational area.

Until February 1955, too high a frequency was used for night communications. Accordingly, a new frequency and a new operating signal (ZVD)

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp43-44.

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were assigned. Other improvements occurred 1 Mar 55, when AN/TRD-4 was installed.

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A plotting-evaluation position commenced practice operations 18 Nov 54, plotting bearings on missions flashed from the station. In May 1955, 500 GT-42S-D maps were received to plot [ ] fixes. A system for notifying manual Morse operators of fixes and RFP matches--resulting from their tip-offs--was established which enabled operators to re-tip-off missions on which satisfactory results were not obtained.

Of a total of 24,662 missions originating at the station during the year, 22,949 were flashed. Daily average of missions ran approximately 68.5 with a low of 37 in November 1954, and a high of 95 in the months of March, May and June 1955. Daily average of missions flashed went from a low of 35 in November 1954, to a high of 95 in the months of May and June 1955 with the average approximately 63.7.<sup>1</sup>

Morse Operator Analysis: DEN-31 equipment was installed in June 1955, however there were no trained personnel or mission assignment at the close of the year.<sup>2</sup>

Radio Fingerprinting: This unit commenced operations 1 Oct 54 with its first mission consisting of six [ ] cases on "A" priority, and five [ ] cases on "B" priority. In addition, personnel began shooting a general station assignment which included all [ ] cases with known identities. This was the beginning of the film reference library, a great aid after the communications change of 9 Jan 55. The number of assignments changed periodically with the largest number being assigned in January,

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1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp34-38.  
2. Ibid. p38.

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February and March 1955.

Although this subsection faced the usual difficulties of a new organization, its operations improved over the year. In the first month, an operations log was established, film shots were changed from two each 12½ ft lengths to 25 ft lengths, and frequency and receiving call signs noted.

Several equipment tests were made. Panchromatic film was found to be superior to orthomatic film. The subsection used lithograph-orthomatic, which was intermediate. Modified type "A" paper developer was found less desirable than type "C" medium contrast film developer. Various crystal and non-crystal positions were tried, of which the .5 crystal position was found best. A 1.3 crystal position was used for cases with exceptionally good signals. In January 1955, the DEN 17-2 was modified to take shots of 5, 6.25, 20, and 25 ft. In the same month, a film dryer that held up to 200 ft of film was constructed.

Total shots processed for the year was 10,471 an average of 1,309 per month. The high occurred in May with 1,933 and the low in January with 813. RFP matches totaled 5,900 or an average of 748 per month. A high of 1,036 matches was reached in May 1955 as compared with 354 in November 1954. Variability resulted from sporadic adverse weather conditions.<sup>1</sup>

#### Traffic Analysis

During fy 1955, the Traffic Analysis Section continued to maintain TEXTA and other technical data; to perform T/A required for local intercept control; to process, develop and evaluate intercepted raw material; to compile and submit reports; and effective 1 Apr 55, to render technical

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp38-43.

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support to the 327th Company.

The workload of the section increased continually and changes in intercept missions called for creation of a small unit for each new country, type and/or service intercepted. In July 1954, the four-trick system of reporters with its small nucleus of problem analysts was discontinued. The majority of the section began working days with cases broken down into small groups and each analyst was responsible for one group. All phases of traffic processing, essential to continuity and writing of the TECSUM were accomplished by individual analysts. The new system improved TECSUM quality, increased intercept, and provided more thorough case analysis.

With the major communications change on ChiCom Third Field Army and [ ] nets, analysts worked with operating tricks to regain continuity. After partially decentralizing the Third Field Army from ASA, Far East to the station, the section returned in April 1955 to its July (1954) organization except for separate reporting. Further, it assumed responsibility for publishing weekly technical notes in addition to TEXIN, TECSUM, DCR, TAR, DANAR and ITL reports.<sup>1</sup>

A summary of problems covered by traffic analysts during fy 1955

follows:

Chinese Communist Military

In the first month of fy 1955, ChiCom Military Nets of the Third Field Army [ ] were using past period call signs and at times the same frequencies were repeated. Six temporary cases were assigned notated in [ ] 3T-00000 series, later renotated in [ ] series. There were six collocations established which opened new channels of analysis by indicating usage of unusual numbers completely at variance with remaining [ ] network numbers. These were:

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp55-56.

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- 1) Control of [ ] one Nanking-controlled O/S  
RAD M-912 [ ]
- 2) RAD M-1794, O/S of [ ] with one Nanking-controlled  
O/S of [ ]
- 3) RAD M-1795, O/S of [ ] with one Nanking-controlled  
O/S of [ ]
- 4) RAD M-193, O/S of the dual-controlled net [ ]  
with one Nanking-controlled O/S (RAD M-434) of [ ]
- 5) RAD M-985 of special Shanghai-controlled nets which was  
found passing traffic later sent by O/S (RAD M-1985) of  
[ ]
- 6) RAD M-867, O/S of [ ] with the two stations mentioned  
in five above showing a Nanking O/S as controlled by two sub-  
ordinate commands.

These collocations illustrated lateral working between Nanking-controlled O/S, and reflected that the majority of the controls and O/S of various nets were also operating as O/S of Third Field Army Hq. in Nanking, regardless of intermediate commands.

Forty-four [ ] targets and two searches were on assignment in August 1954. Some attention was given Canton Broadcast and Service nets [ ]. Seven [ ] temporary cases were assigned, six of which were notated by NSA as permanent case numbers. Seven [ ] (North China) nets were also assigned, but discontinued as the station could not copy them. One [ ] (Southwest China) search and three [ ] (Mainline) cases were then assigned; one [ ] was found to be [ ] and renotated [ ].

Two call sign and frequency changes took place in September. Six collocations were proved, two in Foochow nets, the remainder in the Nanking-Shanghai control area. A suspected collocation, RAD M-1869 (O/S of [ ]) disappeared from both nets and tended to indicate that the unit was dropped from the Nanking-Shanghai control area. New flurries of activity were noted in the Foochow-Amoy area, indicating possible movement of the aforementioned unit to the general Foochow area. The major Foochow-controlled nets passed very high volumes of traffic, and many sub-nets were very well developed. The situation indicated that new nets had moved into the area, as little activity had been noted previously.

In October, there were also two call sign and frequency changes at which time all nets used calls that had been used previously. During the month, an error was discovered in O/S RADS M-867 and M-1759 which had been mixed on [ ]. The error was rectified, when it was discovered that RAD

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M-867 always sent slashed numbers except for message relays. Another characteristic of the [ ] complex was a consecutive numbering system in the last four figure group of the message that ran one up with each message sent in a series regardless of the station to which the message was sent.

[ ]

China nets employed coordinates used by Northeast China Military District in May 1954. Collocations in October were greatly aided by radio fingerprinting. One proved collocation was a match between transmitters of RAD M-434, an O/S of [ ] and RAD M-1273, control of [ ]

In November, October call sign and frequency changes were repeated. On 1 November a daily-changing call sign system was implemented by three nets, [ ]. The change had been anticipated since 20 May 54. Continuity was maintained steadily on [ ] with only occasional night or day continuities missed. Continuity was maintained about 60% of the month on [ ] with three new outstations noted working within the net structure. [ ] was more difficult to locate and continuity was not so readily obtained. [ ] occasionally repeated call signs used by Foochow nets in previous periods and, on one or two occasions, during the same period.

Two call sign and frequency changes were made in December 1954. A new outstation, believed located in Nanking, was picked up by [ ]. It was thought to be a new link between Hangchow and Nanking. Similar changes were discovered on other nets indicating possible reorganization of many complexes and possibly the entire Third Field Army network. Several nets, labeled [ ], using international procedure and passing traffic with a new cut system, were copied. The nets were located in the Third Field Army area by DF and operators indicated that the transmitters were those used by known cases. This was the beginning of a major change in ChiCom Military and Administrative Air circuits.

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EO 3.3(h)(2)

The major call sign, frequency, procedure, and schedule change occurred 9 Jan 55. [ ] were heard on a few schedules, but all links had made the complete change by 15 January. Procedure was analyzed first and, with the aid of DF and RFP traffic, was divided into various groups. All possible ChiCom Military links were labeled [ ] group M. This group later began using the daily-changing call sign system. En-

[ ]

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dinomes to which basics were assigned. The dinomes changed every three days although basics remained for a longer but undetermined period.<sup>1</sup> Further developments by area after the change were:

Nanking area: RFP and DF were able to locate six circuits in this area. Two were proven to be day and night continuity of [redacted]. Number blocks were apparently changed daily as in the area's four other temporary cases. All nets used the same number blocks, supporting the possibility that they were all [redacted] controls. Each used twice-daily-changing call signs. Continuity was difficult due to changing schedules and common number blocks. Moreover, there was a tendency to skip numbers within the block being used. During 1-7 May, Nanking nets reverted to number blocks and numbers used in the same period of April; however, the nets did not use the same numbers, but seemingly picked them at random.

A frequency study was made on controls and outstations for the month of February. For control, there were four frequency ranges day and night. For the O/S, there were six. Near the close of the period a definite 18-day, four-frequency rotating system was discovered with control on the same frequency as the O/S on the previous day. In June, [redacted] was noted utilizing systematically changing schedules. Continuity was partly maintained and the outstations were equated. On 16 Mar 55, continuity was re-established on [redacted] a Nanking to Foochow link unheard since September 1954. DF and RFP substantiated both locations. Nanking passed 1000 NR block, Foochow 2000. The circuit was notated 20 May and temporary cases assigned Nanking control were changed to permanent notations includ-

[redacted]

Foochow area: One Foochow control was located by RFP and DF in January 1955. Other suspected nets used single calls, however positive identification was withheld pending further analysis. These suspected nets changed call signs, frequencies, numbers, schedules and priority address groups every five days until 12 March when the nets altered to twice-daily-changing call signs and frequencies. Several Foochow nets used two-character procedure rather than normal six-character as used in the rest of the Third Field Army. These were related to Foochow controls. Duplicated messages and isologs were observed and later control and nets began using both types of procedure.

Nets using self-equating calls increased. Beginning 15 May, more skeds and messages were noted and the volume increased. It was believed that there were five control nets for the area. Three used self-equating call and two-character procedure, while two utilized different calls for

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp58-63.
2. Ibid. pp63, 67.

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transmit, receive, and known [ ] procedure. Each net had four outstations and changed call signs daily except for one which used five-day call sign periods until June. Several other nets, using self-equating calls, had only two outstations with very few schedules.<sup>1</sup>

Hangchow area: With the aid of RFP and DF, three area nets were recovered in January through their use of numbers in parenthesis at the end of a message with a consecutive numbering system in the last group. A ten-day call sign period was used changing frequency every third period until April when twice-daily-changing call signs were adopted. [ ] used the same call sign for a month, finally changing in April along with 50301.

Control RAD M-1660 of [ ] was found to be collocated with RAD M-2162, an O/S of [ ]. Immediately after the change, this net used four and five-character procedure groups including cyrillic-barred letters and figures. Traffic was easily recognized. Changes took place every ten days with the call sign change. Before the end of the fiscal year, however this procedure gave way to regular [ ]

In April, the [ ] circuit was split so that control used two sets of call signs with the same frequency, one to contact RAD M-867 and RAD CF22, and one to contact RAD M-1660. After the split, Hangchow subnets showed little activity, although controls continued to pass a normal amount of traffic.<sup>2</sup>

Shanghai area: [ ] changed call signs and frequencies every five days. On 31 March, a collocation was proved between [ ] which had previously been carried as [ ] because of its use of two-character procedure. [ ] changed call signs and frequencies every four days until 8 June after which it maintained the same call signs. [ ] both used two and six-character procedure and traffic indicators such as "KA6" or ";Z;". [ ] were carried as possible Shanghai controls and passed an unusual amount of isolated messages.

During April, several unidentified nets in the area used dummy procedure and sent practice traffic. Call sign periods were used although they were not definitely established. Slashed numbers were predominant with the same number on both sides of the slash bar. There was considerable group repetition and schedules were very irregular. In addition, many regular nets passed a limited amount of practice traffic with the message number usually taken from the 4000 NR block.<sup>3</sup>

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp67-68.
2. Ibid. pp68-69.
3. Ibid. pp69-70.

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There were no major changes on the Naval [ ] nets during the first few months of the fiscal year. Daily-changing call signs were used the first half of each month, and repeated the second half. Authenticators were re-used in the same manner as the letter-for-number substitution tables and key sequences. [ ] (Southeast China) sent an unusually high volume of traffic in August 1954. In addition, [ ] (Shanghai area) showed a marked increase in traffic with a high percentage of messages bearing an urgent or flash priority. Traffic also increased on the [ ] complex in the South China coastal area. In September, a high number of top priority messages by Hq Peking was noted with new links to Haimen Communications and Observation Station, and Swatow Naval Base. A new broadcast was heard. [ ] This circuit sent regular traffic in addition to five-letter group messages. It was tentatively identified as a submarine practice net in the Tsingtao area and notated. [ ]

In October, Naval complexes began using new procedural characteristics;

[ ] unusual procedure and calls were an indication of a general Naval complex call sign change that occurred in November. Volume was unusually high that month with a number of messages bearing either number one or number two precedence. On 31 Oct 54, the Shanghai complex sent a total of 51 msgs, all with number one precedence. Most of these were either sent or passed by U/D unit designator 442 and U/D 301 controls for the Shanghai complex. [ ] sent several high precedence messages with a high group count.

Call signs, procedure, and authentication systems changed in November as expected from minor changes noted previously. Call signs continued to change daily for the first 16 days of the month, then repeated. They were still broken from a two by ten letter substitution table with a large percentage of new arbitrary call signs equated to former basics. The procedure matrix remained with new chatter [ ] Authentication also remained with replies being changed within the ten by ten matrix.

A new net controlled by A33 PTO and A33 developed 1 Jan 55 in the Tanghai-Haimen area and was notated as [ ] The net was identified as an air liaison command whose low level tactical type traffic was readily broken until the net disappeared 20 January. Traffic volume was high with a concentration of mobile units in the East China area, particularly around the Tachen Islands. It was believed that the Fifth and Sixth Squadrons, based in the Shanghai area, were utilized in the operation along with some vessels normally based at Tsingtao. A new station became active and was believed located on the newly-captured I Chiang Shan Island in the Tachens.

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In February, there was a traffic increase in the Shanghai-controlled area, declining later in the month. In March, this complex passed traffic with a new basic (MP's-unidentified naval activity). Another unidentified unit was noted using the basic call sign and contacting only radar observation posts; DF located this station in the Wenchow area. Near the end of the month, a number of naval circuits began using new procedure and new cut numbers similar to those in use by military and air nets.

In April, all [ ] nets underwent a major change in call signals, procedure, frequencies, unit designators, and to some extent, schedules. Following the change, intercept positions assigned [ ] nets were changed from category "A" to category "C" and placed under operational control of the 327th Company, providing better and closer technical support, greatly aiding recovery of the [ ] problem. Many nets employed daily-changing calls apparently taken from call sign books. Other nets employed 6-day and 15-day call signs. Two broadcast nets, [ ] used monthly call signs. New call signs consisted of three, four, five and six characters with dinomic suffixes which appeared constant. Two new procedure matrices were observed; one employed by Shanghai, Canton and Tsingtao complexes, the other solely by Peking-controlled nets. The use of different keys for each geographical complex was noted. There was similarity between procedures in that the meaning or value was placed in the same general order in both. Procedure signal keys used during the first half of the month were repeated during the last half. A similar new authentication matrix consisted of ten rows and columns with dinomic border keys. The border keys were twice daily-changing, and different in various complexes. As with the procedure keys, [ ] complexes both used the same set.

Communications were normal in May until the 28th when there was a big drop in communications and less mobile activity to the end of the month. Mobile contacts with Shanghai were high but only one message was observed. Suspected early warning or pre-flight traffic was observed on the 30th on [ ] with the majority of the three-figure traffic passed by the latter. A message on [ ] was later seen on another [ ] case. The traffic was sent with a Roger as group separator. Message heading consisted only of the number running from one through fifteen. Significance of the changes and irregularities was not known.

[ ] made the normal change of authentication matrix body on 1 Jan 55. Four-character challenge and two, three, and four-character reply remained in use. Thirty percent continuity of the matrix was recovered with another 30% recovered but not equated to the May equivalent. Unit designators previously sent in the clear were encoded on procedure matrices. They appeared to have assigned sequence according to geographical command with Tsingtao control [ ] Shanghai [ ] using [ ] Tsingtao area [ ] and Peking-controlled [ ] and [ ] in all probability, using the 000 block.

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Little recovery of [ ] cases was made after the major call sign change. An exception was [ ] nets which were recovered to a degree sufficient to identify the majority as subordinate to Shanghai control. With the exception of the major cases, they could not be identified as to actual case notation. Many nets, using daily-changing calls, were observed relaying traffic for nets using six-day calls, simplifying identification of such daily-changing nets. One link, employing a daily-changing call, was active in the [ ] nets and was believed to serve the function of a filter link for observation reports previously passed. This link received traffic from a net employing six-day call signs. The combination of characteristics of the link greatly simplified the establishment of continuity.<sup>1</sup>

P.L. 86-36  
EO 3.3(h)(2)

#### Chinese Communist Administrative Air

All Peking, Hankow, Nanking, Shenyang and possible Manchurian nets continued to change call signs twice daily during July 1954. The first two continued to use the frequency ranges in use since 19 Jun 54 with control and O/S reversing frequencies with each other every three to seven days.

A minor procedure change on 5 July affected the supposed authentication system. A four-letter group, preceded by "ZGW IMI," replaced a four-figure group previously used. Confirmation changed from a two-letter group to a two-figure group. Also, certain routing indicators began to appear in message preambles; the majority of the four-figure type with both originator and addressee groups in the preamble. Messages with these indicators were noted only on Nanking area nets, but later appeared in Peking-controlled traffic. Volume increased, rising to an average of 11,000 gps from the 14th to the 21st, before receding to a more normal average of 4000. Military, administrative air, and other unidentified service traffic was passed over the nets, using the same indicators. Only [ ] encoded procedure signals were used.

Nine [ ] and one air/military search positions were assigned in August. A major procedure change yielded satisfactorily to analysis. The one major frequency change indicated that lower winter frequencies would be used. [ ] mainline continued its pattern of twice daily-changing call signs.

In September, all Peking-controlled nets continued to use like call signs with an unrecovered generation system. Group count was unusually high varying from 3000 to 24,000 gps daily. To aid in establishing continuities, all nets copied were given possible notations some fairly accurate, some merely arbitrary designators. [ ] numbers were noted in the vicinity of Nanking and Hankow. Numbers appearing on certain East and South China nets proved a change in location of several air divisions and indicated a shift of forces from the Manchurian to the East and South coastal areas. Division facilities were generally incorporated into

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp78-80.

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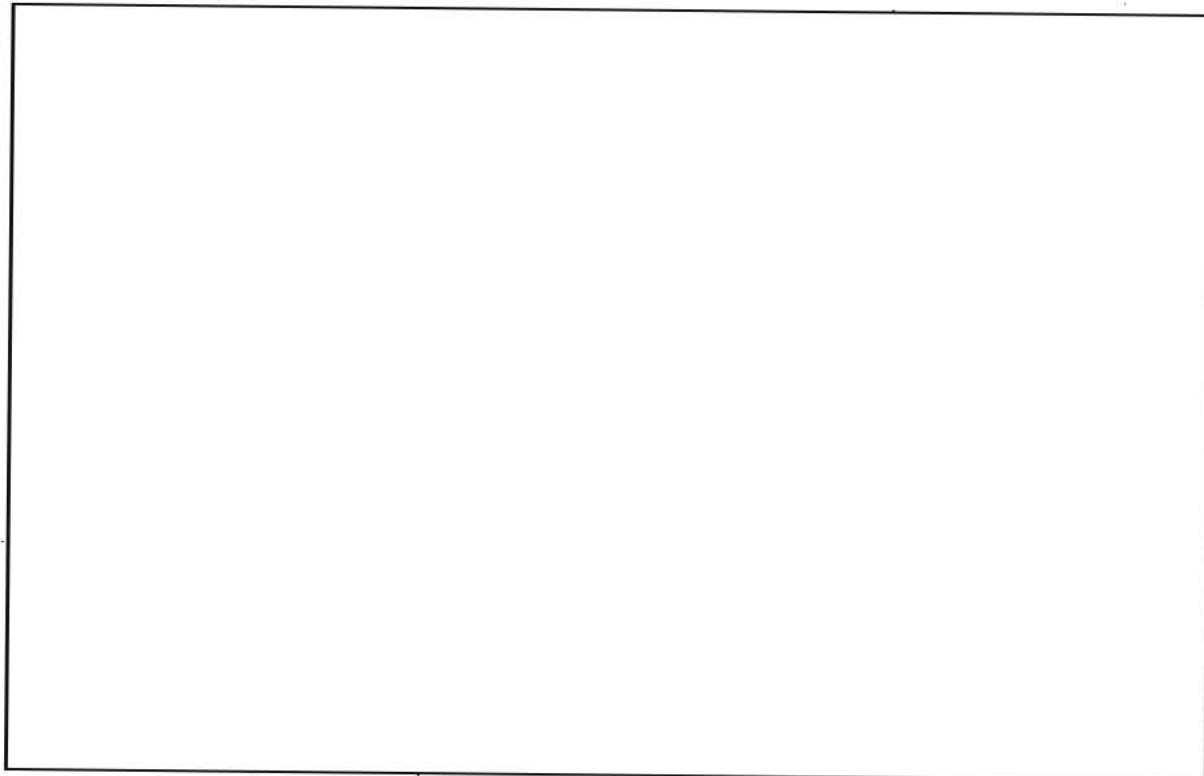
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existing nets upon completion of a move. During a move however, a unit would generally use facilities of [ ] (Northeast China).

One [ ] position was added to the station's mission in November whose main target area was Peking. One position each was assigned to Hankow and Nanking. Controls of [ ] were found to be collocated and several new nets were observed in the Nanking area which had undisguised lateral and intra-net workings. One new Hankow net was found and notated, but continuity was not maintained.

In December, instances were reported of air messages being relayed over military links in which slashed message numbers were used. Five air messages were noted being passed on [ ] after an unsuccessful attempt to transmit over regular [ ] (Southeast China) channels.

On 10 Jan 55, a major change occurred on all [ ] nets. Call signs changed twice daily and remained three and four-character in type; composed of any combination of letters or numbers. After the change the situation was:



Message Numbers: Old message numbers appeared to have been abandoned, and it was doubtful that the circular series retained the same function. Blocks were not used as both point-to-point and

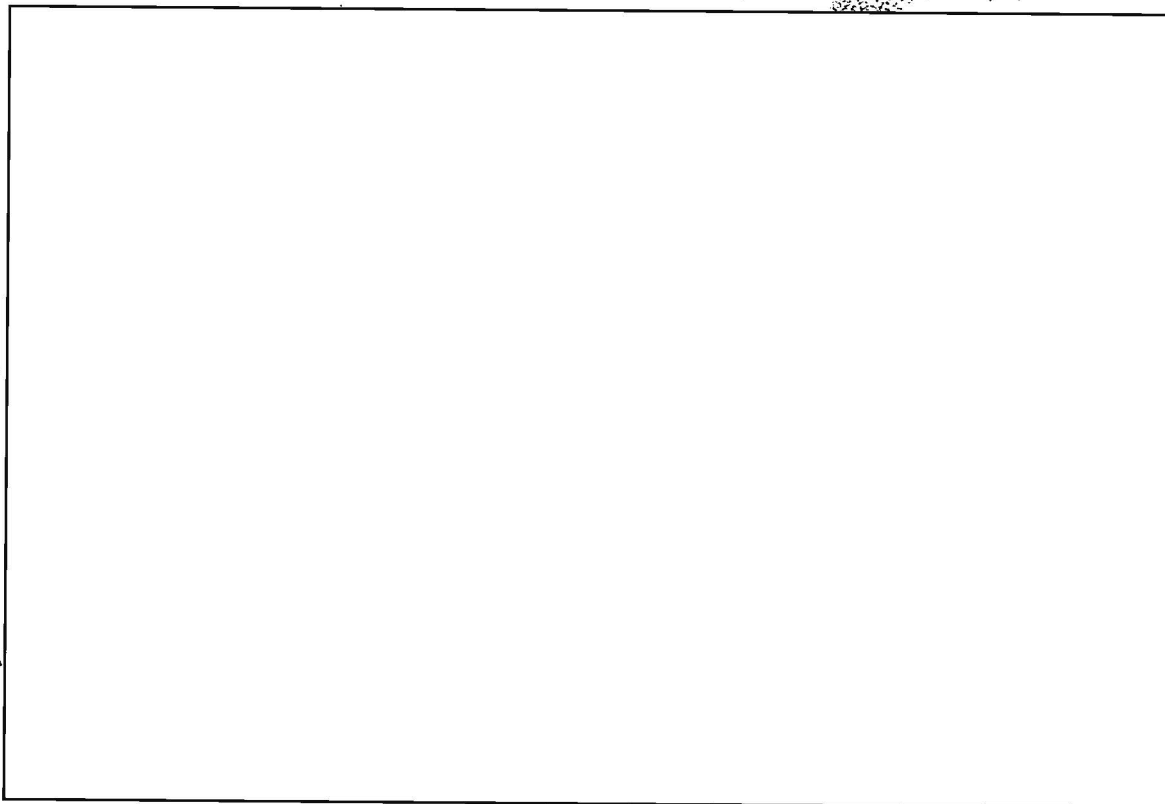
1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp71-75.

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In February, "QTC" call-ups were broken down by areas and distributed as aids to identification. Although there was progress, no significant recoveries were made on the daily-changing operating signals and substitution systems. With exception to the 2000 series and some one-up point-to-point series, message numbers were apparently disguised. Continuities were generally good.

All [ ] nets changed frequencies 1 Mar '55, and all were recovered by the end of the day. Frequency rotas were noted as being more in use. Operating signals changed from numbers to four letters (double dinomes). The entire [ ] complex began repeating March call sign equations by RAD on 1 April and maintained the sequence throughout the month.

Significant recoveries were also made on [ ] procedure signals indicating use of sliding strips with 23 dinomes in row and 25 dinomes in column. A simple means of extraction in which no matrix was necessary was devised and proved satisfactory. The authentication system, after utilizing [ ] began repeating on 14 April; sequence was identical. [ ] nets remained on an unrecovered frequency rota; continuity was on a search basis. [ ] net frequencies remained fairly constant with simple rotas in effect. Although continuity was normal, group count dropped from

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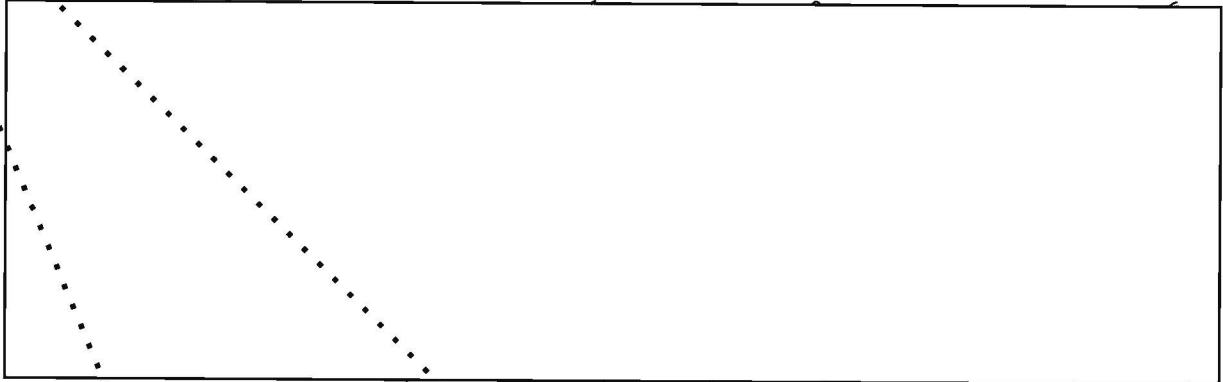
315.654 in March to 244.680 in April, a 22% difference. South China control sent 390 msgs in March against 281 in April. Until 5 May, traffic declined; however, from that date it returned to normal. On 1 May, [ ] ceased to repeat call signs. An abundance of repeats on Peking controls aided in partial reconstruction of call sign pages. A major reorganization of net structure affected five Peking controls. [ ] each split into two nets and some O/S of [ ] then reverted to the new nets. Identification was difficult until the 15th, when true continuity was established. [ ] [ ] Q/S were located occasionally and found to be working laterally.

Preamble address groups consisting of encoded call signs and unit cover numbers; were noted frequently on [ ] in June. Studies showed that the precedence indicator had shifted back to the first letter or figure of the figure of the first group of the message on all nets. Equivalents changed to:

P.L. 86-36  
EO 3.3(h)(2)

Precedence One	3 or 8
Two	1, 5, or 9
Three	2, 4, or 7
Four	6 or 0

In June, NSA confirmed RFP reports that controls located in Peking were collocated and periodically switched transmitters.



all links unheard prior to that date were canceled, and two full search positions were set up to recover lost continuities. Coverage on assigned links increased, but search results were negative. Little traffic was intercepted and copy consisted primarily of contacts.

Little success was had copying assigned cases during November 1954. The majority were heard only two or three days during the month, or not at all. [ ] cases were heard, but did not send any messages. Two security violations occurred: The O/S of [ ] used control's frequency

1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp76-83.

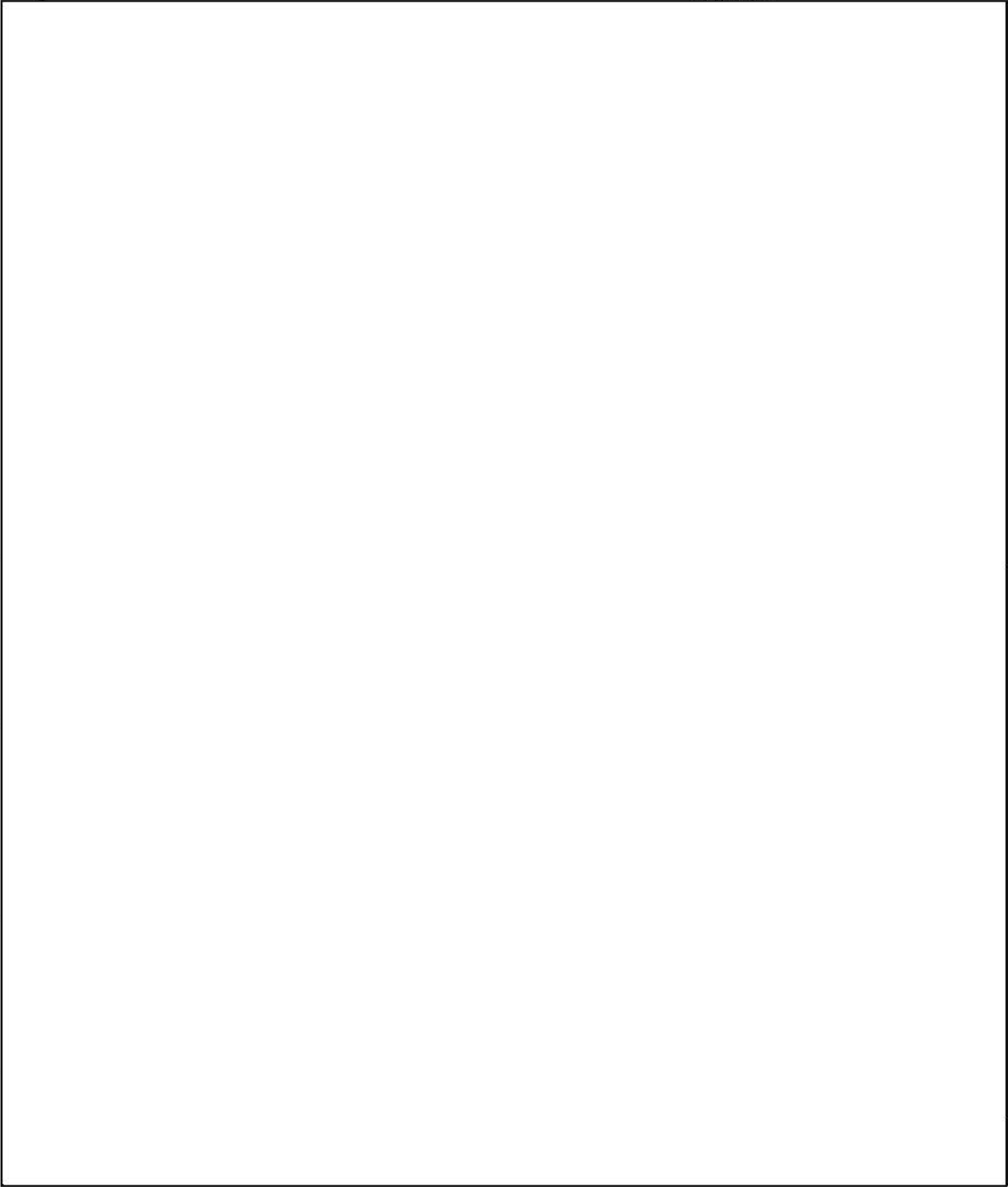
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1. Ann Rept, FS 8603 DU, fy 1955, Vol II, pp84-86.
2. Ibid. p87.

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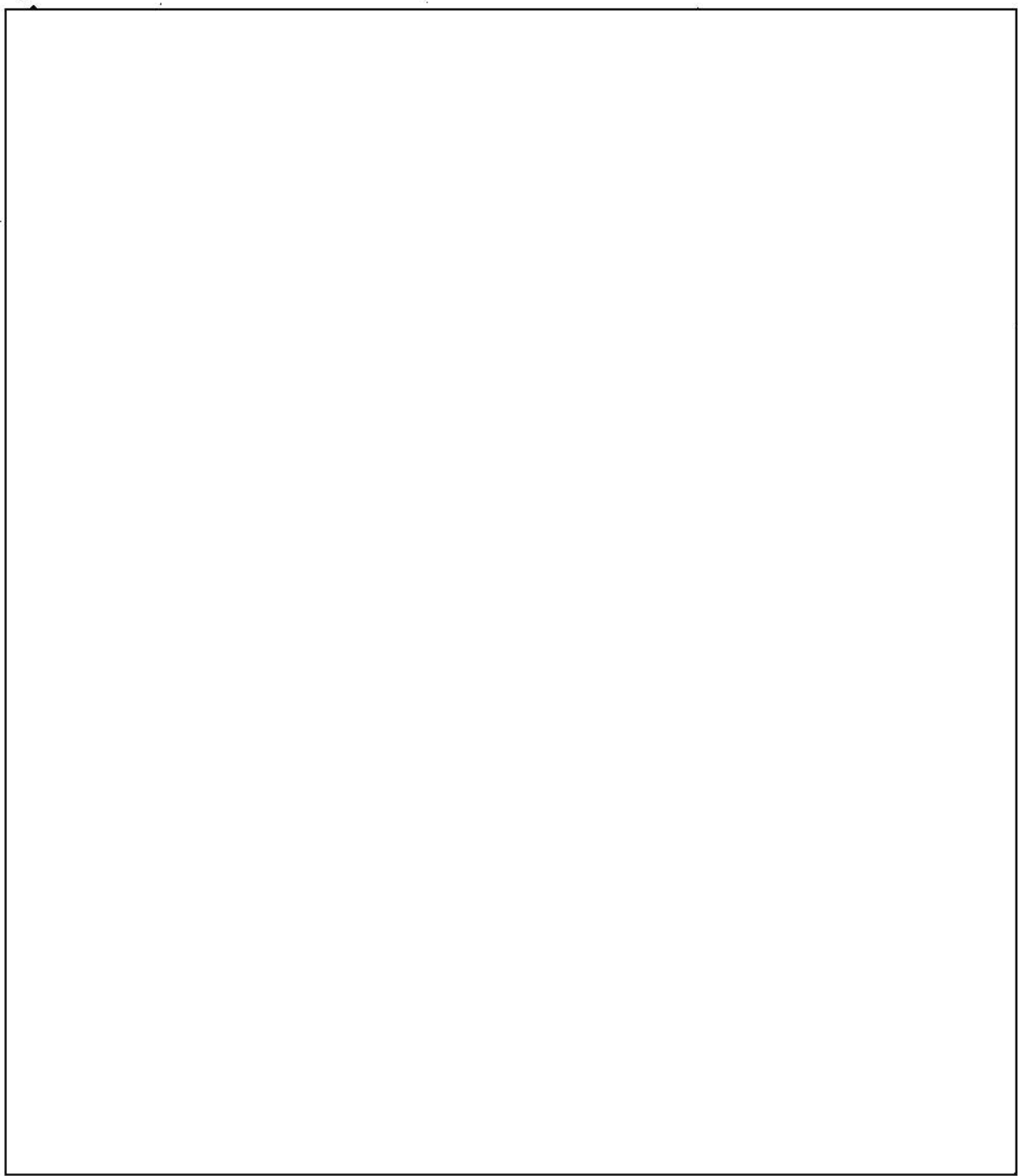
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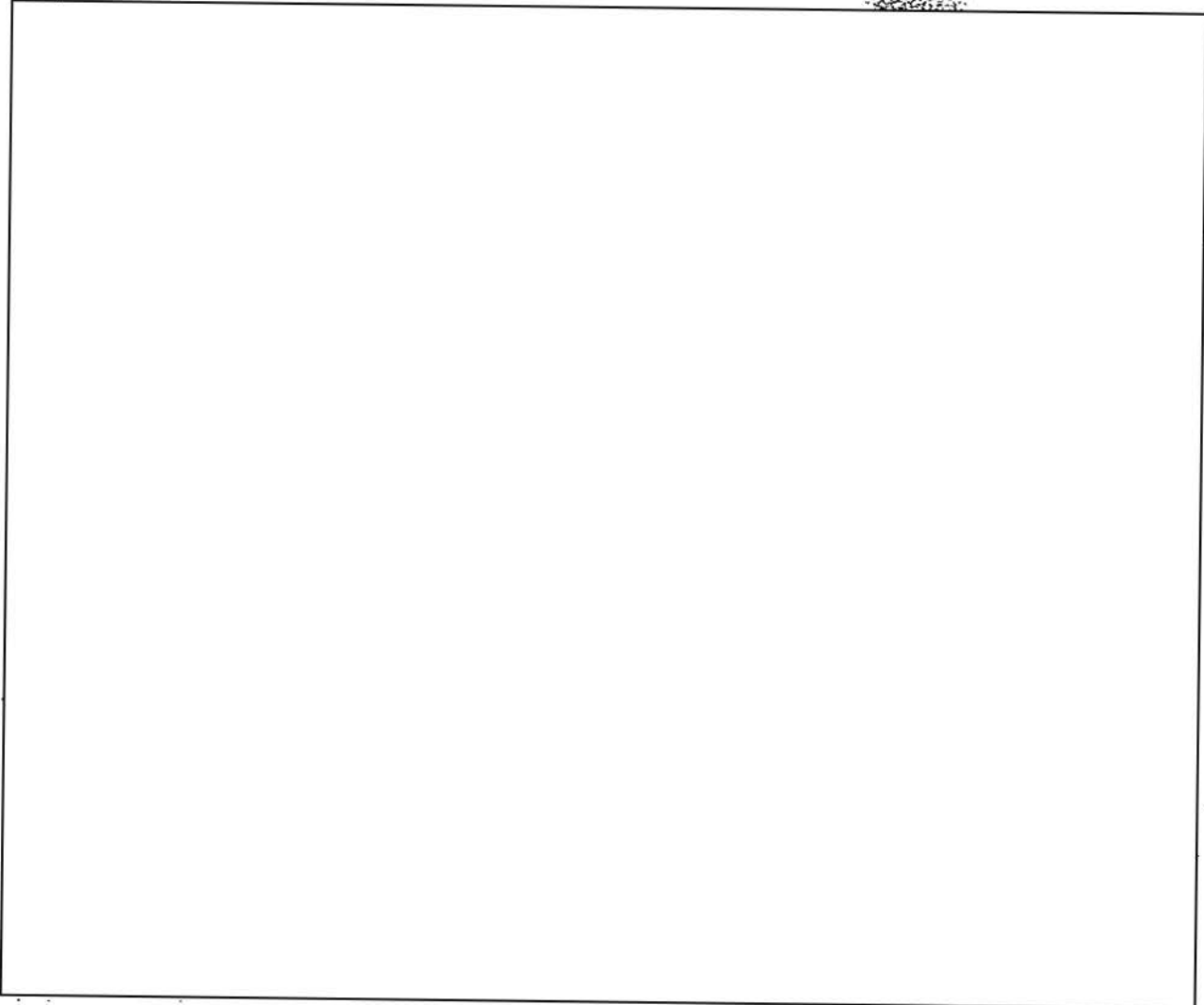
1. Ann Rept, FS 8603 DU, fy 1955, Vol II, p87.
2. Ibid. p88.
3. Ibid. p88.
4. Ibid. p88.
5. Ibid. pp88-89.
6. Ibid. p89.

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10. Field Station, 8609 DU, Clark AFB, Pampanga, PI

Throughout fy 1955, Fls Sta 8609 remained subordinate to ASA, Far East. Its mission, as controlled by NSA, was to perform intercept and DF, apply special identification techniques and traffic analysis, record and forward foreign communications to include manual Morse, radio printer, radiotelephone, facsimile, automatic Morse, and other transmissions.

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- 1. Ann Rept, FS 8603 DU, fy 1955, Vol II, p89.
  - 2. Ibid. pp89-90.
  - 3. Ibid. p90.
  - 4. Ibid. p6.
  - 5. Ibid. pp93-94.

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No situation arose during the year when mission coverage failed for lack of either personnel or equipment.<sup>1</sup>

Traffic Control and Reports

During the year, NSA teams in the fields of traffic analysis and cryptanalysis assisted this section prior to its commencing end-product reporting. On 15 Dec 54, the first report was produced dealing with the possibility that the administrative headquarters of the Viet Minh Central government was located in Hanoi. Twelve others followed.

Technical supplements, consisting of such information as call signs, net structures, types of traffic passed, cryptographic nets, schedules, arbitrary designators, and any other items of technical interest were prepared for COMINT facilities. Additionally, limited cryptographic recoveries were made using an assigned special temporary cryptographic system indicator.

In March,  Chinese linguists arrived and were assigned to tricks to scan Chinese Commercial traffic available from both the station and

Section organization changed during the year to reflect emphasis on intercept and adaptation to space, personnel, and time limitation. At the end of the year the section contained an Intercept Control unit, Non-Morse T/A unit, Chinese Scanning unit, Chinese T/A unit, and Viet Minh T/A unit.<sup>2</sup> Accomplishments of the station's operational sections follow:

1. Ann Rept, FS 8609 DU, fy 1955, Vol II, ppl-4.
2. Ibid. pp26-31.

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Automatic Morse

At the beginning of the fiscal year, [ ] links were given full coverage by the section and [ ] were covered alternately. New ITA case books were issued, an individual case coverage chart was installed, and a new guide to identification of government traffic was begun. The entire section moved to Okinawa 1 Sep 54. On 15 Feb 55, the Automatic Morse Section was re-established at the station utilizing personnel who had previously worked in that field. Some difficulty was encountered due to the fact that experienced operators had left the station. Six positions were in operation by the end of the fiscal year.<sup>1</sup>

EO 3.3(h)(2)  
P.L. 86-36

Manual Morse

Principal assignment in this section was Viet Minh throughout the fiscal year. Positions increased from [ ]. A table showing man-hours per day worked on manual Morse targets follows:

Month/1954	Viet Minh	[ ]	Gen Search	[ ]				
July	351.3	24	162.5	-	-	-	-	6.2
August	402.6	24	160.2	-	-	-	-	5.2
September	316.3	24	137	-	-	-	-	5.8
October	381.3	24	137	-	-	-	-	4.7
November	380.6	24	137	-	-	-	-	5.4
December	368.9	24	137	-	-	-	-	5.8
<u>/1955</u>								
January	349.2	24	137	-	-	-	-	4.8
February	341.4	24	161	37.6	24	48	7	4.6
March	302.5	24	161	38	24	24	19	2.5
April	311	89	185	59.6	72	-	19	3.3
May	350	89	185	38.6	72	-	13	2.8
June	376.3	89	185	68	-	-	-	3.7

In July 1954, a school for new operators was set up to speed training and insure proficiency in [ ] VH signals. R-390

1. Ann Rept, FS 8609 DU, fy 1955, Vol II, pp21-22.

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Receivers and headsets were also installed. Split headsets were tried during the year, but had to be discarded.

Closer coordination between traffic analysis and manual Morse operators resulted in better identification and location of targets. A form for recording all circuits sent DF and RFP was introduced which enabled a continuous check to insure that all required targets were covered.<sup>1</sup>

P.L. 86-36  
EO 3.3(h)(2)

Radio Fingerprinting

In this section, the majority of shots continued to be on Viet Minh transmissions. Chinese transmitters were covered later in the year. As fy 1955 ended, the section had the beginning of a [ ] library which included [ ]

Production grew from 280 shots taken in July 1954 to 1,914 taken in June 1955. Out of a total of 11,332 shots, 4,924 were usable. Only 297 hours of operations were lost due to maintenance of DEN-17B.

An intercommunications system, installed in September 1954, increased the number of tip-offs. In March 1955, a patch line and intercommunications system was installed to connect the 6925th Rad Sq Mbl with the station. In May, traffic analysis personnel noted that many short duration transmissions were lost because manual Morse operators waited for identification before tipping-off the section. A new policy was instituted whereby operators tipped-off on a frequency basis only. Shots increased, but quite often a station would be shot several times a day.

For a time, film was in short supply and was borrowed from Fld Sta 8603. In the later part of the year, Eastman Tri-X film with an ASA

1. Ann Rept, FS 8609 DU, fy 1955, Vol II, pp10-14.

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exposure index of 200 and a clear base was used. This proved an excellent product.<sup>1</sup>

P.L. 86-36  
EO 3.3(h)(2)

#### Radio Printer

The majority of mission fluctuations experienced during the year by the Radio Printer Section were due to unusual incidents such as the [redacted] Conferences. Transmissions for such events were normally intercepted for relatively short periods. The change of a number of automatic Morse stations to radio printer did not increase intercept volume appreciably, although every effort was made to cover these in relation to their assigned priorities.

In July 1954, a new type of signal was intercepted on [redacted] links in Indochina. The signal consisted of speech and MTK teleprinter and was referred to as double single side band. Speech transmissions were not recorded until August, when single side band receivers, consisting of Crosby adapters and Collins 51-J Receivers, were received and installed. In September, two Ampex 400A Recorders were given a service test copying the speech side. In October, two R-530/FCC-3, Receiver, telegraph carrier, were installed for the printer side.

The complete [redacted] mission was dropped in October. At the close of the report period the section consisted of six two-channel positions, ten simplex positions, one non-Morse search position, and two radiotelephone positions.<sup>2</sup>

1. Ann Rept, FS 8609 DU, fy 1955, Vol II, ppl5-18.
2. Ibid. ppl8-20.

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~~TOP SECRET~~~~EIDER~~Radiotelephone

Due to a lack of trained personnel, the station's Non-Morse Section handled the radiotelephone mission, but accomplished little in identifying traffic or links. The only voice assignments covered were some [ ] links.

In August 1954, [ ] use of double single side band increased volume of intercept by making possible identification from the printer side of links assigned.

[ ] Chinese linguists were assigned in November. [ ] of these had a working knowledge of [ ] All had to be trained in operating receivers but, in a surprisingly short period of time, they performed an excellent job intercepting all links on assignment.

Within a few months, a complete [ ] radiotelephone net was recovered and a considerable amount of TEXTA information compiled. Daily coverage of [ ] radiotelegraph links was maintained and efforts were turned to development of [ ] links on assignment. Difficulties were encountered due to lack of comprehension of the [ ] language, but recoveries progressed through use of TEXTA cards and other information.

The first complete call sign and schedule change occurred on the [ ] speech privacy links during the first week of May 1955. Complete recoveries were made within two days. On the last of the month, the majority of [ ] links were dropped from assignment and emphasis reverted to [ ] links.

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At the end of the year the two radiotelephone positions had the following mission assignment:<sup>1</sup>

EO 3.3(h)(2)  
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Direction Finding

The station's DF Section consisted of a flash position in the operations building and a site about six miles away. At the start of fy 1955, the section was a response station in the ASA, Far East DF net. However, on 15 Oct 54, the ASA, Far East report net was reactivated, and eight days later the flash station began operations. An arrangement was made with 8313th AU, an ACAN station, for supply and maintenance of necessary transmitters.

In February 1955, new equipment, applicable to the AN/TRD-4, was installed in the permanent DF building. Its use with R 390/URR Receivers required that radio frequency gain be turned so high that the scope pattern pin-pointed. This was corrected by building up audio circuit to supply ample audio with reasonable low radio frequency gain.<sup>2</sup>

REF: VOL. I P. 266

11. Field Station, 8610 DU, Kyoto, Japan

Fld Sta 8610, during fy 1955, was directed and supported in its operations by NSA, and received logistic support and technical guidance from ASA, Far East.<sup>3</sup> As the station was not responsible for end product reporting, liaison was limited to technical reports. Through ASA, Far East the station received raw printer traffic from  Fld Sta 8603 and Fld

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1. Ann Rept, FS 8609 DU, fy 1955, Vol II, pp20-22.
2. Ibid. pp7-9.
3. Ann Rept, FS 8610 DU, fy 1955, Vol II, pl.

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Sta 8609 to aid in traffic analysis of printer operator characteristics within Far Eastern printer links. The station also received DARE's from [redacted] Fld Sta's 8603, 8605, 8609 and 8612 and sent information back to them. Different categories of [redacted] TECSUM's were forwarded NSA, ASA, Far East, [redacted] Fld Sta 8605, and 8612.<sup>1</sup>

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The station's mission was to intercept foreign communications, perform DF, apply special identification techniques, submit raw material and technical reports, and perform ancillary tasks as required in support of the national COMINT effort. Special missions fell into two categories; those assigned the Morse General Search positions for limited periods, and those generated by an alert condition.<sup>2</sup>

Events in the various operational sections follow:

#### Traffic Analysis and Control

P.L. 86-36  
EO 3.3(h)(2)

At the start of the fiscal year the T/A and Control Section contained Manual Morse, Non-Morse; [redacted] Scanning, Intercept Support and Filing subsections. Intercept support personnel worked a rotating trick schedule aiding operators to identify targets, handled and edited traffic, skeletonized [redacted] traffic for priority forwarding to USN-39 prepared the MGSR, collected and integrated individual position data, and maintained identification aids. Non-Morse and Morse subsection, in addition to preparing reports, developed new analytical and intercept control techniques. RCA scanners examined traffic for priority categories. Filing personnel effected control, distribution and destruction of classified operational

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, p40.  
2. Ibid. p2.

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documents, maintained analytical aids and mission assignment sheets, and published all informal analytical documents originated at the station.

The T/A Section expanded in March 1955 to include [ ] reporting. A special project of cataloguing test patterns and closures revealed unique and consistent patterns and isolated 60 [ ] operators. Increased plain language analytical aids prepared by NSA and service headquarters were a great help also. Highlights of the sections accomplishments were, by subsection concerned:

Radio Printer: This subsection recovered two stencils used by [ ] in conjunction with known DX-05 practice book; and five monthly repeating schedules; reconstructed practice blocks used by a [ ] air terminal over a six-month period; reported in detail on repeating schedules of [ ] military-controlled links; and completely identified 54% of the 14,697 items processed and lowered the percentage of unidentified items from 6.7% to 2.9%.

Morse Analytical: This subsection accomplished preliminary work on new mutative procedures of activity called [ ] coordinated with DF and RFP and determined the collocation of an [ ] terminal using the same transmitter; confirmed the existence of a new RQ circuit in which Far Eastern and European terminals effected contact through a [ ] relay; substantiated the collocation of two [ ] stations; recovered a complete net engaged in a training exercise, using Book 7 calls with [ ] exercising control; and isolated, by extreme seasonal variations of [ ] activity, a net consisting of as high as 68 transmissions per day, however, the activity did not reveal enough information to establish a permanent notation.

[ ] Scanning: This subsection scanned 26,400 multiplex tapes and 5,160 simplex page pieces resulting in 2,810 regular categorized messages and 280 criteria messages; forwarded several important messages which did not meet criteria category requirements.<sup>1</sup>

Manual Morse

During fy 1955, the station's Manual Morse Section continued its flexible pattern wherein not only individual case assignments varied often

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, pp30-35.

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EO 3.3(h)(2)  
P.L. 86-36

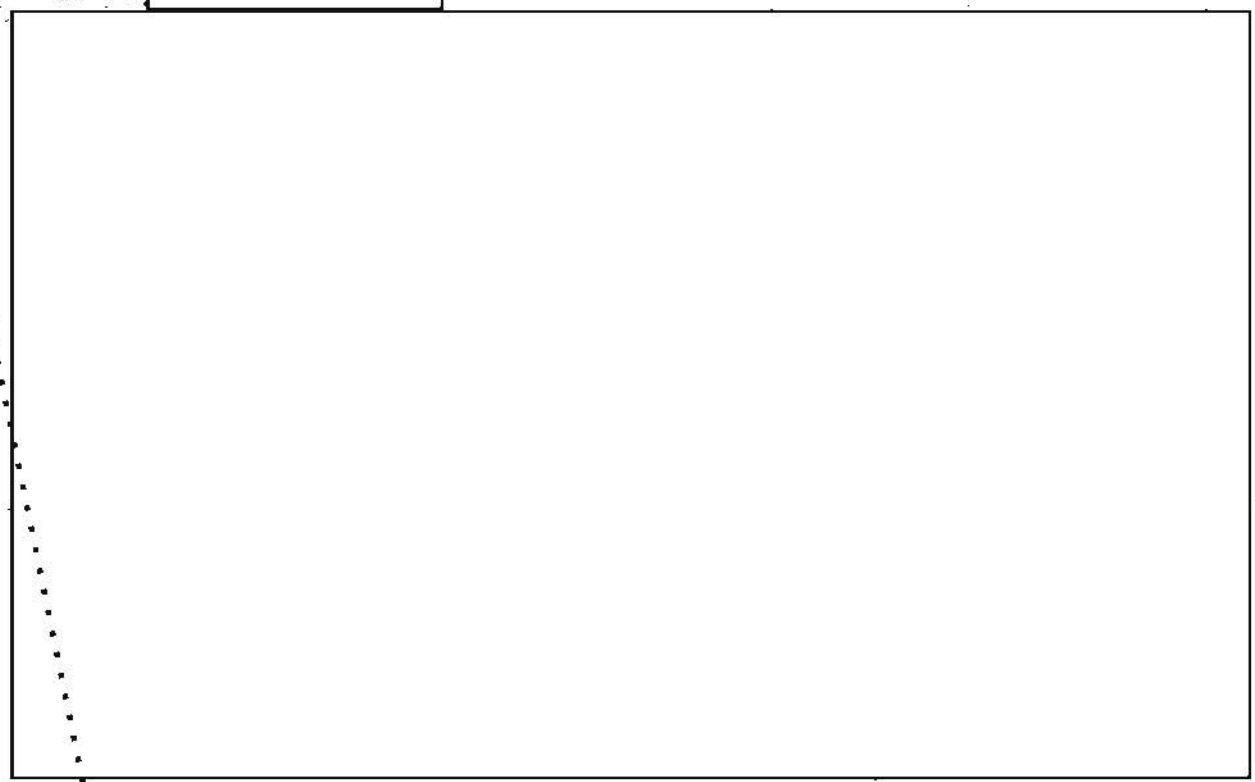
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with changing COMINT needs, but entire POROCO's were changed. [redacted]  
 [redacted] positions were acquired from the 327th Company in February  
 1955. Those previously devoted entirely to [redacted] were modified by  
 adding scheduled coverage of ChiCom cases to gain a standard of compari-  
 son for particular categories of intercept between the station and areas  
 surveyed by the Kyushu site survey team.

EO 3.3(h)(2)  
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A great amount of QRM and QRN existed on the [redacted] frequency. Opera-  
 tors quickly overcame this problem and the difficulties of transition from  
 copying [redacted] circuits.



Tokyo area and the fact that at 300+ words per minute the message was  
 accomplished in seconds. Intercept was carried out by a position covering  
 [redacted] while the other searched measured frequencies for the agent,  
 which was isolated and copied on Ampex 400 recorders several times.

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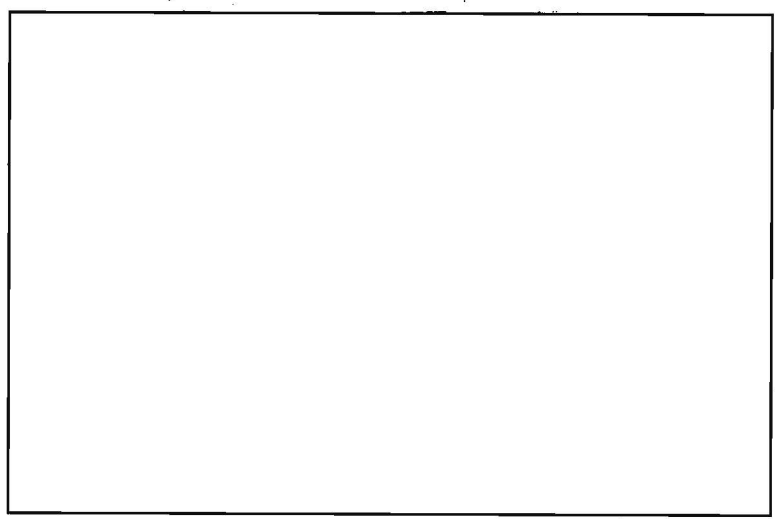
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Another activity was isolated and copied in October 1954. It was believed to be a joint [redacted] exercise. At times, eight and ten positions were used to cover these nets notated as [redacted] and tentatively located [redacted]. Part of this complex was later categorized as [redacted], and assigned two positions at the station.

A loss of personnel made it necessary to adopt a three-trick schedule from December 1954 to March 1955. Except for this period of personnel attrition, the number of positions increased. Additional intercept of [redacted] created a demand for a transcriber position which remained active. Breakdown of fy 1955 manual Morse positions follows:<sup>1</sup>

<u>Month/1954</u>	<u>Total Pos</u>
July	30
August	30
September	30
October	30
November	27
December	28
<u>/1955</u>	
January	28
February	29
March	34
April	34
May	34
June	34



Radio Printer

A training program for new operators was continued in this section with good results. Technical support and coordination, between R/P and T/A, helped sustain high level work and produced several new

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, pp19-24.

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identification techniques. Receiving conditions were satisfactory throughout the year. The highly productive [ ] mission showed a sharp increase in the third quarter, as did two-channel activity in the fourth.

Three two-channel positions were lost in May 1955 reducing total positions to 14: 6 two-channel, 3 multiplex, 4 simplex, 1 simplex [ ] [ ] and 4 search. On 1 Nov 54, the priority block assignment system was changed to a category system as follows:

Category

- |        |  |  |
|--------|--|--|
| One    | - <u>Simplex</u>   | - Utilize [ ] positions and [ ] per day.             |
| Two    | - <u>Simplex [ ] copied on undulator and perforator tape</u>     | - Utilize [ ] positions and [ ] men per day.         |
| Three  | - <u>Simplex [ ] copied on magnetic tape</u>                     | - Utilize [ ] position and [ ] men per day.          |
| Four   | - <u>FSK Naval [ ] copied on magnetic tape</u>                   | - Utilize [ ] position and [ ] men per day.          |
| Five   | - <u>Two-channel Baudot</u>                                      | - Utilize UNCODED [ ] positions and [ ] men per day. |
| Six    | - <u>Multiplex</u>   | - Utilize [ ] positions and [ ] men per day.         |
| Seven  | - <u>Flex Multiplex</u>  | - Not assigned specific number of man hours.         |
| Eight  | - <u>Facsimile</u>   | - Not assigned specific number of man hours.         |
| Nine   | - <u>RCA Automatic Morse</u>                                     | - Not assigned specific number of man hours.         |
| Eleven | - <u>Two-channel [ ] copied on perforator and undulator tape</u> | - Utilize [ ] positions and [ ] men per day.         |

P.L. 86-36  
EO 3.3(h)(2)

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, ppl3-17.

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Radiotelephone

In this activity, voice was intercepted with the 274-A/FRR Receiver and simultaneously recorded on the IC/VRT-5. A manuscript transmission was made each zebra day using RD/74 U. T/A then confirmed identification, noted unusual transmissions, diagrammed nets, and compiled cover name and frequency rota data. The section assumed the functions of: initial analysis, punching of teletype tapes on a cyrillic keyboard, and printing page copies for forwarding. Tapes bearing military traffic or activity of special interest were transcribed on a priority basis and forwarded to NSA. Other tapes were retained 30 days, then erased and re-used.

A loss of personnel resulted in a decline in position coverage. At the beginning of June 1955, two positions were cut back and the last trained linguists were scheduled to depart in August. Samples of positions and strength were:

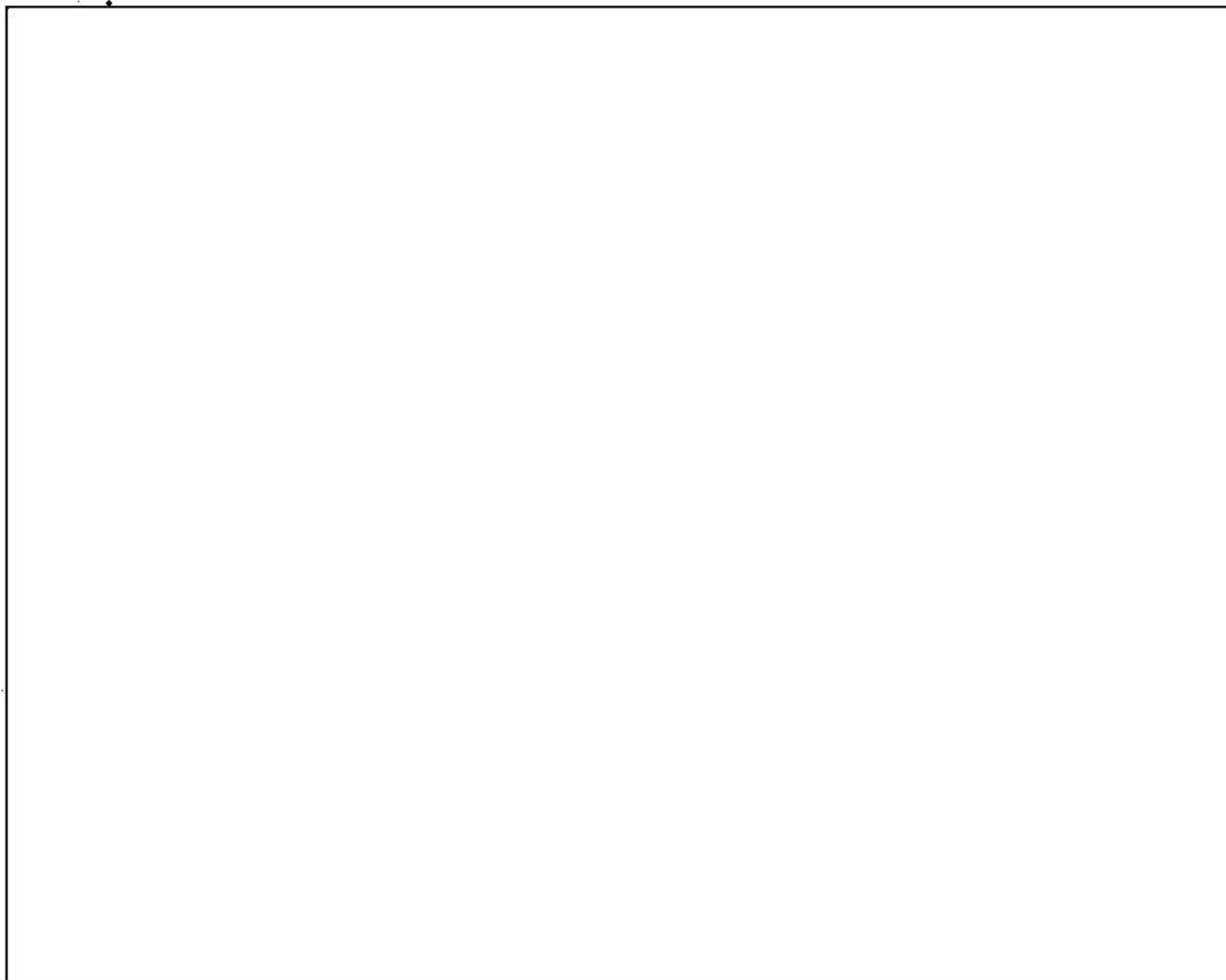
EO 3.3(h)(2)  
P.L. 86-36

<u>Date</u>	<u>Positions</u>	<u>Personnel</u>
1 Jul 54	7 - 2 priority 3 sampling 2 search	
1 Jan 55	5 - 3 priority 2 sampling	
25 May 55	4 - 3 priority 1 sampling	
30 Jun 55	3 - 3 priority	

Reception factors were highly favorable, particularly in the 20-30 mcs band. Beginning in the spring of 1954 and continuing throughout the summer and fall, much [ ] was intercepted, most of which was inaudible at other locations. Artillery firing exercises constituted the bulk of this

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EO 3.3(h)(2)  
P.L. 86-36~~TOP SECRET~~~~EIDER~~Radio Fingerprinting

The assigned RFP mission consisted of 47 cases with 112 targets. Listed by priority these were: A, 26 cases with 66 targets; B, 20 cases with 44 targets; C, one case with 2 targets. Added were 21 radio printer cases, all Green items of the general search mission, all  and cases, and all jamming signals copied by the Intercept Section.

EO 3.3(h)(2)  
P.L. 86-36

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, ppl6-19.

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RFP processed approximately 10,000 shots during the year. Samples of assistance rendered the T/A Section were the following matches:

EO 3.3(h)(2)  
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A 20 ft film shot length was established during February. The 16,000 shot film library was reclassified utilizing the teletype code system on individual shot mounting cards. A change in the logs permitted five rather than four entries, saved operators time, and reduced paper consumption 50%. Stripping of the Helix gear made it necessary to modify the drive unit on the DEN 17-1 camera.<sup>1</sup>

MOA was initiated 27 Oct 54. Two MOA analysts from USN-39 assisted in establishing the subsection. An identification and filing system with arbitrary numerical progression was used until 1 Dec 54 when receipt of the daily traffic analysis variorum from the 501st Group made it possible to change to a RAD number identification and filing system. After the major ChiCom call sign change, it was necessary to revert to the original system in some cases.

During the year, MOA completed analysis of 2,000 shots at a rate of approximately 250 shots per month, identifying 787 individual operators.<sup>2</sup>

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, pp27-28.
2. Ibid. pp27-28.

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Radio Direction Finding

On 1 Jul 54, this section consisted of two outstations and one alternate net control station. A common antenna field was utilized for sites B and C. The ASA, Far East DF net split 15 Dec 54 and the station assumed control of the Northern Net. The net consisted of Fld Sta's 8610 and 8612, and [ ] as tip-off stations. DF sites were established at Fld Sta 8612, 629D in Korea and Kyoto, and Kumamoto (B) controlled by Fld Sta 8610. Adak, Alaska was to be a site, but had not joined at the close of the year. [ ] withdrew from the net as a tip-off station 16 Feb 55. Three days later 629D joined, and results of the net increased noticeably.

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Carrier outage continued to be a problem although replacement of old equipment by TT-5/FG improved the situation. The COMUS cryptosystem replaced JOVE and increased efficiency by eliminating use of extra pads for bearing returns.

During the year, the antiquated DEN 17-1 was physically collocated with DF control equipment for more timely and effective capitalization of tip-offs from various intercept sections. The DF site was evacuated three times during August and September 1954 as a precautionary measure against typhoons.<sup>1</sup>

REF: VOL. I P. 370

12. Field Station, 8612 DU, Chitose, Japan

Throughout fy 1955, the mission of Fld Sta 8612 continued to be controlled by NSA, while command was exercised by ASA, Far East.<sup>2</sup>

1. Ann Rept, FS 8610 DU, fy 1955, Vol II, pp24-27,  
 2. Ann Rept, FS 8612 DU, fy 1955, Vol I, pl.

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Special missions assigned were in connection with "ferret" flights, and a special case "OBOE."<sup>1</sup> Operational channels of communication were:<sup>2</sup>

- 1) Category A - to NSA
- 2) Category C - to ASA, Far East
- 3) Category J - to ASA, Far East - to NSA - to Hq ASA

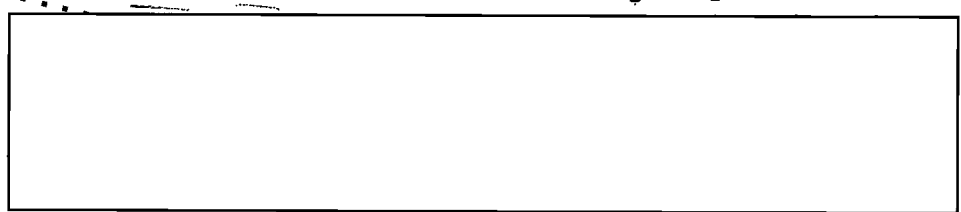
Although operation of the US Navy R/T Intercept Detachment was not a part of the station's mission, continuous administrative and operational support was provided.<sup>3</sup>

On 29 Dec 54, a fire completely destroyed the station's operations building. Immediately thereafter, operational personnel, who were not sent to  assisted in construction of a temporary operations building for which ground was broken 31 Jan 55. On 24 Mar 55, full operations resumed following wiring and installation of new equipment by maintenance personnel.<sup>4</sup> Antenna lead-in cables were also recovered, re-routed, and brought into the temporary building by means of RG 11U cable.<sup>5</sup>

Station operating positions before and after the fire included:<sup>6</sup>

1954			1955						
1	29	30	2	23	24	8	17	10	30
Dec	Dec	Dec	Jan	Feb	Mar	Apr	Apr	Jun	Jun

- Manual Morse\*
- Radiotelephone
- R/P Single-Channel
- R/P Two-Channel
- Direction Finder



1. Ann Rept, FS 8612 DU, fy 1955, Vol II, p4.  
 2. Ibid. pl.  
 3. Ibid. pp4-5.  
 4. Ibid. pp6, 8.  
 5. Ibid. pp21-22.  
 6. Ibid. Tab B.  
 \*Included one Manual Morse Class "C" position at Sapporo.  
 \*\*Included two positions equipped and operated by Navy.  
 \*\*\*Included one position equipped and operated by Navy.  
 \*\*\*\*Two positions utilized as simplex scrambler.

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EO 3.3(h)(2)  
P.L. 86-36

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Accomplishments of individual operational sections follow:

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EO 3.3(h)(2)

Traffic Control Reports

This section correlated reports of Intercept and DF Sections to obtain an accurate picture of [ ] communications, provided information in a series of reports, and furnished technical support to intercept operators. A four-trick system was used and the section was subdivided into three basic groups; R/P, Morse Analysis, and Traffic Evaluation.

A DARE was compiled by the R/P subsection while the Morse Analysis subsection prepared a TECSUM. These reports identified net relationships on the basis of characteristics i.e., special operation signals, peculiarities in message texts, and idiosyncrasies of operators, links, and nets. The Traffic Evaluation team used results of Morse and R/P subsections to uncover any organizational changes such as relief, transfer or first appearance of units, or changes in net frequencies and schedules. Types of analysis fluctuated from time to time in accordance with changing procedures of ASA, Far East and NSA. Material from these sources constituted a reference reservoir which aided local intercept activities.<sup>1</sup>

Manual Morse Intercept

This section began the year with 15 positions, but in December 1954, an acute shortage of personnel forced a reduction to 13. A three-trick working schedule was employed. As a result of the fire, personnel were placed on TDY with [ ] on 1 Jan 55, resuming operations the following day. Positions at [ ] varied from 10 to 13 depending on personnel

1. Ann Rept, FS 8612 DU, fy 1955, Vol II, pp15-16.

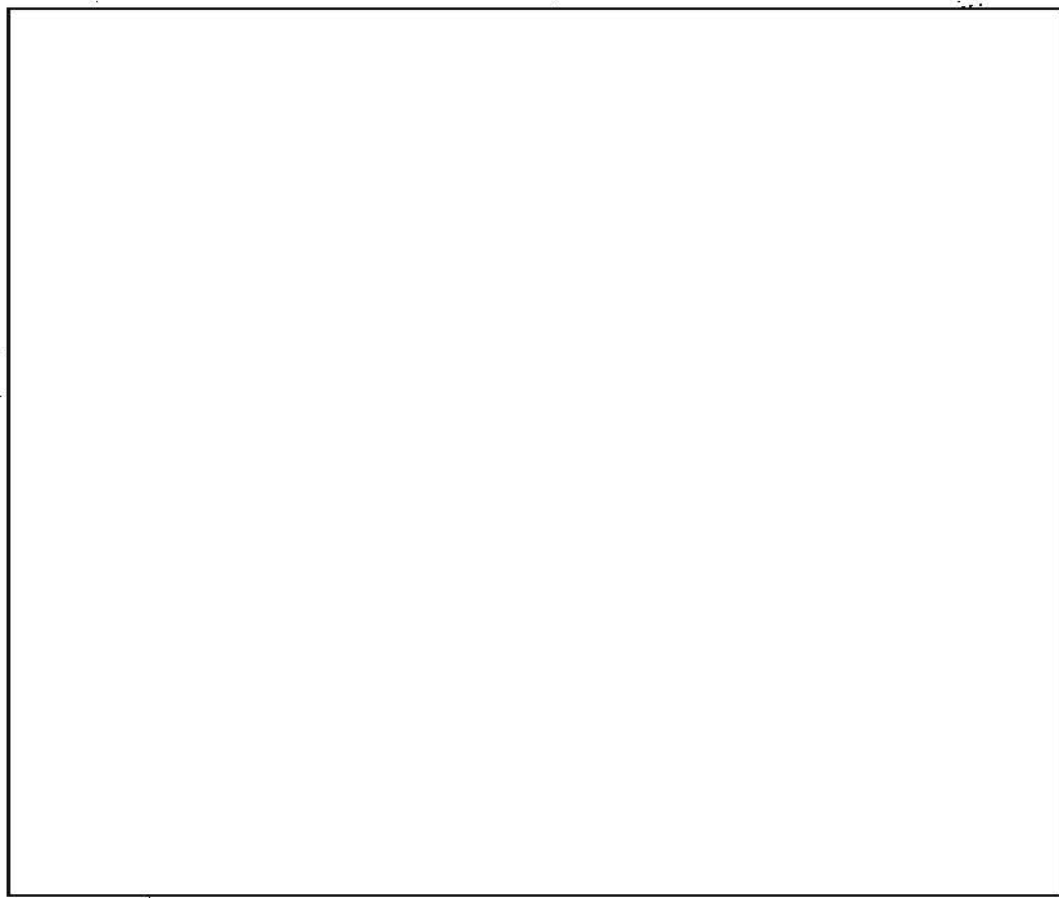
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available. On 24 March, personnel returned to  in two increments and resumed operations, again using four-tricks. New style positions located in the temporary operations building were a vast improvement. During the last quarter of the fiscal year departure of experienced operators created another shortage of personnel.

One category "C" position, which monitored illicit activity in the Sapporo area, was under operational control of Hq ASA, Far East throughout the year. Complete mission follows:



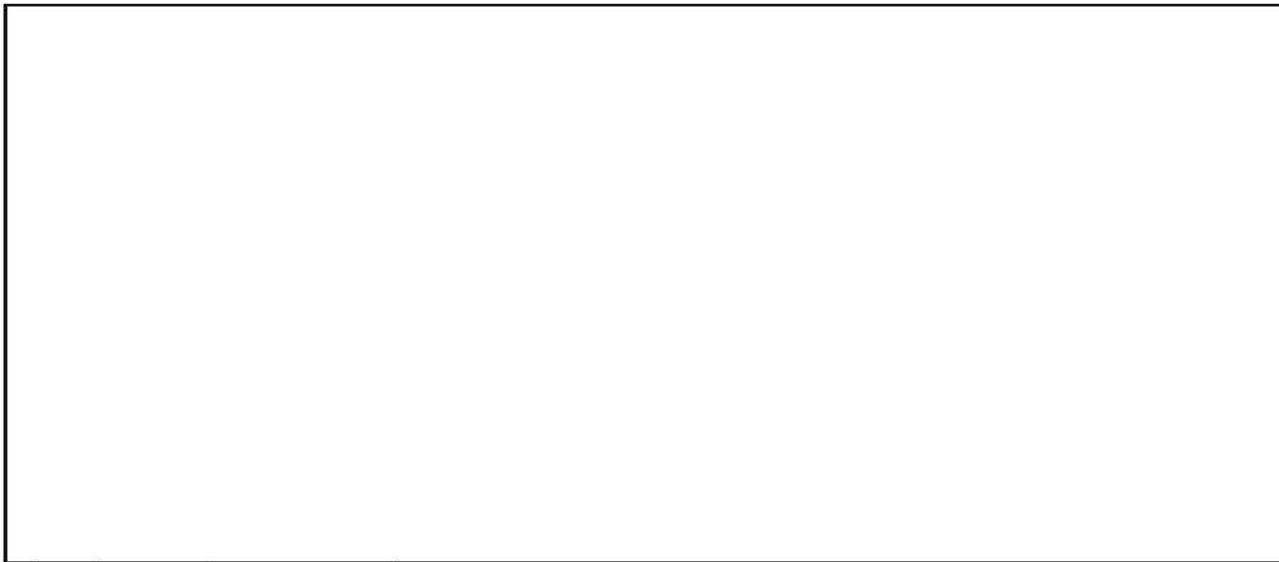
EO 3.3(h)(2)  
P.L. 86-36

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Equipment-wise, the mill MC-88 remained a problem until a new shipment was received, and a change to five-ply paper, beginning 1 Jun 55, also caused a minor problem.<sup>1</sup>

EO 3.3(h)(2)  
P.L. 86-36

Voice Intercept

Voice Intercept mission of the station during fy 1955 included:<sup>2</sup>



In November 1954, a net intercepted by the station made a major communications change. Other stations indicated the net was using VHF, but due to lack of proper antenna, the net was not heard again. There were few operational changes until the 29 Dec 54 fire. As a result, 68 hours of operation were lost. Personnel losses necessitated a change to three-tricks

1. Ann Rept, FS 8612 DU, fy 1955, Vol II, pp9-11; Tab F-1.

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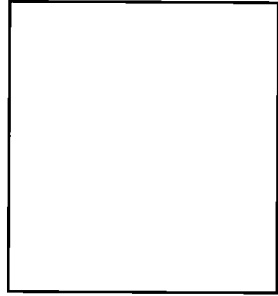
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in May 1955 and discontinuance of personnel leaves in June. On 10 June, a position was dropped and the assignment was picked up by other positions. This made possible a return to the four-trick system. On 15 June, improved fidelity AN/TNH-2 Recorders were installed. Although easier to maintain, they were more complicated to operate, and foot pedals had to be installed.<sup>1</sup>

Radio Printer

R/P mission of the station for fy 1955 included:<sup>2</sup>



EO 3.3(h)(2)  
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Six two-channel, two single-channel, and one single-channel [redacted] positions were maintained by this section, until their destruction by fire on 29 Dec 54. Section personnel were then utilized as guards and clean-up personnel until 20 February, when 25 men were assigned ASA, Far East and placed on TDY at [redacted]. During the last quarter, loss of experienced personnel caused some difficulty.

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Toward the end of the report period, salvaged equipment was installed to intercept illicit high speed automatic Morse sendings. This mission was carried out successfully.<sup>3</sup>

1. Ann Rept, FS 8612 DU, fy 1955, Vol II, pl2.  
2. Ibid. Tab F-3.  
3. Ibid. pl2.

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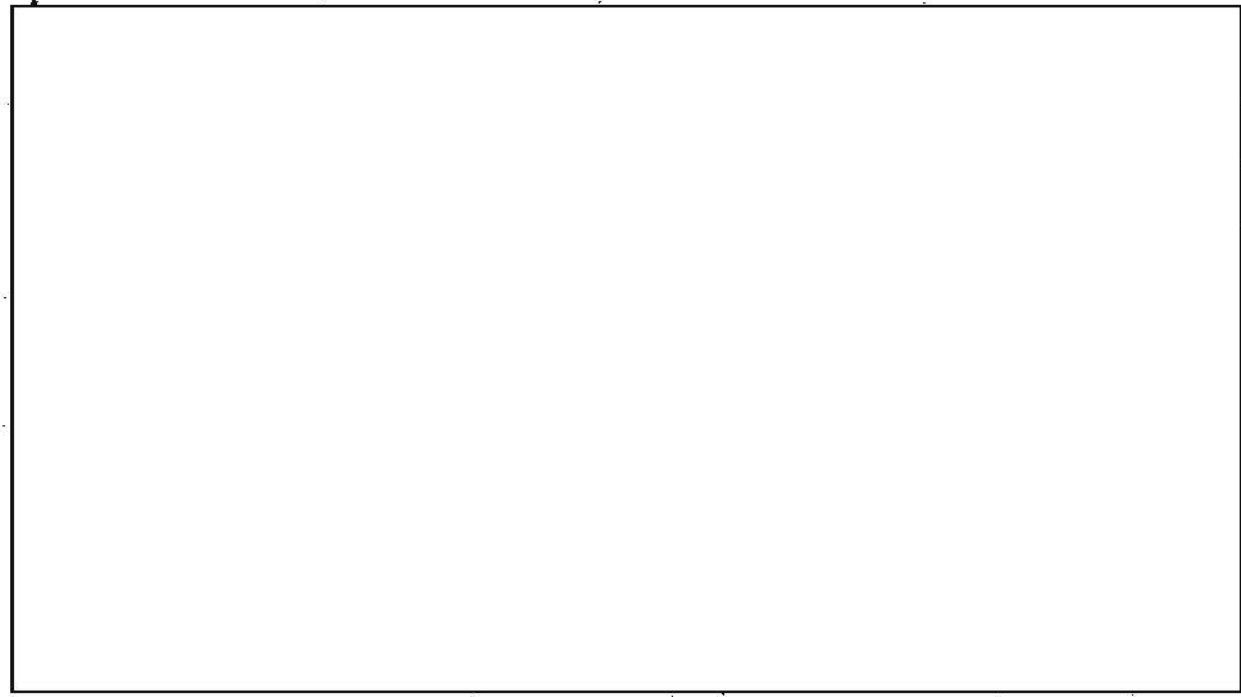
Direction Finding

Radio Direction Finding mission of the station during fy 1955

included:<sup>1</sup>

EO 3.3(h)(2)  
P.L. 86-36

DF TIP-OFF  
ABLE



High personnel turnover and training were problems in this section throughout the report period. On 15 Dec 54, the ASA, Far East DF net was split and the station became a member of the ASA, Far East Northern DF Net. The change greatly reduced net difficulties and raised efficiency. A channel marker was also put into use. The AN/TRD-4 was installed 3 Dec 54, and increased efficiency until faulty goniometers failed.

Tip-off operations resumed at the DF site six hours after the fire. A teletype was installed and connected to the bearing report circuit.<sup>2</sup>

REF: VOL. I P. 374

1. Ann Rept, FS 8612 DU, fy 1955, Vol II, Tabs F-3, F-4.  
2. Ibid. pp16-17.

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G. Africa

1. Field Station, 8604 DU, Asmara, Eritrea

Throughout fy 1955, Fld Sta 8604 DU continued to intercept foreign communications, perform DF, apply special identification techniques, submit raw material and technical reports, and perform ancillary tasks as required in support of the national COMINT effort. All administrative and non-routine operational matters were handled through the CO, 8604 DU, to Chief, ASA while technical and routine operational matters were directly under NSA.<sup>1</sup>

In July 1954, the station was operating a total of 61 positions; by June 1955, the total number of installed positions had increased to 73 with 69 operative. Following is a breakdown of the installed positions by sections:<sup>2</sup>

- 1) Manual Morse . . . . . 13
- 2) DF . . . . . 1
- 3) Automatic Morse . . . . . 38
- 4) Non-Morse . . . . . 21 to include:
  - a) Simplex . . . . . 10
  - b) Two-channel . . . . . 6
  - c) ASAN-13-1 (Multiplex) . . . . . 2
  - d) Flexible Multiplex . . . . . 3

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The four positions installed but not operating at the end of the report period included one DF position and three flexible multiplex positions.<sup>3</sup>

At the beginning of fy 1955, the Operations Branch had a strength of  O and  EM, which, in effect, represented overstrength of  O and  EM. A combination of departing personnel and increase in personnel authorizations

1. Ann Rept, FS 8604 DU, fy 1955, Vol II, pl.  
2. Ibid. pp9-10.  
3. Ibid. pl3.

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through TD changes resulted, at the end of the report period, in a shortage of [ ] O and [ ] EM. Strength of the branch at this time was [ ] O and [ ] EM. Existing manpower resources, however, were not equitably distributed, with an overage of communications personnel and a critical shortage of T/A and maintenance personnel, especially in the latter part of the report period.<sup>1</sup>

Equipment in use during fy 1955 was old and outdated with the result that proper maintenance was extremely difficult. The most serious equipment problem was the appearance of spurious tones on the magnetic tape used with Ampex 3160 tape recorders. With the injection of these tones, any intelligence on the recording tapes was rendered useless. A number of tests were run using magnetic tape which had been subjected to heat, cold, and excess humidity, and the results forwarded to Hq ASA, for analysis. From this analysis, it was determined that the recorders were functioning properly but that the magnetic tape was of inferior quality.<sup>2</sup>

Another equipment problem related to the shift by [ ]

[ ] Stations from on-off keyed transmissions to FSK (frequency shift keyed) transmissions. Pending authority for an increase of automatic Morse positions capable of intercepting FSK transmissions, polarity reverse switches were installed on seven BC-1016 recorders used for on-off keyed positions. This innovation proved relatively ineffective since the signal, received without benefit of diversity equipment, tended to be unstable and required constant supervision to prevent reversing with each fluctuation.<sup>3</sup>

1. Ann Rept, FS 8604 DU, fy 1955, Vol II, p9 & Tab 2.
2. Ibid. pl0.
3. Ibid. pl2.

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Station operations were divided into six phases: Manual Morse, Automatic Morse, Radio Printer, DP, T/A, and communications. Following is an account of each individual phase:

Manual Morse: The Manual Morse assignment continued to cover



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1. Ann Rept, FS 8604 DU, fy 1955, Vol II, ppl-2.
2. Ibid. pp5-6.
3. Ibid. Tab 1.
4. Ibid. p2.
5. Ibid. Tab 1.
6. Ibid. pp2-3.

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[REDACTED]

two-channel missions, Manual Morse [REDACTED] and General Search missions. Although results on the DF mission were considered fair, due to a loss of personnel the mission was discontinued, 31 Jan 55. A total of 8,711 DF bearings were made in the first seven months of fy 1955, an average of 726 per month.<sup>2</sup>

Traffic Analysis: The T/A effort included operator aid, traffic processing, traffic identification, scanning, and preparation of reports. Traffic identifications consisted of [REDACTED]

[REDACTED]

Total circuits identified in Manual Morse coverage averaged 75%. Identifications as to service and category in radio printer coverage increased to approximately 55%. Through the analysis performed in identifying this intercept, key sequence recoveries were made, new frequencies and schedules established, collocation of call signs used, and continuity maintained on permanent case notations.<sup>3</sup>

Communications: Total outgoing traffic handled by the Communications Section included 16,111,893 gps of COMINT traffic and 32,944 gps of administrative traffic. Total incoming traffic included 1,894,124 gps of COMINT traffic and 54,208 gps of administrative traffic.<sup>4</sup> Operational traffic transmitted from the station during the fiscal year included:<sup>5</sup>

- a) Special traffic analysis releases.
- b) Daily non-Morse activity reports.
- c) Daily Analysis reports.

1. Ann Rept, FS 8604 DU, fy 1955, Vol II, pp6-7.
2. Ibid. p3 & Tab 1.
3. Ibid. pp3-4.
4. Ibid. Tab 1.
5. Ibid. pp6-7.

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- d) Daily technical summaries.
- e) Daily bearing reports (until discontinued at end of second quarter).
- f) Full text of all government coded and government plain messages.



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REF: VOL. I P. 379

1. Ann Rept, FS 8604 DU, fy 1955, Vol II, p7.

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