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SECURITY INFORMATION

POST WAR TRANSITION PERIOD

THE ARMY SECURITY AGENCY

1945 - 1948

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ARMY SECURITY AGENCY

WASHINGTON 25, D. C.

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POST WAR TRANSITION PERIOD
THE ARMY SECURITY AGENCY
1945 - 1948

APPENDED DOCUMENTS CONTAIN CODE WORD MATERIAL

Prepared under the Direction of the

Chief, Army Security Agency

GAS-22

7 April 1952

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This study continues the history of the Agency through the period following World War II. Activities which were covered field by field in the thirteen volume Agency history of that war are here centered in a single narrative with efforts made to conclude continuing subjects initiated in these volumes. Material covered elsewhere and not needed for continuity is omitted.

Research and Development, Operations, Administration, and Liaison are stressed.

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POST WAR TRANSITION PERIOD

THE ARMY SECURITY AGENCY

1945 - 1948

The three year interim period of readjustment following World War II really starts for the Signal Security Agency, as the Army Security Agency was then called, with V-E Day, 8 May 1945. For at the same time that changes were being made in intercept and processing facilities to aid in bringing the war in the Pacific to a quick conclusion; consideration was already being given to the size of the Agency in the Post War Army. General Clayton Bissell, ACofS G-2, in a memo to the Chief of Staff, U.S. Army, dated 17 June 1945, requested that the Special Planning Division be directed to make provision for a Signal Security Agency having a strength of 5,000 military and civilians for the post war military establishment. A total of 2,671 would be required in the operating divisions and 2,329 in the 2d Signal Service Battalion which carried out the intercept missions.[1]

The personnel strength of the Agency at this time remained approximately 10,500. Agency funds appropriated or procured through the Office of the Chief Signal Officer totalled a

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1. Ltr G-2 to CS, 16 Jan 45 (TS), Sub: Post War Signal Intelligence. In ASA 321, Centralized Control of Intel. Theaters of Operations.

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little more than $9,000,000. Of this sum, more than $7,500,000 was spent for payment of personnel, as compared with $14,500,000 spent for all purposes in Fiscal Year 1945. The Agency did not reach its peak civilian strength of 5700 personnel until August.[2]

In the still active Pacific Theaters, the Agency continued to carry out its missions of processing traffic and interception. The Central Bureau operated at Brisbane, Australia, and the 8th Detachment at Delhi supported the British unit in India, WEC. Another SSA unit was in China. Four Radio Intelligence Companies, operating in the Southwest Pacific Theater, were carrying heavy traffic, of which 72,000 messages a month were duplicating traffic intercepted by units directly belonging to the Agency. There was an SSA unit in San Francisco, and fixed stations were located at Tarzana and Reseda, California; Amchitka, Alaska; Fort Shafter, Hawaii; and Guam. In Europe the Signal Intelligence Division, SSA maintained its principal headquarters in London; three other SSA units were stationed in England. In addition, the Office of the Chief Signal Officer, United Kingdom Base, had a signal intelligence section.[3]

On the Continent of Europe there was an advanced headquarters of the Signal Intelligence Division in Paris and Signal Security Detachment D was with Headquarters, U.S. Forces

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2. Trends in Personnel, in ASA, pp 42-45.

3. JACC Minutes, Historical Subsection Files, GAS-22 (TS) and other sources.

WEC: WIRELESS EXPERIMENTAL CENTER

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European Theater. Detachment D carried the greater part of the work. On 1 July 1945 there were 14 Signal Service Companies, 10 Signal R.I. Companies, and 3 Signal Security Detachments in Europe. The 849th SIS was in Italy; soon after V-E Day, many of its personnel were returned to the United States. Other SSA units were at Asmara, and Accra, Africa; Amchitke, Alaska; Guam, Miami, Florida; and Bellmore, Long Island.[4]

In 1945 liaison contacts of the Agency included dozens of government offices, many branches of the service, numerous laboratories and technical firms, foreign offices, and international committees. Agency personnel dealt with the Bureau of Standards, the National Defense Research Council, The Research Defense Council, the Security Advisory Board, the Division of Insular and Territorial Possessions of the Department of Interior, the State Department, the Federal Communications Commission, the Civil Aeronautics Administration, the Petroleum Administration, UNRA, OSS, and OWI, the Security Advisory Board, the US Patent Office, and the Post Office, the naval equivalent of the Agency OP-20-G, the Bureau of Ships, Naval Laboratories, the Commander of the Marine Corps, and the office of the Commander in Chief, US Fleet, the headquarters of the Air Force, of the 20th Air Force, of Air Transport Service, the Army Navy Cryptographic Research and Development Committee, Joint Security

4. Summary Annual Report, ASA, FY 46, Tabs 46 and 47 (TS)

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Control, and many other similar committees and groups, Commercial and Laboratory contacts included, Western Electric, Bell Telephone Laboratories, Eastman Kodak, Times Telephoto Inc., Acme News Pictures, North Electric Company, L.C. Smith Company, Teletypewriter Corporation, and RCA laboratories; the London, Government Code and Cipher School, the Combined Codes and Cipher Committee, the Combined Security Committee, and the Combined Methods and Procedures Committee were along the contacts with other nations.[5]

By the end of the war in Europe, the Army, together with other US agencies using Army communications, had one of the largest world-wide communication nets works in the history of the Agency. A complex system of cryptonets linked Washington with headquarters and offices in all parts of the world. The security of the nets was maintained by the Agency, employing such equipment as the high grade cipher machine Converter M-134-C (SIGABA), the Combined Cipher Machine (CCM) developed with the British, the SIGCUM and SIGHUAD teletype cipher devices, the One-Time Tape (SIGTOT), special Strip Cipher systems, and Converter M-209, which was developed by Boris Hagelin, Swedish inventor.[6]

In the summer of 1945, Headquarters ASA was engaged in a

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5. Chart (S) Security Division Liaison, 1 May 1945.
6. Annual Report, AS-80, FY 46. Tab 30.

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large code production undertaking. The Agency was called on to supply the Armed Forces in the Pacific Operations Area with the Joint Pacific Aircraft Code, and to print 20,000 copies a day of the 24-page code. This achievement was made possible by operating all presses 16 hours a day and the larger presses 24 hours a day.[7]

In the headquarters of US Forces fighting against Japan, decisions were being made regarding regrouping of communications intelligence units. The 6th Radio Squadron Mobile was to be moved, and plans of the South West Pacific Command to take over all radio intelligence companies and signal intelligence activities were being weighed.[8] Control of radio intelligence in the Pacific other than China and India was taken over by AFPAC in August. General MacArthur agreed that there should be closer coordination and control of Signal Intelligence activities.[9] A liaison office was set up in Manila.[10] A plan for signal intelligence in China and in Burma relieved these theaters from responsibility for exploiting and processing mainline traffic.[11] Command relations continued to

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7. Summary Annual Report, ASA Staff, FY 46, p. 16 (~~TS~~).
8. JACC Minutes, in Hist. Subsection, G-2 files (~~TS~~).
9. JACC Minutes, 9 Jul 45 meeting.
10. IBID., meeting of 21 Jul 45.
11. JACC Minutes, G-2, ASA Files (~~TS~~).

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be reviewed. The United States Communications Intelligence Board approved plans in Fiscal Year 1946 for the establishment of fixed intercept stations throughout the world. The plans called for continuation of intercept operations on a permanent basis at Vint Hill Farms Station; Two Rock Ranch Station; Helemano, Hawaii; Fairbanks, Alaska; and the Philippines, and to continue operations as long as possible in Asmara and in Germany.[13] Miami and Tarzana were to be closed by 1 September, Accra was to be inactivated in January and Amchitka and Guam the month following. On 12 September 1946, Arlington Hall, Vint Hill Farms, and Two Rock Ranch Stations were classified as SECRET.[14]

By the end of World War II operations were still on an extensive scale. The Agency was in the midst of a large procurement program for cryptographic material and was continuing Research and Development. Most of the procurement orders were cancelled, but contracts were continued for Research and Development when they were 75 per cent completed. All procurement arrangements continued in effect. Industry was engaged in reconversion and the Fiscal Year 1946 was a year of shortages of material and delays in delivery.[15] Research and development

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12. Omitted

13. Summary Annual Report, Staff, 1945, p. 41 (TS).

14. TAG ltr AG 680.1 (6 Sep 46) AO-I-WDGID-N, 12 Sep 46. See TAB 79 of Summary Annual Rpt, Staff, FY 47.

15. Summary Annual Report, ASA, FY 46, pp. 14, 15.

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in the Army and Navy were to follow independent but well coordinated lines.[16]

Plans for redeployment training at the end of the European phase of the war had been made early in 1945; courses given at Vint Hill Farms School were revised to make them applicable for the war against Japan. At this time responsibility for staff supervision of all training in the Agency centered in the three sections of the Training Branch, including Communications Security, Specialist, and Intelligence training, all under the staff supervision of the Chief, Personnel and Training Division, who was also responsible for staff supervision of the Civilian Training School, as well as his duties as head of personnel. Formal training was given at Vint Hill Farms, Arlington Hall, and Two Rock Ranch. Special informal or "on the job courses" were instituted in units to meet special needs. The Civilian training school offered extension courses to military and civilian personnel.[17]

While much was accomplished in the way of general post war planning, even in June 1945, the planners in the Agency did not

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16. Ltr Friedman to CG, SSA, (TS) Sub: Outline Program for Research and Development in SSA, 334, Staff Discussion Group, Nite Club, 1945.

17. Training in the SSA (TS), Vol. XIII, page 104.

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get down to cases with their own specific problems until 4 August when the Agency Post War Planning Board was constituted by General Orders #49, Hq, SSA, and was delegated the responsibility of establishing command and operations of the Agency on a new basis in the post war period.[18]

The first referrals to this board were the problems of reduction in personnel, discharge of highpoint enlisted men, and curtailment of development and procurement programs. By the end of August, the target was sufficiently in sight for the board to be replaced with another, the ASA Reorganization Board, which contained 5 members of the original planning group. The new board was charged with responsibility for converting the Signal Security Agency into the Army Security Agency and for planning the development of the new Agency to meet its responsibility for World Wide signal intelligence and communications security functions.[19]

In the top echelons of the Army, machinery had already been set in motion for the reorganization. On 22 August, a command channel radio transferred all Signal Intelligence organizations, including the 2d Signal Service Battalion from the Office of the Chief Signal Officer to the control of the War Department. This eliminated the dual control which the

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18. Summary Annual Report, Staff, FY 46, p. 3.

19. Summary Annual Report, ASA, FY 46, Tab 3.

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Agency had operated under since 1944, when the Chief Signal officer directed the technical and administrative phases and the Assistant Chief of Staff, G2, exercised operational control and assigned the missions of the Agency.[20] The Chief, Military Intelligence Service was to continue to exercise administrative and disciplinary control over units and personnel placed under the command of the War Department. He was to assign Signal Intelligence units and personnel to theater, defense, or department commander as needed to meet tactical or security requirements. He could with appropriate commander's concurrence, reassign such units in accordance with the situation. Personnel would not be transferred to or from any Signal Intelligence organization or unit without the prior concurrence of the Chief, Military Intelligence Division except in accordance with established procedure.[21]

On 28 August a message from the Chief, Military Intelligence Division to the commanding generals of the theaters stated that the Army Security Agency had been established under the direct command of the War Department and had been designated as the organization into which all signal intelligence units and personnel would be incorporated.[22]

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20. Summary Annual Report, ASA, FY 46, Tab 7.
21. Summary Annual Report, ASA, FY 46, pp. 10 and Tabs 12, 13.
22. JACC Minutes, Hist. Subsection, G-2, files.

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specialists assigned or attached to the Agency constituted the training responsibility of the Chief, ASA.[24] Liaison was among other activities of the command. The effective date for the establishment of the new Agency was 15 September 1945.

In its relations with subordinate units, the new Agency functioned under the Director of Intelligence, War Department, in a manner similar to a field headquarters. The Chief, ASA, using a special channel radio for which his Signal Center was the outlet, commanded his subordinate units by signed messages. Circulars, memoranda, and other directives and correspondence to these units were authenticated in his name by the Adjutant General, ASA.

For strictly agency matters, letters going up in command were prepared in headquarters, ASA for the chief of the Agency. In matters of general Army wide policy in which the weight of the added authority of the War Department General Staff was desired, command channel radio messages were sent out from G-2 message center in the name of the director of intelligence through his executive office, and correspondence of this nature was similarly prepared and processed through the executive office of the Director of Intelligence for the Director's signature.

Whether radios were filed and encrypted in the ASA Message Center or in the Message Center of the Director of Intelligence

24. IBID.

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they were relayed for dispatch to the War Department Message Center.

All outgoing mail prepared for the signature of the Chief, ASA, was dispatched through the ASA Mail Room to the United States Post Office in the Pentagon, if not handled by courier. Outgoing mail prepared for the signature of the Director of Intelligence reached the United States Post Office through the Mail Section of the G-2 Message Center.

The ASA Liaison Office in the Pentagon was the channel between the Agency and the Director of Intelligence for correspondence prepared for the latter's signature.

While the Army Security Agency was being evolved, the war against Japan came to an end. Immediately after the cessation of hostilities the Chiefs of Staff acted to safeguard communications security through issuance of an executive order. The President on 15 August released a memorandum designed to preserve the secrecy surrounding the atomic bomb. The Joint Chiefs, aware of the menace to communications security arising from post ~~war~~ WAR demobilization, wished to have the safeguarding of signal intelligence activities put in the same category as the secrets of the atomic bomb.[25] As a result a memorandum was prepared by Admiral William D. Leahy, Chief of Staff to the Commander in Chief, on 22 August for the signature of the Secretaries of War and Navy stating that, "We believe that our

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25. Security Leaks of Communication Intelligence Activities (Friedman) 3d Section. (No pagination).

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cryptanalytic effort must also continue in greatest secrecy during the years of peace and that all discussion of this work should be avoided in the same manner as those of the Atomic Bomb.[26]

A more specific White House memorandum was issued on 28 August stating that the appropriate departments of government and the Joint Chiefs of Staff were directed to take such steps as were necessary to prevent release to the public, except with the specific approval of the president in each case, of information regarding the past or present status, technique, or precedures, degree of success attained, or any specific results of any cryptanalytic unit acting under the authority of the United States Government or any department thereof.[27]

A step taken at this time toward better security was the official sanction of the Joint Communication Board in October to the encipherment of system indicators, which had been heretofore sent in the clear. The Board directed the Army and the Navy to produce a practical method for this purpose.[28]

In the fall of 1945, first discussions were held between representatives of the U.S. Communications Intelligence Board and the British which resulted in the negotiation of a collateral

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26. IBID., (Leaks Volume) 5th Section. (No pagination).
27. Friedman Leaks, p. 149.
28. History of Converter M-325, pp. 100-101.

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agreement with the London Signal Intelligence Center for continuation of coordination with the British Commonwealth in Communication Intelligence matters. The British group headed by Sir Edward Travis met in the United States with the members of the Army Navy Communications Intelligence Coordinating Committee and of the Army Navy Communications Intelligence Board in combined session. In order to provide more effective channels for dealing with the British, there was established in the spring in London a United States Combined Intelligence Liaison Center under a senior liaison officer.[29]

In the meantime, ASA units were being demobilized. The military strength of the Agency dropped sharply after V-J Day. Enlisted personnel assigned reached a low of approximately 2,500 enlisted men in October. Officer strength decreased to approximately 500 this same month,[30] although the troop basis set up for ASA called for 579 officers and 6,978 enlisted men.[31] The Pacific Theater was authorized to transfer ASA personnel between Agency units to help keep things going. To compensate for the loss of technical specialists and large scale demobilization of military personnel, a training program was organized

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29. Supplement, Summary Annual Report, ASA, FY 46, p. 10.

30. Summary Annual Report, ASA, FY 46. Tab 7.

31. IBID., p. 8.

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by the Intelligence Division of Headquarters ASA in September to effect the transfer of some 500 employees from Japanese problem to work on new priorities. Special cryptanalytic training to augment the analytic experience of those to be reassigned was given. In the language field, training was given in such languages as French, Spanish, Italian, Portuguese, and German under the direction of the section whenever required by either a loss of trained personnel or a need for additional training by experienced personnel. Special emphasis was given in such language as Rumanian, Polish, Serbian, and Turkish. Inasmuch as security made the procurement of qualified Russian speciliasts a major problem, a number of language courses were set up within the Division, some of which were intensive routines of a single week.[32] Individual training continued within ten field units where demanded by the situation at hand.

Japanese traffic continued after V-J Day, but message content changed to such subjects as instruction on local surrender arrangements communications withdrawal of Japanese nationals, allied prisoners of War, military jurisdiction, and denial of acts of violence. Japanese Army traffic dropped to 10 per cent by the end of September. The peak figure for the production of Intelligence from Japanese sources occurred in July when 32,018 messages were deciphered and translated, the largest number published by the Bulletin Section in Arlington Hall History.[33]

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32. Annual Report, Cryptanalytic Branch, FY 46, p. 21. (TS).

33. Annual Report, AS-90, FY 46, p. 20. (TS).

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Security monitoring, consisting of the enforcing of prescribed rules of security by covering friendly circuits and notifying the headquarters concerned of violations, was affected by the close of the war. There was a reduction in volume of communications, and return to a peace-time status reduced the importance of American communications and eliminated the foreign powers chiefly interested in them. The urgency of maintaining the maximum of security appeared to some military leaders to be considerably reduced and security monitoring in the field fell off sufficiently so that the Transmission Security Section, Methods Branch was inactivated. The War Man Power Survey was also an influencing factor in reducing monitoring activities.

Two months after the end of the war measures were taken to cope with the resulting personnel shortage. A total of 2,092 enlisted men were requisitioned from the Army Service Forces for overseas and Zone of Interior replacements. Near the end of November an agreement was made with G-1 and the War Department Manpower Board to divert 1,449 enlisted men qualified for foreign service from the Army Ground Forces as eventual overseas replacement. This number was soon increased by 507 to 956 men.[34] It was also attempted to fill gaps in the units through the training of Specialists. A course was set up for intercept operations, SSN 799 and for High Speed Operators,

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34. Annual Rpt, Org and Trng Section, FY 46 (TS).

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SSN 799 and for High Speed Operators, SSN 766 at Vint Hill Farms Station. Because of a shortage of men qualified in SSN 766, the course was filled with basics who followed a 20-week program. ASA individual training responsibilities was set for the officer specialities and the same number of specialties for enlisted personnel. Jobs for the officers included, Radio Intelligence officer, Communication Security Officers, Radio Traffic Analysist, Security Officer, Cryptanalytic, and 5 types of cryptanalytic officers including General, Code, Chemical, Equipment, and Translations. For enlisted men the specialties were voice interceptor, Radio Intelligence Control, Chief, Cryptographic Code Complier, Cryptanalysis Technician, two kinds of Traffic Analysts, and three kinds of intercept operators. In addition, the Agency was directed to train enlisted personnel in cryptographic equipment maintenance and repair.[35]

Changes following the setting up of the Army Security Agency were apparent in training as in other fields. On 20 November 1945, Vint Hill Farms School was relieved from the control of the Commanding General, Army Service Forces and the assignment of the Chief Signal Officer and reclassified as a special installation under the control of the Chief, ASA for training individual specialists assigned or attached to the Agency.[36] The operator training facilities of the 2d Signal

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35. TAG ltr, (S), AG 353 (3 Nov 45)OB-S-B, 19 Nov 45, to CG, ASF, etc.

36. TAG ltr, 352 (6 Nov 45)OB-I-B-M, 20 Nov 45, to Ch, ASA. etc.

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Service Battalion were transferred to the Vint Hill Farms School and the course capacity increased by 500 students by 1 December.

While these steps were being taken, the rapid discharge of men from the Army made necessary drastic curtailment of War Department Theater intercept operations. Large numbers of replacements in all ASA specialties would have to be procured and trained rapidly if an even more critical situation was to be avoided. Already, however, the tide was beginning to turn.

Reorganization of the Agency went on. On 25 November, Headquarters, ASA, Pacific, was activated with station at Manila with an initial strength of 66 officers and 273 enlisted men authorized, subject to reduction to 50 officers and 175 enlisted men prior to 30 June 1946.[37] This organization was attached to CINCAFPAC for administration and discipline, and was to operate under the command of the War Department through the Chief, Army Security Agency. The Agency was responsible for operations and training, assignment, transfer, and promotion of personnel. Theater signal intelligence and communications security were primary missions. The new headquarters had an advanced echelon of Signal Intelligence Service Pacific, established in Tokyo, a unit which carried on operations as Liaison office for the Army Security Agency at General MacArthur's headquarters. On 1 December the 111th and 126th Signal Service

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37. Summary Annual Rpt, ASA Pacific, FY 46, p. 2 (S).

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Companies and the 1st Radio Squadron Mobile, as reorganized, were placed under the operational control of ASAPAC. A few days later, two Signal Service Detachments, the 3377th and 3378th, were directed activated for assignment to ASAPAC.[38]

Similar changes were occuring in Europe where all signal service companies had been inactivated in August and September. By the time of the reorganization of the Agency only RI Companies, the 114th, the 116th, and the 118th remained. On 27 November, 1946 Headquarters, ASA Europe was organized at Frankfurt and attached to Headquarters, US Forces, European-Theater (USFET) for administration and discipline. The command relations for ASA Europe corresponded to those for ASA Pacific. Of the constituent units, the 114th was at Sontra, the 116th at Scheyern, and the 118th was assigned to occupation forces in Austria, where it was soon disbanded because of insufficient reinforcement. Other ASAE units were Detachment A at Gross Gerau, and the 2d Radio Squadron mobile at Bad Vilbel.[39]

Following the establishment of theater organizations, instructions were prepared on 4 December to supplement the TAG letter of 6 September toward integrating the new headquarters into ASA functions. Priorities were to be established by the theater command and resulting intelligence was to be disseminated

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38. Summary Annual Report, ASA Staff, FY 46 (~~TS~~).

39. Summary Annual Report, ASA Staff, FY 46, Tabs 46 and 47 (~~TS~~).

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directly by the theater commander through special ASA channels. Secondary missions were to be assigned to the theater ASA by ASA, War Department, which was to be kept completely informed of the work performed by the theater headquarters.

Military Traffic which could be exploited by the Theater ASA was to be referred to ASA War Department with an indication by the theater commanders of the priority which was attached to the traffic. ASA War Department was to undertake the analysis of this traffic. If the traffic was exploitable, G-2, War Department was to decide whether the responsibility for it would be transferred to the theater concerned. Complete dissemination of the resulting intelligence to the theaters concerned was to be affected through special ASA channels.

Coordination among the various theaters and field agencies was to be effected by ASA War Department. The War Department was to be responsible for the dissemination through Special ASA channels of intelligence affecting the theater commanders and derived from intercept sources. The theater commander was to be responsible for keeping the War Department informed through special ASA channels of diplomatic and world wide intercept material. Troops placed in the theater other than those for certain designated fixed War Department intercept stations, were for the primary use of the theater commander.[40]

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40. Ltr WDGS 2 to Theater and Chief, ASA, 4 Dec 45, Sub: Signal Intel Missions in ASA 321, Centralized Control of Signal Intel, Theater of Operations.

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A new fixed station was opened at Los Pinas, in the Philippines and stations at Miami; Bellmore, Long Island; New Delhi; San Francisco; Reseda and Accra were inactivated, providing operators for the continuing units. Personnel from Bellmore went to Las Pinas.[41]

After November, when the amount of Japanese traffic received was no longer of great significance, new intelligence objectives were indicated and new search assignments were received from Headquarters, ASA. These were notably in French, Latin American, Chinese, and Russian traffic. Of the personnel who had been working at Headquarters ASA on the Japanese encrypted communications, many resigned after V-J Day, and those who remained were absorbed chiefly into the newly expanded Far East Traffic concentration.[42] About 32 per cent of the cryptproblems assigned to the Machine Branch of the Operations Divisions at Headquarters ASA were connected with the Chinese and Far Eastern problem.

An increasing use of non-Morse means of transmission was used in the rest of Fiscal Year 1946, made necessary because the Russians were making use of multi-channel radio teletype, and ordinary receivers were useless. Work was begun on tw6-channel receivers capable of recording signals by cutting

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41. Annual Reports, USM-1,2,4,5,7, & 9; Tab 1 of Vol XIII, FY 45-46. (~~TS~~).

42. Summary Annual Report, ASA Staff, FY 46. p. 22 (~~TS~~).

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teletype tape and by the end of the year three such receivers were in service in the field. Several months after the war ended with Japan, all analysis of foreign diplomatic traffic was being performed by the intercept control branch, which decentralized all traffic analysis at ASA. Now each operation section of the Cryptanalytic Branch, which was working on ... major problem, had its own Traffic Analysis unit.[43]

ASAPAC monitored Chinese traffic throughout the first year after the war.[44] The Intelligence Divisions, at Headquarters, which had solved the German One-Time Pad system, GEE, early in 1945, was concentrating on Tokyo-Berlin and Berlin-Tokyo traffic while the war in the east lasted. Subsequent effort was placed on Buenos Aires-Berlin and Tangiers-Berlin circuits. A new slide-run technique developed by Machine Branch in July had aided greatly in the placement of pad sheets. They proved equally productive in the analysis of other systems under study such as the Chinese and Italian systems.[45]

By November, total traffic at Arlington Hall Station had fallen off from a high of 735,590 in July 1945 to 156,582. Immediately after V-J Day, all traffic formerly received from

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43. Summary Annual Report, ASA, FY 46, p. 25. (~~TS~~).

44. IBID., Tab 1.

45. Annual Report, AS-90, FY 46, p. 24. (~~TS~~).

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the New York Cable Censor (95% of it diplomatic) ceased and diplomatic nose-dive from 87,770 total receipts in July to 46,793 in September. Overcoming strenuous objections by the commercial companies of the reading of their traffic, ASA finally obtained permission to receive photographs of all foreign government traffic transmitting or originating in commercial stations (except Press Wireless). Operation SHAMROCK, to carry out this project, begun in September, provided unique coverage of cable transmissions and ensured at least one good copy of wireless messages passing through commercial stations. This photographing operation provided diplomatic traffic without which production of intelligence would have been greatly retarded.[46]

During the early months of the Post-War period there was a succession of important international conferences which provided the Agency with traffic. Priority coverage of the San Francisco conference gave the Agency valuable diplomatic traffic in which the appearance of new crypto-systems and the use of special keys and encipherments posed a difficult problem for ASA intercept specialists, linguists and cryptanalysts. Often by employing the text of speeches made by the delegates, and obtaining a copy from special representatives of the General Staff, the cryptanalysts were able to make an entry into most of the special systems. Thus ASA was able to keep the State

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46. Annual Report, AS-90, FY 46, p. 22 (~~TS~~).

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Department informed of the directives of foreign governments and to reveal secret conferences and sub rosa agreements between countries. Prior to 1 December, there had been a number of other conferences at which ASA was able to be of service. The Potsdam conference was in late July, the Council of Foreign Ministers in London in August, the Reparation Conference in Paris in November and December, and the Preparatory Commission of United States in London in late November and most of December.[47]

Research and Development was directed along lines indicated by experience in World War II. Planning for cryptographic projects concentrated on those items for which the Agency had received military characteristics although some work of a general nature was directed toward equipment for which formal requests and military characterics were anticipated.

Projects for cryptanalytic equipment, although allotted only 35% of Division finds and facilities, provided the Agency with equipment to fulfill its mission efficiently. Several analogues of foreign cipher machines (B-211) were made and contracts were let with commercial companies for new, and improvements of old, rapid analytic machines.[48]

The Teletype Corporation was preparing manufacturers drawings and an index containing all components and parts of

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47. Annual Report, AS-90, FY 46, p. 23. (~~TS~~).

48. Annual Report, AS-70, FY 46, p. 20. (~~TS~~).

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Converter M-294-C (SIGNIN). This same firm was months late on delivery of improved models of the M-409 converter, SIGGIG, the project for which was completed on 13 November.[49] This project was later abandoned.

Improvements on the M-325 (SIGFOY) converter were being mired down. Contract with Teletype Corporation was terminated on 7 September 1945 and the machine was declared obsolete on 13 December 1945. The patent provisions of the Contract had been complied with, however.

After the war the use of IBM machinery in the field of cryptanalytic production continued but on a scale reduced 60 per cent. Rentals amounted to $59,115 in July and were down to $29,895 by November. Both standard IBM machines and especially constructed rapid analytic machines continued to be employed in the use of machine techniques to replace the laborious hand processing of traffic. Although the number of machines used dropped from 403 in July 1945 to 257 in December, there was continued improvement in the utilization of the machine retained.[50] Later in the fiscal year the system of binary notation, instead of the conventional decimal system, was introduced for recording positions of digits in a message, and was utilized as an aid in the use of IBM machines. In solving certain transposition

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49. Annual Report, AS-70, FY 46, Tab A-4.

50. Annual Report, AS-90, FY 46, Tab material.

SECURITY INFORMATION

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cipher systems the method of attack was to calculate the difference in position of the digits of any one of the code groups and to check them against a table of factors to see whether they permitted a common short column, eliminating from consideration all of those which did not produce this common short column. As the number of differences required was very large, solving a problem by hand required much time and labor, so that a machine was devised for making the required calculations. However, because of the large volume of cards required in the calculation of differences and because of the size of the listings to be examined by hand, the method was not only slow from the point of view of machine processing, but also not too satisfactory from the point of view of cryptanalysts. The system of binary notations reduced the volume required for obtaining differences.[51]

In July IBM cards and paper cost $25,667; $9,352 for 925,000 "sets" or perforated sheets on rolls, and $16,315 for 24,720,000 cards. By December this had dropped to $4,327, but the expense was increasing by June. Cards for 1946 totalled 88,150,000 for the year. Introduction of the binary system was destined to reduce this total tons of millions of cards in spite of a mounting activity curve.

In compilation of cryptographic materials, the most distinctive method used was that for obtaining randomized alphabetical

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51. Annual Report, AS-92, FY 46, p. 20 (TS).

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or numerical characters. The method, which was developed early in the war, consisted essentially of a modified SIGABA interposed between the reading of a punched card and the translation of that reading into action, i.e., punching or printing information. The device was attached both to an IBM reproducer and to an IBM tabulator. The production of many documents, such as One-Time Pads, Alphabet Strips, and Code Books was vastly facilitated by the use of this machine.[52]

Because of the increasing use of multiple links throughout the world, the main emphasis in the Research and Development program at Headquarters ASA in intercept turned from the study of hand operated Morse to Non-Morse multiplex transmissions. The close of the war developed the primary interest of the Agency in the communications of the Russians, (known as TAPER) who were beginning extensive use of non-Morse transmissions. The geographical conditions of TAPER require transmission in areas unsuitable for land lines and over distances which make straight Morse impractical or even impossible. The Agency continued development of a two channel multiplex terminal for intercept use. An engineer was made available by October, and seven units of two channel equipment were developed, constructed, and sent out to ASA Stations throughout the world. Reports on the efficiency of these units indicated that 97 per cent accuracy was maintained with continuous operation of from 16 to 20 hours

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52. Annual Report, AS-92, FY 46, p. 8.

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a day.[53] This was known as PEBBLE equipment.

By October, signals which had appeared in two channels were appearing in 2, 3, 6 and 9 channels.[54] Consideration was given to development of a Universal Multiplex Equipment (BOULDER) to be fully electronic and capable of handling any circuits from 2 to 10 channels. The Boulder project, which would take from eight to twelve months, was left open for future experimentation.[55] An intercept equipment branch was formed as part of Headquarters Research and Development Division on 26 November 1945.

Stressing need for an adequately secure speech equipment for radio and wire channels, effort was made to provide equipment, to permit interchangeable use of wire and radio channels or any combination of the two without the user necessarily being aware of whether he is talking over radio or wire or both. The equipment would permit use of radio between terminals in a rapidly moving situation with subsequent replacement of radio by wire when the situation became stabilized. The two resulting items of equipment were AN/GSQ-4 and AN/GSQ-5, the former for regimental battalion and company nets and the latter for Army, Corps, and Divisions net.[56]

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53. Annual Report, AS-70, FY 46, pp. 9 and 25.
54. IBID., p. 25.
55. IBID., p. 24.
56. IBID., p.22.

SENSITIVE INFORMATION

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The AN/GSQ-3 a high echelon - high security speech ciphony unit replacing the SIGSALY, when packed from air shipment, was designated AN/GSQ-2 (SIGRIT) the first AN/GSQ-3 was delivered by Western Electric on 11 December. Initial tests were undertaken the same month.

A contract for Facsimile Equipment AN/GXA-2 (SIGMEW) was made with the Radio Corporation of America. It was referred to as the Synchronous Polarity Reversal (SPR) Cifax System. The first model, SPR-1 made possible the sending of enciphered black-white facsimile and was successful from an operational and engineering point of view. Tests of the equipment in Manila ended in December. At this time SPR-2 (The SIGMEW) was in the breadboard model stage. A paper revision of the generator was made which improved the security of the device.[57]

Throughout the years, the Army Security Agency had been occupied with primary interest in providing an organization for best carrying out research and development, cryptanalysis, and the security of our communications. The 2d Signal Service Battalion had become merged with the headquarters of the Agency but the Chief of the Agency exercised command over the detachments without the benefit of carefully worked out staff relationships to assist him. RI Companies and other special units organized under bulk allotment or otherwise were outside the pattern of Agency control. When the Army Security Agency was

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57. Annual Report, AS-70, FY 46, p. 7.

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established, the Chief found himself at the head of a large military organization comparable to a theater headquarters with a command structure suitable for an arsenal or a research laboratory. Hence on 23 November, a staff was provided to assist the chief in effecting overall control of the world-wide organization to which he had fallen heir and to provide the necessary coordination with other War Department and government agencies. The new structure provided for a Chief of the Agency, an Assistant Chief, Staff; and Assistant Chief, Operations, and other positions.[58] In addition, a streamlined organization was adopted for the three divisions of the technical activity of Headquarters ASA. One was for all communications security functions, one for the production of signal intelligence, and a third to provide the necessary research and development to support the other two. The Research and Development Division was to seek new facts and revise accepted conclusions in light of new discoveries. It was to create new types of devices, equipment, machinery, and facilities. The devices and equipment in an experimental state were to be operated by the Research and Development Division. End products were to be turned over to the Division for which they were primarily designed. The Assistant Chief, Operations, was to set priorities for equipment designed to meet the requirements of more than one division. Responsibility for operational research and operational development of methods

58. Summary Annual Report, Staff, FY 46, p. 8.

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and techniques within the special field of intelligence or Security Division rested with the division concerned. New or modified application of existing devices was frequently integrated with operational research. Liaison and exchange of personnel between Divisions was a responsibility of the Assistant Chief, Operations.[59]

Soon the Director of Communications Research was placed under the Chief of Staff, under the designation Communications Research Section. The Operating Division, Research and Development, Security, Intelligence, Personnel and Training, Supply, came under the Assistant Chief, Operations. The establishment of a staff was a radical departure from anything previously known in the Agency. It was necessitated by the increased responsibility placed on the Agency when all signal intelligence and communications security functions for the Army were assigned. Also at this time, the titles of ASA Commanders in Europe and in the Pacific were changed to Directors.[60]

In Fiscal Year 1946, action was taken to change procedures in programmed procurement of equipment for which the Agency has procurement, storage and issue responsibility. Then the Agency

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59. Ltr, Ch ASA to Ch concerned, 14 Dec 45, Sub: Delegation of Responsibility for Research and Development Projects. In Summary Annual Report, ASA, Tab 10. ~~(TS)~~.

60. Summary Annual Report, Staff, FY 46, p. 8. ~~(TS)~~.

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reported its requirements to the Office of the Chief Signal Officer and funds were provided from Signal Service of the Army P-120 funds. Initiated by letter from ASA to Supply Control Branch, Office of Chief Signal Officer. It was proposed that the requirements would be reported to Service, Supply and Procurement, War Department General Staff with budgeting handled through the Fiscal Officer, ASA, and procurement through the ASA Purchase Section of Purchasing Branch, Office of Chief Signal Officer.[61]

On 29 December, the Transmission Security Section of the Methods Branch, Security Division, which had become defunct after V-J Day, was reactivated as part of the Protective Branch to study transmission violations.[62]

The Intelligence Division at Headquarters was continuing to process a great deal of material. In December, 351 systems were being read, a drop from the July total of 426, but still a significant number. However, these totals varied. These systems included the traffic of some 65 governments using 25 languages. The most important were Albanian, Arabic, Bulgarian, Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Icelandic, Italian, Japanese, Norwegian,

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61. ASA Staff Section, FY 46, p. 5. Tab D.

62. Summary Annual Report, FY 46, p. 16. (TS).

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EO 3.3(h)(2)
PL 86-36/50 USC 3605

Persian, Polish, Portuguese, Rumanian, Russian, Spanish, Swedish, and [redacted]63

On 15 January, the Chief, ASA was authorized by the ACofS, G-2, to assign the French Military crypt problem to ASA Europe. At this time intercept operations were limited by sharp reduction in traffic, the personnel of the intercept stations spending much of their time building facilities and training new personnel.

Two special activities were carried on by ASA Europe, TICOM and CIVIL Censorship missions. Code name for ship's intercept mission The Chief, ASAE was the TICOM (Target Intelligence Committee) representative of the United States and under his direction the valuable German archives of the SIS Supreme Command of the German Armed Forces were located and removed. Many former German signal intelligence men were located and questioned.64 The Civil Censorship Division in Germany and Austria was provided by ASAE with a small number of men to examine suspicious civilian mail for secret inks and possible encrypted messages. The project was soon turned over to War Department civilians.65

On the other side of the world, similar post-war personnel difficulties were being faced but unlike its European counterpart,

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63. Annual Report, AS-90, FY 46, Tab 1. (~~TS~~).

64. Summary Annual Report, ASA, FY 46, p. 16 (~~TS~~).

65. IBID., p. 17.

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ASA Pacific operated on small islands or in remote island positions separated by thousands of miles. Aircraft were the only practical means of transport for personnel and critical supplies, and the demobilization of the Army was affecting the Air Transport Command as seriously as other branches of the Army. Similarly, communications personnel were redeployed rapidly, making it increasingly difficult to transmit messages. In Hawaii, still under ASA Pacific, the Mid-Pacific detachment was activated on 31 January 1946 in spite of personnel shortages.[66]

To replace these enlistment losses throughout the Agency, representatives of the Signal Corps, the Adjutant General and the Army Security Agency agreed that the input for the Signal Corps should be increased to provide sufficient trainees for the Agency so that its units should be maintained at authorized strengths. Personnel to be trained as intercept operators for specific languages, Morse code interceptors and voice interceptors were to receive prerequisite Signal Corps training as high speed radio operators. Personnel to be trained as Traffic Analysts, Cryptographic code compilers, and cryptanalysts were to be transferred to the Vint Hill Farms School in midsummer 1946, when the enrollment would begin to fall because of graduation of the personnel provided by the Army Ground Forces.

A continuing supply of officers was also an objective.

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66. Summary Annual Report, ASA, FY 46, pp. 30, 31, 32.

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A complete plan for an ASA Reserve, ASA Extension School, ASA ROTC and an ASA National Guard was forwarded for War Department concurrence on 8 February 1946. It was pointed out that even without an ASA Reserve, an ASA Extension Course would still be of value, but would require integration into the extension courses of appropriate arms and services as well as special arrangements with those organizations to earmark for the Army Security Agency an established quota of their reserve personnel who had successfully completed the required ASA Subcourses in addition to other subcourses required by the arm or service concerned.[67]

The plan for civilian components failed to obtain Army Air Force or Army Ground Force concurrence, and was tabled until the end of the year. The ASA Extension School, however was approved by the Chief, ASA on 26 February 1946 and the post war Extension School of the Agency was established on 4 March at Vint Hill Farms Station; AR 350-300 published at the end of March outlined the responsibility for the Agency for extension training. The school at Vint Hill Farms satisfied the Army requirement for a Special Service School to be responsible for such training and was required to handle administration of the Extension School courses. Training aids and literature for the Extension courses were prepared in the interval while the civilian components projects was awaiting

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67. Annual Report, Organization and Training Section, FY 46. (TS).

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concurrence.

X The Agency's responsibility for the training of personnel for maintenance of certain special cryptologic equipment was stated in TAG letters early in 1946. Personnel were to be trained to take care of Converter M-228 (SIGCUM), Converter M-294 (SIGNIN), and associated equipment, under SSN 801 and Code 9606.[68] Training in SIGTOT maintenance was combined with that for SIGCUM, while the M-134-C (SIGABA) course was to include SIGROD (MX-783/U) and Converter M-209 maintenance instruction.[69] These courses were established at Vint Hill Farms School for officers and enlisted men qualified as teletype mechanics. A minimum AGCT score was required on enlisted men to assure that all would be properly qualified. The Signal Corps was responsible for the prerequisite training of teletype repairmen.

The closing of Accra in middle January, and Guam and Alaska on 1 February released a few personnel for other units.[70]

X Among the more significant developments during the year was the work done on the SIGROD cipher machine. As the strength of U.S. forces in advance areas was reduced, it was deemed unwise to expose to possible physical compromise the very secure

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68. Ltr AG 353 (9 Jan 46OB-S-B-M; sub: Training Personnel for Maintenance of Converter M-294, dtd 15 Jan 46 and similar ltr of same date for Converter M-228.

69. Training in M-134-C maintenance was provided for in AG ltr AGAO-S-B-M 311.5 (27 Mar 46), sub: Training Personnel for the Maintenance of Converter M-134-C, 2 Apr 46.

70. Annual Report, FY 45-46, USM-1,2,4,5,7, & 9. Tab 1.

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SIGABA machine, based, as it was on cryptographic principles unknown to other nations. What was needed was a machine of relative high security, but using cryptographic principles known to other nations, so that in the event of capture a potential enemy would gain no cryptographic technology which could be used against the United States if war should come again. To solve this problem, a machine, which, figuratively speaking, was the off-spring of a "marriage" between the SIGABA and the SIGCUM and which was named the SIGBRAT was developed. Basically, the SIGBRAT used the SIGABA chassis, but provision was made to employ a set of only 5 rotors in cascade, the rotors being stepped odometrically, that is, one complete revolution of the first rotors advances the second rotor one step; one complete revolution of the second rotor moves the third one position, etc. Thus, when the first rotor has stepped 676 times, the second rotor will have made one complete revolution. The complete cycle is 265. Two models were made in February 1946 at an estimated cost of $4,500 each. In all, 52 machines were constructed, but only nine were issued. Security studies showed that the SIGBRAT was not secure enough for the needs which operational usage demanded. ASA had been informed that the machine would not be used for traffic higher than CONFIDENTIAL, whereas some of the users were sending TOP SECRET traffic. As a result, it was decided to make security studies of a modified SIGBRAT in which the same 5 rotors were retained, but by testing different combinations of the fast, medium, and slow rotors, to find an

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arrangement in which the desired degree of security would be achieved. The final model was in reality cryptographically identical with the Combined Cipher Machine (CCM) and with the Navy CSP 1700, and was believed sufficiently secure to meet our communications operational needs. In September 1946, a total of 600 machines were procured at a cost of $1,878.40 each. Distribution of the machines (now called the SIGROD) progressed to the point where 312 of the 600 were in use, and all but one military attache office, who used a machine system, were equipped with the SIGROD.[71]

Early in 1946 operations in the Intelligence Division, Hq ASA, were on an ascending scale. In January 435 systems were being read; for February 500; March 513; and April, the peak, was 521.[72]

In January French messages formed nearly half of the messages cited in the Magic summary.[73] By April 1946, traffic in Greek systems had doubled and many new, complex systems had appeared for the first time, coming from such countries as Albania, which were resuming encrypted diplomatic communications after the end of the war. Achievements in Hagelin machine cipher problems (C-26 type, M-209 type, and B-211 type) included solution in Finnish, Dutch, Portuguese, and especially French military systems. The solution of FXD (C-36) and FXF

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71. Annual Report, AS-80, FY 47, pp. 8-10.

72. Annual Report, AS-90, FY 46, Tab 1.

73. IBID., p. 27.

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(The C-38 or M-209 type) were noteworthy.[74]

A major undertaking, and one on which considerable progress was made, was work and planning on the Communication Security Plan, which was to set the policy and to be the guide for all future research and development in communications. One section was the Cryptographic Plan (SIGIRA) which would provide the using services with the crypto-security equipment for each means of communication, and assure the continuing supremacy, consistent with the state of the art. Sections of the plan which were worked out included Ground-point-to-point, Air-to-air, Air-to-ground, and specialized communications. The plan advanced the fundamental premise that the Basic Military Requirements (BMR's) of the using agencies must dictate the type of machanism and system to be developed. On 27 June 1946, a study recommending termination of work on Converter MX-409 (SIGGIG) was approved--the first definite action based on SIGIRA to terminate an equipment that did not fit into the planning schedules.

Research and development of communications equipment sought quota security. For speech equipment two lines of approach were used in developing the AN/GSQ-5, one the permuted channel vocoder system the other, the two dimensional system.

The Permuted Channel Vocoder was Ciphony system in which the output leads from a vocoder analysis are rapidly permuted, and the scrampled information transmitted by means of sub-carrier

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74. Annual Report, AS-90, FY 46, p. 27.

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signals. The two dimensional system is one which utilized TDS (time-delay scramboling principle) plus the band swift principle. In order to accomplish the two dimentional encipherment a highly special type of magnetic tape recorder-reproducer was needed. Pre-contract negotiations were started with Lear Inc., Stromberg-Carlson, and Armour Research Foundation. In the meantime engineer tests had begun on AN/GSQ-3, in a research project to overcome objectional features if the SIGMEW, namely large size and weight, amount of power required, slow speed of operation (21 minutes per picture), and doubtful security. The SPR-3 was planned to decrease weight and size and increase the ~~speed~~ time of transmitting a picture from 21 minutes to 10 minutes.

A decision was made to use the Geared Timing Mechanism and a modified form of Jacob's Ladder to produce key for SPR-3, active development of these items were transferred to another project in March.[75]

By 15 March facsimile Equipment AN/GXA-1 (SIGDUL) was developed in breadboard form and 2 models were ready for testing. Their equipment using the time delay scrambling principle was designed and built locally. Its security was low-only Restricted, and size and weight were unsatisfactory, so the project was completed and "shelved" in April.[76]

Work on a two channel multiplex equipment, the PEBBLE

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75. Annual Report, AS-70, FY 46, p. 7.

76. IBID., p. 6.

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PROJECT was continued with a breadboard model of Pebble completed in February and continued in the laboratory as a model for the development of six-2 channel units. With added engineering design, both electrical and mechanical, this unit was developed into a semi-standard item of equipment. ~~Since the equipment.~~ Since the equipment was new, instructions had to be written and personnel trained in operation and maintenance.[77]

A test unit which made it possible for intercept operators in the field to adjust the PEBBLE Equipment to proper speeds with both mechanical and electrical circuits was developed and gave such excellent operation that it was supplied as an integral part of each PEBBLE unit. It provided an artificial teletype signal and also a low frequency sweep circuit which would be applied to an oscilloscope.[78]

On 6 May Headquarters ASA Pacific was moved from Manila to Tokyo, leaving an administrative headquarters in Manila to distribute and account for cryptographical material among other missions,[79] ASA Pacific exploited Japanese cryptographic and cryptanalytic records with TICOM teams.[80] The only other activity of special note for the month was in Headquarters, ASA. Early in May, representatives of ASA met with representatives of Naval

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77. Annual Report, AS-70, p. 10.
78. IBID., FY 46, p. 11.
79. Summary Annual Report, ASA, FY-46, p. 25 (TS).
80. IBID., Tabs 49, 50, 51, & 52.

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Communications in the SIGMEW area of the Pentagon for discussion and inspection of the SIGMEW equipment of the Agency, which furnished the Navy with all technical informal available on the existing SIGMEW equipment, the meeting providing an example of the cooperative attitude in Research and Development of this type.[81]

Because of personnel shortage and other matters, certain operational missions were turned over to the Navy at this time. The Mexican, Cuba, Dominican Republic Panamanian, and Haitian, diplomatic problem were turned over on 24 May and steps were being taken to turn over the North European machine cipher problems including Dutch, Finnish, Icelandic, Irish, Danish, Norwegian, and Swedish, personnel conditions temporarily holding up the sift. Navy personnel were also examining the Spanish Government and problems at this time.[82]

The Army Security effort in the direction of more frequent change of call signs was a matter of negotiation with the Navy. In the later stages of the war, certain Air Forces units used frequently changing calls with no noticeable hardship, but the Air Force as a whole continued to prefer fixed signs and asked additional proof of security risks.[83]

In June the organizational structure for closer coordination

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81. ASA 319.1 Semi-Monthly Report, AS-72, 16 May 46 (S).
82. Semi-Monthly Report Cryptanalytic Branch, 31 May 48 (TS).
83. Semi-Monthly Report, Security Division, 29 May 46 (S).

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between the Armed Forces was improved by a reorganization of the State, Army, Navy Communications Intelligence Coordinating Committee by which it was redesignated the United States Communications Intelligence Board.[84] The Agency, however, continued independent liaison relations with other offices. At a conference with representatives of Strategic Services, that unit decided on adopting the SPAM system used by its agents and the extent to which SPAM would disguise frequencies of languages other than English was made an object of study.[85] The Agency continued its close relationship with the Signal Corp Electronic Laboratory after the Agency ceased to be under the Chief Signal Officer. On 17 June 1946 the Chief Signal officer continued the coordination with ASA by authorizing listed ASA Personnel to visit the laboratory intermittently for discussions. The arrangements were on a annual basis.[86] Cooperation with the Navy, Headquarters, Army Air Forces and with the Weather Bureau was involved in ASA participation in the NANOOK project involving search and intercept missions in Greenland for Russian weather traffic. There was to be some airborne intercept. A special strip system was agreed upon for use by the Weather

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84. Deeter Chapters, in Historical Subsection, G-2. Chart for 13 Jun 46.

85. Semi-Monthly Report, ASA Staff, Methods Branch, 1 Jul 46 (TS)

86. General notes on SC and Navy Liaison, Hist. Section files.

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Bureau after coordination with the Headquarters Army Air Force, the Weather Bureau after coordination, and G-2.[87]

Intercept missions continued, ASA Pacific monitored Chinese traffic throughout the year and toward the end of the year intercept stations were set up in Chungking and Nanking.[88]

By the end of the fiscal year 1946, the cryptonet systems of the Army underwent a complete revision. Four world wide and theater nets were superseded by one net, four others were eliminiated, and the eight remaining were consolidated into two nets. Of the 15 special purpose nets, two were replaced by similar nets, three were continued as they were, six were revised, one was reduced, and three were discontinued. This action caused a corresponding reduction in the number of holders of cryptographic systems and documents. From a total of 2,185 accounts in July 1945, the number had dropped to 1,279 by September, and to 952 by October. By the end of June there were 514 accounts. As a result of this contraction of facilities, 2,500,000 pounds of material was returned to the Agency. This included 9,000 cipher machines and devices and 3,000 boxes of rotors, parts, and maintenance kits.

On reaching Headquarters, ASA, all this mechanical equipment had to be examined, cleaned, repaired, and prepared for

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87. Semi-Monthly Reports, ASA Staff, Material Br., 28 Jun 46. Also Summary Annual Report Staff, FY 47, p. 34.

88. Summary Annual Report (ASA), FY 46, Tabs 49, 50, 51, & 52.

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storage. Lack of available personnel left much of this program incomplete by the end of the fiscal year. In spite of this return of old equipment, production of new equipment of course continued, though on a curtailed scale. Yet the decreased demand reduced the requirements for new material. For example production of SIGTOT tapes declined from 17,873 for July 1945 to 866 for December and M-209 keyes declined from 17,840 to 1,400. They needed rotor sets in July 45 and only 270 in December.[89]

In the course of the fiscal year, the Maintenance Branch was quietly completing a number of primary projects. This included the introduction of Speech equipment AN/GSQ-1 (SIGJIP) in the China-Burma-India theater, the introduction of Facsimile Equipment AN/GXA-2 (SIGMEW) in the Pacific Area. Special equipment for SIGTOT was placed aboard the Presidential plane, train, and yacht. Much work was done in the rehabilitation of all Converters B-134-C (SIGABA), M-222 (SIGCUM), and M-294 (SIGNIN). An entirely new set of test equipment was installed in the Maintenance Branch shop.[90]

During the year, the Procedures Section of Methods Branch, Security Division, prepared two courses for a Reserve Officer Training Program, one on Elementary Military Cryptography,

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89. Annual Report, AS-80, FY 46. Tabs 30,33, and 36.

90. Annual Report, AS-80, p. 34.

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including current low echelon systems and the Converter M-209, and one on Basic Practical Cryptography including codes, strip cipher and Converter M-209. The codes studied were high echelon such as the Combined Field Code, and the Strip Cipher was a simple form of the system then in use. In addition a manual on cryptographic material procedure and lesson courses with examinations based on a manual entitled Communication Security for All Armed Services were completed.[91] The rewriting of several extension courses in Cryptology was undertaken by the Office of the Director of Communications Research.

Of 2,169 students who entered the intercept operator, fixed station training between 7 January 1946 and 30 June, 206 were graduated, 598 left on transfer or assignment, and 395 failed. A total of 970 was still in school. The training of student operators did not end when they left Vint Hill Farms; upon their assignment to monitoring stations, they were given needed on-the-job training. A complaint common to several stations was that the new men sent to them were not capable of handling their assignments.[92] The general personnel situation at the end of the year may be summed up as still too few personnel and these too frequently inadequately trained.

Clarification of Army Security Agency responsibilities for

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91. Annual Report, ASA, Staff, FY 46 (S).

92. Annual Report, MS-7 and MS-9, FY 46 (TS).

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Tactical Cover and Deception was the first accomplishment of the Fiscal Year 1947 which started on 1 July 1946. The Agency received primary responsibility for implementing within the Army the communication phases of approval cover and deception plans and policies. The communication phases involved the manipulation of channel of communications employed between the War Department and the major commands and the theaters of operations. Jamming, deception, or search and reconnaissance as regards communications countermeasures were not included. The strategic communication phases were to be carried out by the Agency under the direction of the Joint Chiefs of Staff through the Joint Security Council.[93] These responsibilities were delineated in a War Department letter of 8 July 1946. The Agency was to train certain individual specialists in protective security for the ground forces and the air force. The training would be under the supervision of the Protective Security Branch.

The Agency mission was becomming increasingly important. In Fiscal Year 1947 a number of international conferences provided extensive opportunities for intercept and cryptanalytic activity. The Peace Conference in Paris started on 9 July and extended to 15 October, the United Nations Economic and Social Conference, 3d Session was held in New York in September 1946, the International Labor Organization met at Montreal this same month. The Preparatory Conference for the United Nations Conference on Trade

93. Summary Annual Report, ASA, FY 47. Tabs 28 and 37.

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and Employment gathered in London in October and November, and the United Nations General Assembly, the Council of Foreign Ministers; and sessions of UNESCO and UNRRA took up the rest of the calendar year.

In ASA Europe a very effective coordination of activities was instituted on 19 July by means of Executive Council meetings. Headquarters ASA Europe participated actively in all the meetings held by the Headquarters Command, EUCOM.[94]

In the period after World War II The Agency assumed a more military character. On 26 July supervision of the Office of the Director of Communications Research was assumed by the Deputy Chief, ASA placing the organization under immediate military control. In addition there was other changes. The functions of the Security Control Section were assumed by the Chief, Plans and Operations Section, (WDGAS-81).[95] This organization, which was under the jurisdiction of the Chief Security Division, was redesignated "Plans and Operations, Technical Staff." In addition, another Technical Staff, WDGAS-96, was established to be administered by the Office of the Office of the Chief, Operations Division. This Staff maintained consultant service where advice and suggestions were given on request on any cryptanalytic problems; they developed new procedures and methods in cryptanal

94. Annual Report, ASA Europe, FY 47, p. 6.

95. Staff Report for FY 47, Tab 4.

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and maintained liaison and collaboration with other intelligence centers in exchange of information; and served as a connecting link in providing all possible machine help to the cryptanalysts.

The personnel situation became progressively serious. Lack of trained operators at intercept stations was a major problem. Enlisted men were being released at such a rapid rate that no station was able to keep up to authorized strength at any time during the year.[96] Inexperienced personnel replacements resulted in frequent breakdowns of traffic, both at the source of intercept and at Arlington Hall.

The authorized strength of the Agency in July was 6,845 military and 2,938 civilian personnel. Intercept totals for that month were 79,600 groups.[97] Reduction of mission failed to relieve the personnel shortage.

In accordance with decisions of the Joint Processing Allocations Groups (JPAG), the following problems were transferred to the Navy (CSAW - Communications Supplementary Activity, Washington Naval Communications Station): In July all Siamese communications, in September Portuguese diplomatic, Spanish diplomatic and all other types of traffic transmitted by those countries except those of strictly military interest, in October all Belgian traffic, in June 1947 the Chinese [redacted] communications, and also the French Colonial systems. The change did not

96. Annual Report, AS-94, FY 47, p. 17.

97. WDG-320, Troop Basis Program of 13 May 47; and Summary Annual Report, Staff, FY 47. Tab 131.

EO 3.3(h)(2)
PL 86-36/50 USC 3605

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benefit greatly the personnel situation for most of these transfers of material involved a transfer of personnel.[98]

The Agency was able to benefit to a limited degree in the Post War program for the training of military personnel in civilian colleges and universities, which was outlined on 30 July 1946.[99] Spaces were requested for one officer to pursue technical education at Purdue and for another to study in the officer undergraduate field at Lehigh.[100] Spaces for six more were requested later,[101] but the number of officers who could be spared were limited. This training was only to meet carefully studied requirements of staff agencies and to be restricted to fields not covered in the service schools.[102]

In spite of the shortage of personnel, security qualifications for clearance for cryptographic duties was stiffened in a TAG Policy letter of 18 September.[103] The letter more sharply defined qualifications. It provided that military personnel

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98. Annual Report, AS-93, FY 47, p. 5.

99. Memo, Org & Trng Div, WDGS (WDGOT 900.8), 30 Jul 46, sub: Estimated Requirements for Education of Military Personnel in Civilian Institutions for FY 48.

100. D/F, Ch ASA to Dir of Intel, 8 Apr 47.

101. D/F, Ch ASA to Ch Trng Group, 17 Jun 47.

102. Memo WDGOT ooo.8, Org & Trnf WDGS, for Dir of Int, 9 May 47.

103. TAG ltr, AGAO-S-B-M 311.5 (16 Sep 46), 18 Sep 46, sub: Clearance of Personnel for Cryptographic Duties (C), in Tab 80 of Summary Annual Report, FY 47.

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must be without intimate connection with foreigners, in the United States or elsewhere; they must be citizens, and preferable native born, whose character, loyalty, integrity, discretion, and trustworthiness were unquestioned and be of financial habits to render unlikely their giving way to temptations. Military should be rated personnel. Unless with ten years service, their qualifications would be investigated, the minimum check of references including national agencies and home town police.

In September 1946 when the Agency was threatened with further personnel cuts, the State Department informed the Secretary of War of its concern regarding impending drastic curtailment of communication intelligence activities by the War Department. The letter explained that the communications intelligence actively produced by the Agency was of immediate interest to the State Department because of its diplomatic sources and stated that much of it was of the highest importance in the conduct of foreign relations.[104]

The importance given to the Agency mission by the State Department was a favorable factor in the personnel situation and aided morale toward further development of the Agency. High in priority for improvement was the training program which would permit making the best of personnel available. Training lacked integration and the school had developed to a point where it needed its own administrative structure.

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104. Ltr Dept of State to Sec of War, 17 Sep 46 (TS), in Summary Annual Report, ASA Staff, Tab 30.

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In order to integrate the Agency training program and make it conform closely to actual operating needs, the Chief of each operating division at Agency headquarters was directed on 2 October[105] to appoint a Training Officer. This Officer was charged with coordination of all types of training within the division. In addition, he was directed to collect and forward to Vint Hill Farms School the training material and changes in current doctrines and operating practices peculiar to the division in order that the School might remain abreast of current operations.

The status of the educational establishment of the Agency was improved. On 15 October 1946 the Vint Hill Farms School was redesignated Army Security School, a Class II Activity under the control of the Chief, Army Security Agency. At this time Arlington Hall Station, Two Rock Ranch and Vint Hill Farms were classified SECRET.[106]

The Agency continued to gain in prestige. Toward the end of October the Army Security Agency was invited for the first time to attend meetings of the Research and Development Council of the Department of the Army.[107] Research and Development included many projects. A number of new pieces of equipment were

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105. Hqs ASA Memo #112, 2 Oct 46.

106. WD GO #124, 22 Oct 46.

107. Annual Report AS-90, FY 47, Tab 5.

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developed in the Electronics Section an electric circuit breaker was produced for the IBM type device which allowed the sorting on the Slide Machine to be done at the rate of 150 cards per minute. Previously the accuracy of cut and the mechanical action of the cams in the tabulator had limited the speed to 80 cards a minute. A request was submitted to Research Laboratories Division for a One-Time Pad Machine project. The machine was to utilize the base, keyboard, and printer units of SIGABA, but was to contain no classified cryptographic components. Later in the fall of 1946 the development of a prototype model was completed; when ready for trial it was placed in temporary use at the War Department Code Center.

Another development was a device known as the NC4-J Square Relay Hookup which consisted of an application of new NC-4 machines to J-square relay units. The J-square units were originally attached to pre-sensing gang punches. Twelve position digit selectors, formerly part of the presensing punch, were mounted on the relay units themselves. The NC-4 machines were equipped to handle either the 4-column or 5-column relay units. One of these units was equipped with a Jones Plug outlet to permit coupling two relay units in tandem to one NC-4 machine. These 10 x 10 numeric substitutions of 10 columns of material could be accomplished at the rate of 100 cards per minute. Conversion of these relay units for NC-4 attachment continued into December with 4 in operation.[108]

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108. Annual Report AS-90, FY 47, Tab 5.

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The technicians in the Agency also designed TAN relay units to produce an analog of the [redacted] for use in generating strips of key when certain pin setting s and wheel alignments were known. Any "patching" could be duplicated by external plugging on the key generating recorder unit. The [redacted] was developed which was similar in principal to the [redacted] or in that [redacted] Imitation of a complete cycle of the machine cipher device requires either 2 or 4 card cycles depending on the setting of the sixth of eight wheels. All wheels moved at least one position each machine cycle. A change in setting of one of the wheel movements was indicated on the card by punching a master control column plus a punch in the individual levels controlling the level immediately below. A 26 position class selector which is energized for any one or more cycle effecting the desired offsetting. A circuit controlled by the conditions present in the card causes a distinguishing punch to be punched in only these cards representing a completion of a machine cycle. These "useful" cards are then sorted on this distinguishing punch to separate them from the intermediate cards.[109]

EO 3.3(h)(2)
PL 86-36/50 USC 3605

109. Annual Report AS-90, FY 47, Tab 5.

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Further an 80 position IBM portable relay unit was adapted to perform the function of a verifying unit. The relay unit used contained 80 three-coil relays, two of the coils on each relay being wired on the opposed-coil principle, the third coil serving as a holding coil. A set of 80 indicating lamps were mounted on the relay assembly to indicate errors in the cards compared.

EO 3.3(h)(2)
PL 86-36/50 USC 3605

Relay units were developed to produce an analog of the key generating strips of the [redacted] which was [redacted] One of these was a key generator, consisting of wire contact relays mounted in a small cover the size of a single panel plugboard which hangs on the front of a 513 reproducing punch and connects to the punch through a Jones plug, a multiple outline unit. The wheels of the TAN machine were represented on successive levels of the card. The Key generator unit simulates the motions of the various wheels by offsetting the levels on the card under control of the preceding level on the card.[110]

Among other technical projects completed by the Agency during the year was a device for common short column identification. This device determined possible short-column lengths of transposition cipher text common for the 4 differences punched in the Binary system of notation from the Binary Differencing and Checking Device. The punching in the 4 columns of differences is

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110. Annual Report AS-90, FY 47, Feb 5.

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read out successively to relays corresponding to binary powers. Relay point networks of those binary powers relay direct to a test impulse to energize each of a set of relays corresponding to short column lengths; from 11 to 40 characters may be recognized for four differences. When no common short column lengths are present, the cards passed through the tabulator without listing at the rate of 150 cards per minute. The device included a 201 wire contact relay, and was attached to the tabulator by means of a special 8 x 20 connector.

With new importance given to intercept, two research projects of far reaching significance in this field were undertaken in the Autumn. One project was for the development of multicouplers making possible the interception of a large number of communication signals with a minimum of antennas and associated equipment. The study sought to determine how numerous communication type receivers employed for simultaneous interception of a great many signals, each characterized by a different frequency, could be operated by patching in multicouplers. The frequency range extended from a possible low of 15 kc to a possible high of 300 mc. The first objective was to provide equipment and methods for the range 2-30 mc.

The second project resulted in the very important rock intercept equipment. Objective was an electro-mechanical demultiplexer and printer for fixed intercept station use. The Agency wished to process, demultiplex, and print TAPER 2, 6, and 9 channel time multiplexed auto-

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matic printer traffic. The demultiplexing was to be done by a mechanically rotating distributor. It was to provide, if possible for the exchange of distributor units so that other types of time multiplexed signals might be handled by that terminal. The Rock Intercept Equipment was to be known as [illegible].[110a]

From 255 circuits monitored during a twelve month period a total of 230,031 security violations were found. These ranged from a total of one violation found in the traffic of UCHO, Omaha Signal Center, UTBF, Brooks Field, San Antonio, UCFDT, Fort Dix, N. J. UZVB, Veterans Ad, St. Louis, and WVLH, Hollandia, New Guinea, to a high of 31,465 in the War Department Signal Center (WAR) Washington, D. C. The difference in number of violations does not show the relative degree of correct procedures since the volume of traffic was not equal on all circuits monitored.

The usual activities of the Agency continued. During November, Headquarters, ASA Pacific, moved their radio operations from the Teikoku Building in downtown Tokyo to the 1st Tokyo Arsenal, 5 miles from the center of the city. The message center followed in a few days. A provisional detachment of the 60th Signal Service Company at Fort Lewis, Washington, participated in amphibious maneuvers at Camp Pendleton, California from 22 to 29 November. Personnel included five high speed operations and 29 other operators and five traffic analysis.[111]

110a Annual Report, Research and Development, FY 49 (eq)

111 Annual Report, Org & Trng Sec., FY 47. (TS).

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In Europe, there was a distribution of COMINT from London Signal Intelligence Center. The Navy was to get all Naval activity weather, [redacted] traffic and ASA was to receive all military, military air, and Russian.[112] All [redacted] traffic was transferred to the Navy in October.[113] In November, the Director of Service, Supply, and Procurement stated that ASA had no responsibility for maintenance of signal equipment. It was recommended, however, that the Army Commander be contacted and arrangements made for a mutually satisfactory maintenance procedure.[114]

The traffic analysis that was directed against the Soviet Satellites' [redacted] met with success.[115]

In December attention was focused on intercept activities, the problems of which has been radically altered since the end of World War II. Attention which previously had centered on the interception of currently operational traffic affecting the prosecution of the war, then became focussed on the procurement of world wide coverage to provide communication intelligence to

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112. Memo, Dpty Coordinator for Liaison to ASA and Navy, 7 Nov 47, sub: Eastcote Directors.

113. Annual Report, AS-93, FY 47, p. 5.

114. Summary Annual Report, ASA Staff, FY 47, p. 42 (TS).

115. Summary Annual Report, ASA, FY 47, p. 31.

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those responsible for establishing and maintaining the peace. Intercept targets which during the war has been placed near the bottom of the priority list, began to assume a major significance.[116] The geographic location of Agency stations together with an informal ASA London Signal Intelligence Center agreement concerning allocation of effort tended to direct ASA intercept toward Far Eastern Russian. Here by December, cover was still limited to the coastal area with no major break into Siberian nets. Continued search was carried on to correct this, but during the greater part of 1946 intercept in the Far East was limited to the nets of the [redacted] As the supply of intercept improved, emphasis was placed on search in an effort to break out of the coastal areas and into the East and West [redacted]

Near the end of 1946, as ASA Europe intercepts increased in volume, it became apparent, however, that there was definite need for increased US activity in Europe in addition to what was being done in the Orient. As a result, intercept was increased

116. Annual Report, AS-73, Fy 47, p. 6.

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in Europe to cover the most important links down to the level of the military district group of forces European intercept cover had improved tremendously and promised more growth. It appeared that the quality, quantity and diversity of intercept would improve as operators became more experienced.[117]

With the emphasis on search for new stations and traffic analysis, a study was made to determine the applicability of the Lorenz Curve, in military traffic analysis. The Lorenz Curve was a method of graphically portraying cumulative frequency distributions. Proceeding on the assumption that change in group length of high precedence messages accompany preparations for invasions or other activities, it was expected that the use of this curve would be based on a comparison of the degree and direction of deviation of the curve from the theoratic diagonal. Ordinary bar graphs and simpler forms of graphic presentation were found preferable for portraying this information.[118] Work was also done in December on the military characteristics for a cryptographic device for a direction finding tipoff net. A list of requirements known as Basic Military Requirement 13 (AN/GSQ-4) were found to satisfy all requirements for a cryptographic devices for a

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117. Annual Report, AS-93, Fy 47, p. 13.

118. Annual Report, AS-80, Fy 47, p. 9.

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net of this kind.[119]

With new targets, the intercept stations began to change from the old type of manual monitoring to automatic printer systems. Non-morse transmissions, which has been given little attention during the war, demanded intensive investigation, particularly in connection with the TAPER targets. To meet this challenge of Non-Morse interception, ASA developed and built TAPER equipment which as placed in operation at a limited number of intercept stations. Super Pro radio receivers were found to be too unstable for satisfactory diversity reception and it was necessary to design and construct a stable high frequency oscillator which would be used to inject signal into three separate receivers.[120] After due consideration of the various types of recording mechanisms which could be used in conjunction with the demultplexing terminals such as teletype, IBM etc, it was decided to design in the Agency the terminals for use with teletype equipment because equipment was used at all ASA stations, it was simple and rugged in Operations, suitable for future needs of the Agency, and maintenance personnel and supplies had become available at all intercept stations.[121] The overall method for attack on the

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119. Annual Report, AS-80, Fy 47, p. 17.

120. Annual Report, AS-94, Fy 47, p. 13.

121. Annual Report, AAS-73, Fy 47, p. 8.

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process of developing Non-Morse terminal equipment in the Agency was so successful that many basic features of ASA design have been incorporated in Naval communication equipments. This was made possible by close liaison with the Navy concerning this equipment.

Much attention was being given to the development of a Cryptographic Van, designed for combat operations in the future.[122]

Along with development of new intercept equipment, the Signal Corps Supply Depots began to require specific authorization for issue of equipment to Agency intercept stations. As a result ASA had to publish specific TA for each station, along with a list of maintenance items. Justification of estimated budget requirements were more detailed and required greater long-range planning.[123]

In addition to the Taper Non-Morse activity there was noted a growing interest in the use of Non-Morse on the part of various nations, particularly Argentina, Brazil, and France.[124]

A sequel to the expanding interest in Taper targets was provision by the Language Staff, AS-93 for courses in Russian. A 1 week streamlined course was offered 10 times to a total enrollment of 176. Two intensive courses followed.[125]

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122. Annual Report, ASA-70, Fy 47, p. 13.

123. Annual Report, AS-94, Fy 47, p. 13.

124. Annual Report, AS-73, Fy 47, p. 6.

125. Annual Report, AS-93, Fy 47, p. 10.

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Security monitoring had resumed. Surveillance of War Department circuits was limited due to personnel restrictions, but monitoring of the major circuits of the Army Command and Administrative Network (ACAN) was rotated in order to obtain representative "Spot coverage" of traffic. The SHAMROCK project of obtaining copies of commercial messages continued. One major problem always present was the duplication of prints received to obtain the required number of copies. This made a big burden on teletype operations. Part of this work load was eased when RCA converted commercial circuits to radio teletype and the sending to the Agency of reperforated tape instead of printed resulted. Some other commercial companies had still to convert to radio teletype operation.[126]

Two details regarding headquarters ASA activity are in place here. On 9 December, an ASA comment on a Communications Procedures Manual indicated that the term COMINT had been changed to SIGNINT in order to conform to ASA policy. The term Signal Intelligence was to be used for all Inter-Army policies.[127]

A large scale project for micro filming ASA records was well along in December.[128] During the year, radio teletype crypto equipment was designed and installed in the Presidential

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126. Annual Report, AS-94, Fy 47, p. 9. (~~TS~~)

127. Annual Report, GAS-22 to GAS 83, 9 December 46 (C) in ASA 461, Miscellaneous, Nov. 42.-Nov. 48.

128. Annual Report, AS-70, Fy 47, p. 2.

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plane.[129]

While ASA was improving its intercept facilities and searching out new targets, a number of high echelon decisions of importance to the Agency were being made. Early in January, Headquarters ASA was requested to cooperate in the preparation of testimony for the use of certain War Department witnesses who expected to be called before committees of the 80th Congress on the subject of the unification of the Armed Forces under a single executive department. The point was to be made in this direction that the recent advances in electrical communications and in communication security equipment had changed signal intelligence operations from a study of localized and unrelated problems to one of world wide scale.[130] Near the end of the month the Chief, Army Security Agency submitted to the Director of Intelligence, War Department, detailed recommendations relative to the signal intelligence and communication security functions being transferred to the Air Force under the proposed unification plan.[131] The engagement of the Air Force in strategic signal intelligence activities was opposed in these recommendations, which specified that certain phases of signal intelligence and communication security related to air be taken over by the Air Force. The request for the establishment of Army Security liaison detachments for the

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129. Annual Report, AS-70, Fy 47, p. 13.

130. Memo, Assit Ex for planning to ASA, 6 Jan 47.

131. OIM, ASA TO D/I, 29 Jan 47, Sub, Army and Air Force Organization Matters.

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interim Army was returned from the Director of Organization and and Training to iron out difference with the Air Force.[132] A small matter taken up at this time was the category of cryptographic material[133] in regard to courier handling.

There were developments of an international nature in January, 1947. The [redacted] accepted an opportunity to cooperate in the Bourbon problem (Russian) with some part of the Coleridge problem as an appropriate starting point.[134] On the other hand liaison relations with the Chinese Nationalists were disfavored in a statement to the Director of ASA Pacific that no signal intelligence or communication security assistance could be given the Chinese.[135] On the other side of the world, the Director, ASA Europe was ordered to withdraw from the Trieste Area the ASA Signal Intelligence unit located at Gorizia. This was accomplished on 14 February.[136]

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132. Summary Annual Report, ASA, Fy 47, P.43 (TS)

133. Summary Annual Report, ASA, Fy 47, p.30

134. Radio CB Ottawa to ASA, 15 Jan 47 in ASA 310.102 (TS)

135. Summary Annual Report, Staff, Fy 47, p.17

136. Mssg No 14, Dir ASAE to Chief ASA Sub Detachment operating with 99th Division in Italy closed out.

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Several important developments occurred within the Agency. The 6th Detachment, 2d Signal Service Battalion, was ordered moved from Gross Gerau, near Frankfurt, to Herzo Base near Nurnburg [137] and plans made for an operations building and the erection of an antenna field. This site was to remain the location of the 6th Detachment throughout the interim period.

Increased local importance of ASA theater units resulted from the decision of the Director of Intelligence that overseas ASA directors were permitted to submit technical results of cryptanalysis performed within the theater to intelligence personnel in the local theater headquarters, the Director ASA Pacific bring allowed to submit technical results direct to G-2, Far East Command. The recipient of such intelligence would be properly indoctrinated by the local Special Security Officer.[138]

Back in the Zone of Interior, the ASA Officer's General Course was approved on 22 January 1947 by the Director of Organization & Training, WDGS and the Director of Personnel and Administration of that level concurred a few days later. ASA Staff Officers set out to prepare a program of instructions

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137. Radio, ASA Europe to ASA Washington 14 Jan 47.

138. Summary Annual Report, ASA, Fy 47, p.17.

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for Part I of this course in the Organization and Training Section, ASA.[139] Over in the Pentagon a Russian Plain Text unit was organized for the purpose of exploiting Russian domestic traffic by scanning this traffic and[140] translating significant items for the ASA Bulletin. The unit was authorized by the Director of Intelligence on 16 January.

Interest in both technical and personnel aspects of Agency activity was fostered by the establishment of an Agency magazine. On 13 January 1947, an official memorandum announced that a project had been initiated to publish at Headquarters ASA, the ASA Review, to be a monthly CONFIDENTIAL magazine. Its purpose was to foster better understanding between all members of the Agency and to facilitate the exchange of information of general interest to all personnel. Subject matter was to include technical articles of professional interest to ASA Personnel, news items, descriptions of life and conditions in localities where ASA Units were stationed, personnel and administrative news, cartoons, and pictures, and other features.

"All ASA units and installations will be represented on the editorial staff, the Memorandum said.[140a]

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139. Summary Annual Report, ASA, Fiscal Year 1947, p. 17.

140. Annual Report, AS-92, Fiscal Year 1947, p. 10.

140a. Memo No. 4, Headquarters ASA, 13 January 1947, Sub:Monthly ASA Magazine.

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The original plan for a monthly issue was changed to bi-monthly issue, and the first issue was the May-June 1947 number. Mr. Edwin C. Fishel, WDGAS-23 was Editor, and staff members at Headquarters ASA included Capt. Betty M. McCrahon, Miss Gertrude Kirtland, 1st Lt Marion C. Wilst, Miss Holly Hickes, Mr. Thomas R. Chittenden, and Mr. Alexander G. Ross.

It was referred to as the successor to the monthly publication R-5, and "the official technical and operational bulletin of the Army Security Agency."[140b]

"It will be a semi-technical bi-monthly publication, going into the subject matter of our work and the activities of our organization as deeply as its Confidential classification will allow. It will have articles about people you know and subjects of interest to you, whether you are an intercept operator, or an engineer, a cryptographer, or a secretary in an administrative office" the foreword stated.

Volume 1, No 2 appeared for July-August, and then publication ceased for more than five years. Its suspension for budgetary reasons was announced on 9 September 1947. Attempt had been made unsuccessfully to finance it through local, unappropriated funds.

140b. May-June 1947 issue, frontispiece.

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The first two numbers contained T/Sgt Michael Maslak's account of the attempted escape of a small group of signalmen from the Philippines in an open boat, an appeal for 3-year enlistments, an article on ciphers, an account of new intercept equipment, an estimate of EDGAR ~~William~~ Allan Poe as a Cryptographer, and accounts of personnel activities.

In a few months, efforts were made to revive the publication and in early February 1948 a disposition form was sent to the Secretary of the Army Printing Board requesting that board to reconsider the publication of the periodical "containing material considered essential to the efficiency and morale of the Army Security Agency personnel throughout the world.[140c]

There were delays and the detailed justification for the publication of the Review was not furnished the Adjutant General, D/A, until August. The success of these efforts and the revival of the Review constitute an item for a later study.

Activities at Hq ASA in development and supply of equipment were sustained. Concentration was still on non-morse processing equipment for which military characteristics were forwarded to the Signal Corps by the Agency. A bottleneck in equipment developed because the Signal Corps did not have enough personnel in supply depots to give the Agency efficient service at all times. Maintenance parts were hard to obtain. Authorities for all withdrawals had to be cited in detail. The T/A 32-1 authorizations of September 1946, permitted the Agency to draw

140c. ASA Staff Semi-Monthly Report 15-29 February 1948.

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supplies and the Signal Corps made substantial efforts to provide the equipment, but little was accomplished because personnel were in short demand. Since these supplies could not be drawn from within the theater, the Agency tried to supply the needs of the units in the theaters from Arlington Hall Station.[141]

Personnel from the Army Ground Forces and the Army Air Force in January were beginning a two months course of training in the use of AN/GSQ-3 Speech Equipment. The course was being given by the Research Laboratories Division (AS-70) at Headquarters, Army Security Agency.[142]

In January, intercept totals increased from 89,814 groups of the month before to 123,014 groups. On the operations side IBM card consumption increased nearly one million raising from 4,030,000 to 5,060,000 and nearly 3,000 additional sets of paper were used. In the Security Division, production also jumped ahead. Totals of crypto material distributed advanced from 1,208 packages to 1,906, production of one time tapes grew from 3,573 to 4,756.[143] Change was made in the use of one-time SIGTOT key tapes. Originally both the sending and the receiving tapes were identical in appearance except for a tape number stamped on the outside. Users were therefore frequently mistaking the sending and receiving tapes, both white in color, and the result was frequent compromises because of the use of key for the second time.

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141. Annual Report AS-94, Fiscal Year 1947, p. 16.

142. Ltr Deputy Chief to CO, AFI 28 Aug 46, Sub SIGRIT. In Annual Report AS-80 Fiscal Year 1947, p. 13.

143. Annual Report, AS 0-90 Fiscal Year 1947, p. 3.

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In order to prevent these security violations, the receiving key tapes were colored red. Those receiving tapes already in storage were dipped in a red dye. At the outset of this change placed a considerable burden on production, but the difficulties were soon overcome.[144] Production was stopped on M-209 keys and the personnel were used in the heavy workload in the One Time Tape Room.[145] To provide personnel for these outstanding activities, the Traffic Analysis Section of Protective Branch, Security Division, was discontinued in February and all personnel reassigned. Other phases of traffic analysis continued to be performed in the Operations Division.[146]

Other activities at Headquarters ASA also were heavy. The total number of instructional documents, indicator lists, and other crypt material rose from 508,927 pages to 2,343,744 pages.[147] The calendar year 1947 was opening with the Agency back in its stride.

Out in the field, the chief development in February was the beginning of construction of a new installation 5 miles East of Seoul, Korea, in order to expand existing intercept facilities, which then consisted of only one 4-position installation operated by the first operating platoon of the 126th Signal Service Company. The new 4-position installation was to be operated and maintained by the 111th Signal Service Company, then stationed in Luzon, at a location considered unsuitable for the missions. The 126th was returned to Japan upon the arrival of the 111ths in Korea.[148]

144. Annual Report AS-SO, Fiscal Year, pp 12, 13.

145. Ibid, p. 7.

146. Summary Annual Report ASA, Fiscal Year 1947, p. 7.

147. Annual Report AS-SO Fiscal Year 1947, Tab B-20.

148. Annual Report ASA Staff, Fiscal Year 1947, p. 13.

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In support of the security aspects of the Agency mission, research and development effort continued to be made in the field of cryptographic devices. In February the London Signal Intelligence Center made available certain new and revolutionary principles incorporated in the RM-26 which they had developed there.[149]

The United States Army continued to reply on the SIGABA although considerable work as being done on the SIGJODO and HALF JODO, two development projects originated by the Navy. A disadvantage of the SIGABA was that it was not possible to use it directly for teletype transmissions. For the SIGABA printed cipher text on a tape, which then had to be typed manually on the type keyboard. In the case of incoming messages, the SIGABA received the teletype printed copy and typed it manually on the SIGABA keyboard in order to decipher the message. Consequently, much time was lost by the necessity for two keyboard operations and in message centers where traffic volume was high this item created a serious problem.[150]

To overcome this difficulty the SIGJODO was developed. Briefly, it took the signal output impulse of a SIGABA (or SIGROD) and converted it into its 5-unit teletype equivalent. This equivalent could then be transmitted directly over the teletype (if on-line), or punched into a tape for later trans-

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149. Annual Report ASA Staff, Fy 47, p 12, (~~TS~~)

150. Annual Report, Fy 47, ASA-80, p. 11 (~~TS~~)

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mission (off line). In the case of incoming messages the SIGJODO took the teletype impulses received from the circuits and converted it to deciphering impulses on the SIGABA the result being automatic decryption and printing of the plain text message on the SIGABA tape.[151] The conversion of signals involved proved to be a technical problem which has ever been wholly solved from the engineering point of view. In fact it became more practical to modify the SIGJODO for use only for automatic decipherment of incoming messages. This modification is the HALF-JODO. For outgoing messages the double operation of encipherment and transmission was then still needed, but this was found to be minor compared with the impossibility of using SIGABA or SIGROD alone. Moreover, message centers serving large headquarters where automatic operation was most useful, normally received much greater volume of traffic than they sent out. During FY 1947 the SIGJODO and the HALF-JODO were still in the stage of development and interimuse.[152]

In February 1947 because of requests from ANKARA and SINGAPORE for a high grade cipher machine the problem of issuing cipher machines in sensitive areas had been examined. ASA was already making plans for a general replacement of SIGABA with SIGROD (because of security dangers from the Reds). It was finally decided, since the Navy had assigned a similar

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151. Annual Report AS-800, Fy 47, p. 12.

152. Ibid.

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machine (CSP 1700) to a limited number of their attaches, that the Army would also issue SIGROD to attache offices. The Director of Intelligence on 30 July published a letter setting forth the requirements for issuance of SIGROD.[153]

The variation in voltage and power cycles in different countries created a serious problem in the use of cipher machines in the Military Attache Offices. The motor in the SIGABA, SIGROD, SIGBRAT, and SCP 1700 was designed for 115 volt, 60 cycle operation, but could be used for AC voltages varying between 70 and 130 volts, and for frequencies varying between 38 and 70 cycles if the centrifugar cutout switch spring was replaced with a different part. This replacement was an innovation permitting the installation and the use of the CSO 1700 at various Military Attache Offices where the power supplies fall with the 70-130 volts and 40-60 cycles. Further research was needed to make possible conversion for other voltage and cycles.

In the meantime, the location of units received attention. In March progress was made toward the relocation of two ASA units. It was decided to move the 9th Detachment from Las Pinas to Clark Field, Luzon, a distance of approximately 60 miles. The proposed move was a sequel to the granting of Philippine independence.[154] On the other side of the world on 5 March, movement of the 6th Detachment from Gross Gerau to

153. (Study: Issuance of SIGROD to Military Attaches, 1947. AS-80)

154. Annual Report, ASA Staff, Fy 47, p. 8 tabs 2 & 3.

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Herzo Air Base was completed. The base was located on a large plateau approximately two miles square, 333 feet above sea level without mountains in range of vision. Proximity to other United States Forces at Nurnberg provided protection. Tests conducted on medium and high frequency bands indicated that the site had a minimum of man-made interference. Barracks of sound construction offered suitable facilities and adequate heating. Clubs, a snack bar, a post exchange, and a theater had been provided by the Engineers who occupied the unit prior to the arrival of the detachment, the 52d Signal Service Detachment, the Mobile Direction Finding Unit and the 2d Radio Squadron Mobile had already reached the base.[155]

There were four redesignations in March. On 9 March the 3377th & 3378th Signal Service Detachments of ASA Pacific were redesignated 50th & 51st Signal Service Detachments, respectively. On 20 March the 3126th and 4030th Signal Service Companies at Vint Hill Farms Station were redesignated the 508th and the 507th respectively.[156] The 508th was a holding company for headquarters personnel. It was carried at zero strength until November.[157]

The Research and Development Division was redesignated the Research Laboraties Division. On the same date the

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155. Summary Annual Report, ASA Herzongenaurach Air Base Tab 1.

156. Annual Report, ASA Staff, Fy 47, p. 8.

157. Annual Report, Vint Hill Farms Station, Fy 47 Tab E (9)

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Director of Communications Research was redesignated as Chief, Communications Research Section. The title director was to be reserved for the heads of General Staff Divisions, WDGS.[158] New personnel were added in support of his mission.

The matter of liaison organizations again arose. Physically locating the Joint Processing Allocation Group, the Joint Intercept Control Group, and the Joint Liaison Group at ASA or at the Navy Security Center was recommended by the Chief, Army Security Agency.[159] Technical material was standardized by publication. A new document, SIGMAP-2, Reports of Compromise of Cryptomaterial and Violations of Crypto Security, was approved as a War Department document.[160]

Authority of the Chief in organizing and equipping units was made more explicit. In April, War Department Technical Manual 20-410, Development and Preparation of Organizational and Equipment Authorization Tables was published, delegating to the Chief, ASA authority for the preparation and approval of tables of organization and equipment, and equipment modification lists as well as changes thereto for existing units assigned to ASA. It was specifically stipulated that this authority would not apply to the activation of new units. In

158. Summary Annual Report, Fy 47, p. 7.

159. ASA 310.101.

160. ASA 461, IRS 80 to 20. 4 March 47.

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this month the chief developments were at Headquarters, ASA. Here a total of 6,220,00[illegible] IBM cards were consumed, a peak month. Likewise the IBM paper consumption high a high of 261,100 sets. I B M machine rental was $22,238.15 highest for several months.[161]

The production of one time tapes was down a little from March, but still the highest for the calendar year so far, 6,815 tapes. And Crypto material production rose to more than a million for the first time since January, with 1,238,836 as opposed to 448,659 for March.[162]

Training in foreign languages was extensive. In April there were four non-intensive courses in Russian.[163] In the microfilming project, 750,000 documents had been processed.[164]

In April, a Japanese monitoring station was organized and set up in Japan by the Civil Communications Section of GHQ FECOM. ASAPac supplied the information needed relative to records to be maintained and scope of desired missions. This new installation monitored for unauthorized transmission, and forwarded their material to Wq ASA-Washington.[165]

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161. Annual Report AS-90, 1947, Tab 3 (TS)

162. Annual Report AS-80, Fy 47, Tabs B-22 and B-24.

163. Annual Report AS-93, Fy 47, p.10.

164. Annual Report AS-91, Fy 47, p.3.

165. Radio Msg. ASApac to ASA, 24 April 1947.

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In AS-80 a long and expensive project came to a melancholy end. On 10 April action was taken to declare Converter M-325 (SIG FOY) obsolete. This device had been developed to fill the need for a secure, low-echelon cipher machine and to replace the Hagelin Machine, M-209. Between November 1943 and November 1944 a total of 12,000 machines had been manufactured at a total cost of $1,800,884.85. Service tests indicated that the machines were not practical, and several attempts in the next two years were made in order to improve the machine and slavage something from the cost of the project. All attempts failed and it was necessary to declare the machine obsolete. The incident furnished a striking example of the risk of going into mass production before the completion of adequate service testing.[166]

In May there were 154 I B M machines which consumed 4,970,000 cards and 227,400 sets of paper.

In the final month of the Fiscal Year 1947 intercept totals were down to what they were the previous August, 119,000 groups, dropping steadily from the peak in March.[167] There were 43,300 Morse and 20,000 Non-Morse messages processed and distributed that month. For the morse, Naval items, police, and weather were the most numerous with a combined total of 21,400, and Military came next with 7,200. Diplomatic followed with 6,900. There were 3,300 plain text morse messages and 8,875

166. Annual Report AS-80, p. 20.

167. Annual Report AS-90, Fy 47, Tab 3.

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EO 3.3(h)(2)
PL 86-36/50 USC 3605
EO 3.3b(6)

non-morse, making over 12,000 messages picked up in the clear. A total of 5,500 scrambler messages were processed. The Non-Morse unit, was greatly expanded, and by the end of the year was taking care of 70 per cent of the intercept volume.[168] To handle this volume I B M machines punched out millions of cards at about the same rate for May.[169] In the field of cryptography much interest was aroused when

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In the field of ciphony, an important high-light was the designing and developing of a high echelon, high security speech equipment, AN/GSQ-2, 3, (SIGRIT), for mobile operation in a trailer and also in an airplane, which was developed for the Ground Forces and the Air Force. The Army Ground Service tested this equipment from March until June, and arrangements were completed for the Air Force to give it similar testing. Research was also done on another device for

168. Annual Report, ASA-93, Fy 47, p. 19.

169. Annual Report, AS-90 Fy 47, tab 3.

170. Annual Report, AS-93, Fy 47, p. 85.

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the Army Ground Forces, Speech Equipment AN/GSQ-5, a high security device for use with telephones in medium echelons. The major components were developed at Arlington Hall Station.

Work was also carried on in the miniaturization of cifax and teletypewriter adapters. A laboratory model of speech equipment AN/GSQ-4 was made, using as a basis a magnetic tape recorder, which had been captured from the Germans at the end of the war. This model made it possible to test easily various transpositions and interlocking elements of enciphered speech in an effort to improve the insecure features inherent in the old speech equipment AN/GSQ-5 (SIG JIP).[171] Contract was set in June for recording and reproducing equipment to be used as an analytical tool in studying various ciphony and time and frequency multiplexed signals. The device was needed for operational use to record signals where no terminal equipment was available. The contract was for development of a precision graphic recording,[172] the figure named was $93,509.35.

Other important items of development were special vacuum tubes which were adapted to a pulse type system, replacing a mechanical component with an electrical component. In Cifax the emphasis was in improving the Facsimile Equipment SPR-3D, a medium high echelon system for the Air Force

In the electronic and electro-mechanical fields the Agency carried on the development of rotors and tubes for Converter M-519()/TG, a highly secure teletype cipher machine for

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171. Annual Report AS-70, Fy 47, p. 13.

172. Annual Report AS-73, p. 7.

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use by the Ground and Air Forces. The year closed with the machine still in the Research and Development stage. It was designed to increase the security of teletype signals employing the Daudot code. The cryptanalysis could then solve enciphered teletype messages whenever two messages in depth has been intercepted. The Converter 519 was designed to approximate the very high capacity of the SIGABA in that solution of messages would require interception of at least 25 messages all enciphered exactly in the same key. Since it was not likely that so many security violations would occur in the same traffic of any given day, all of them in exact depth, the possibility of successful cryptanalysis of traffic from this machine appeared to be negligible. The Converter was planned eventually to replace the SIGABA because of its security and the SIGJODO and HALF JODO because it would afford a means of automatic encipherment-decipherment at least as rapid as that provided by them. Maintenance would be made easier.

The Agency likewise developed and produced the first completely electronically-governed motor for use with teletype, replacing the mechanically governed motor.[173]

On 12 June 47, the State-War-Navy Coordinating Subcommittee for Military Information Control (SWNCC-MIC) voting upon establishment of a set of combined security regulations, authorized collaboration with the Britians in the improvement of their combined cipher machines and in the development of a low echelon cipher machine for combined use.[174]

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173. Annual Report A3-70, Fy 47, p.13.

174. Annual Report ASA Staff, Fy 47, Tab 11

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Effort was made for the development of linguistic resources to pace the progress in research and development. Elementary, intermediate reading, and advanced senior crypto translator courses in the Russian language were offered at the end of June. The elementary course met 40 hours a week.[175]

In this year a study of security classification indicated that SECRET messages appeared to be constantly longer than messages of other classifications. It was recommended that the practice of basing cryptograph indicators on security classification of messages be discontinued, although final action was not taken at that time.[176]

Prior to 1947, in spite of the general security mission assigned to the Agency, the Chief of the security group, Office of Chief Signal Officer, continued to exercise some staff supervision of the security of signal communications. On June 10 the Director of Intelligence in an Inter-Office Memorandum, relieved the Chief, Security Group, OCSigO, of all responsibility for such staff supervision and assigned these responsibilities to the Chief, Army Security Agency.[177]

Another development in the evolution of the authority of the Chief, Army Security Agency as was the publication of War Department Circular 170 on 30 June 1947 which stated that the Army Security Agency was authorized to procure, distribute,

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175. Annual Report, Operations Division, Fy 47.

176. Annual Report AS-84, Fy 47, p.9.

177. Summary Annual Report, ASA, Fy 47, Tab 40.

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and account for all Navy cryptographic publications required by any element or agency of the Army.[178]

At the end of the year, plans were afoot for the establishment of an Army Security Agency Headquarters in Hawaii, similar to the-ASA Pacific and ASA Europe and for another headquarters in Alaska and a liaison detachment at the Army Ground Forces.[179]

In July responsibility was given the Agency for a small but important operational unit and measures were taken to provide civilian components. On the first of the month the responsibility for Detachment V, which had been operating under the Intelligence Division, General Staff as Project 78, was transferred by the Director of Intelligence to the Chief of the Agency. The detachment had personnel in certain attache offices.[180] A large civilian component strength was needed to meet mobilization demands for the peace-time authorized strength of the Agency at that time was only 416 officer and 3,603 men, and actual strength was much less.[181] A valuable sourse for the expansion of the Agency officer Corps was a system of ROTC colleges. On 1 July, ASA units in three colleges were activated on a directive of Hq, Army Ground Forces dated 18 April 1947. A unit consisting of 75 students,

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178. Ibid, page 12.

179. Ibid, Page 47.

180. Summary Annual Report ASA, Fy 47, Vol 1 p.11 and Tab 13 (TS)

181. Ibid, II, Tab 113.

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one officer instructor, one enlisted instructor, and one maintenance man was activated at each of the following: Massachusetts Institute of Technology, Texas A & M College, and the University of Illinois.[182] Although the organized Officer Reserve was increasing, the Enlisted Reserve remained small.[183] In the course of the year, files of 35,000 former enlisted men were screened and 10,500 circular letters mailed out to enlarge the corps of enlisted reserves; success was small. Further training of reserve officers was also receiving attention. Responsibilities for the administrative functions of the ASA Officer, General Course, was assigned to the Officers Training Divisions of the ASA School. Most of the instruction was at Vint Hill Farms Station.[184] Few were enrolled.

Along with efforts to build the Reserve, attention was given to improving facilities for clearing personnel for duty with the Agency. On 9 July the Security Control Section, Headquarters, ASA, was reactivated to assume responsibility for initiating investigations of new personnel.[185] This action marked the end of a considerable period of experimentation in the field of personnel clearances following the war. The

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182. Ltr, Hq, AGD, to CG's of Armies, GNGCT-16, dated 18 April 47.

183. Annual Report, Organization and Training, AS Staff, Fy 48, (S)

184. Annual Report ASA School, Fy 48. (TS)

185. Memo, Hq, ASA, No 93, 9 July 1947.

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mission was performed for some time in the Office of the Provost Marshal; then these duties were given temporarily to a Security Control Section which was soon inactivated an the duties continued in Plans and Operations Section. After a period of a few months, it was decided to reactivate the Security Control Unit which continued thereafter, evolving into the G-2 Section of Staff.

While the Agency was building a reserve for its future needs and setting up improved procedures for clearances, activity in connection with its continuing mission were increasing in the European Theater. The liaison office in London where the office of liaison officer rotated between the Army and the Navy was becoming established and on 1 July a standing operating procedure was established for sending personnel on temporary duty to London for liaison work. The personnel were placed on TDY in the office of the military attache there.[186] In accordance with policy adopted by the US Communications Intelligence Board all U. S. Signal Intelligence personnel in England are representatives of this board and operate under the supervision of the Senior Liaison Officer, London. This group of American officers is responsible to the U. S. Communications Intelligence Board through the coordinator of Joint Operations in Washington. Inasmuch as the Army Security Agency was committed to the use of this channel, it was necessary that operational matters of concern to ASA Europe funnel through

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186. Annual Report, ASA Fy 48, Vol 1, Tab 80.

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Headquarters ASA in order that they be cleared as in accordance with USCIB policies before being channeled the rest of the way to London, as the Chief of the Army Security Agency had explained to the Chief of ASA Europe. There was no objection to an exchange of messages on routine matters like TICOM directly between ASA Europe and London.[187] Because of this necessarily complicated command liaison structure, the presence of these ASA liaison representatives in London was necessary.

On the continent the establishment of facilities for the intercept of teletype landlines through the repeater station was increased from three circuits to seven during the year. Tapes containing the intercepted traffic were scanned by personnel at Headquarters, ASA, Europe and the abstracted cipher was forwarded by radio to Hq, ASA. Plain text messages went by courier. A similar facility for landing intercept of landline teletype was planned for Salzburg, Austria.[188]

In Fiscal Year 1948 the trend in foreign commercial communications continued toward unlimited types of codes and cipher systems. Most of the countries no longer imposed restrictions upon private and commercial users of cryptographic communications. A large volume of unidentified commercial traffic was filed unprocessed because of lack of personnel.[189]

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187. Classified Msg, Hayes to Director, ASA Europe, 24 Jan 47.

188. Annual Report, ASAE, Vol I, Part II, p. 37.

189. Annual Report, AS-9[illegible], Fy, p. 215.

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The most improtant trend in Soviet communications was the continuing improvement in security measures. The majority of these measures provided only short-range security, but were effective in that they created temporary complications and required the assignment of additional personnel to the problem. Examples were: beginning to encipher messages instead of sending them in the clear; encipherment of serial and pad numbers in messages; encipherment of routing instructions.[190]

[redacted]

While these figures are confused by duplication of intercept, improved intercept facilities, and varying dates of receipt of traffic, it yet indicates a large and growing bulk of such traffic available for study.[192]

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190. Annual Report, AS-93 Fy 48, p. 18.

191. Annual Report, AS-93, Fy 48, p. 46.

192. Annual Report, AS-93, Fy 48, p. 56.

EO 3.3(h)(2)
PL 86-36/50 USC 3605

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EO 3.3(h)(2)
PL 86-36/50 USC 3605

[redacted]

Major intercept links for the summer of 1947 consisted of international communication radio links between Central Europe and Asia, the Balkan countries and some South American Republics.[194]

[redacted]

193. Annual Report, ASA-93, Fy 48, p. 20.

194. Annual Report, Plans and Operations, Fy 48, p. 8

195. Annual Report, AS-93, Fy 48, p. 67.

Doc ID: 6560898

EO 3.3(h)(2)
PL 86-36/50 USC 3605

[redacted]

196. Annual Report, As-93, Fy 48, p. 166.

197. Ibid, page. 187.

EO 3.3b(6)
PL 86-36/50 USC 3605
EO 3.3(h)(2)

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EO 3.3(h)(2)
PL 86-36/50 USC 3605
EO 3.3b(6)

198. Summary Annual Report, ASA Fy 48, p. 62.

199. Summary Annual Report, ASA Fy 48, p. 62.

Doc ID: 6560898

EO 3.3(h)(2)
PL 86-36/50 USC 3605

[redacted]

200. Annual Report, AS-94, Fy 48, p. 90.

201. Annual Report, AS-93, Fy 48, p. 95.

202. ASA Annual Report, Plans and Operations, Fy 48, p. 8.

203. Annual Report AS-93, Fy 48, p. 107.

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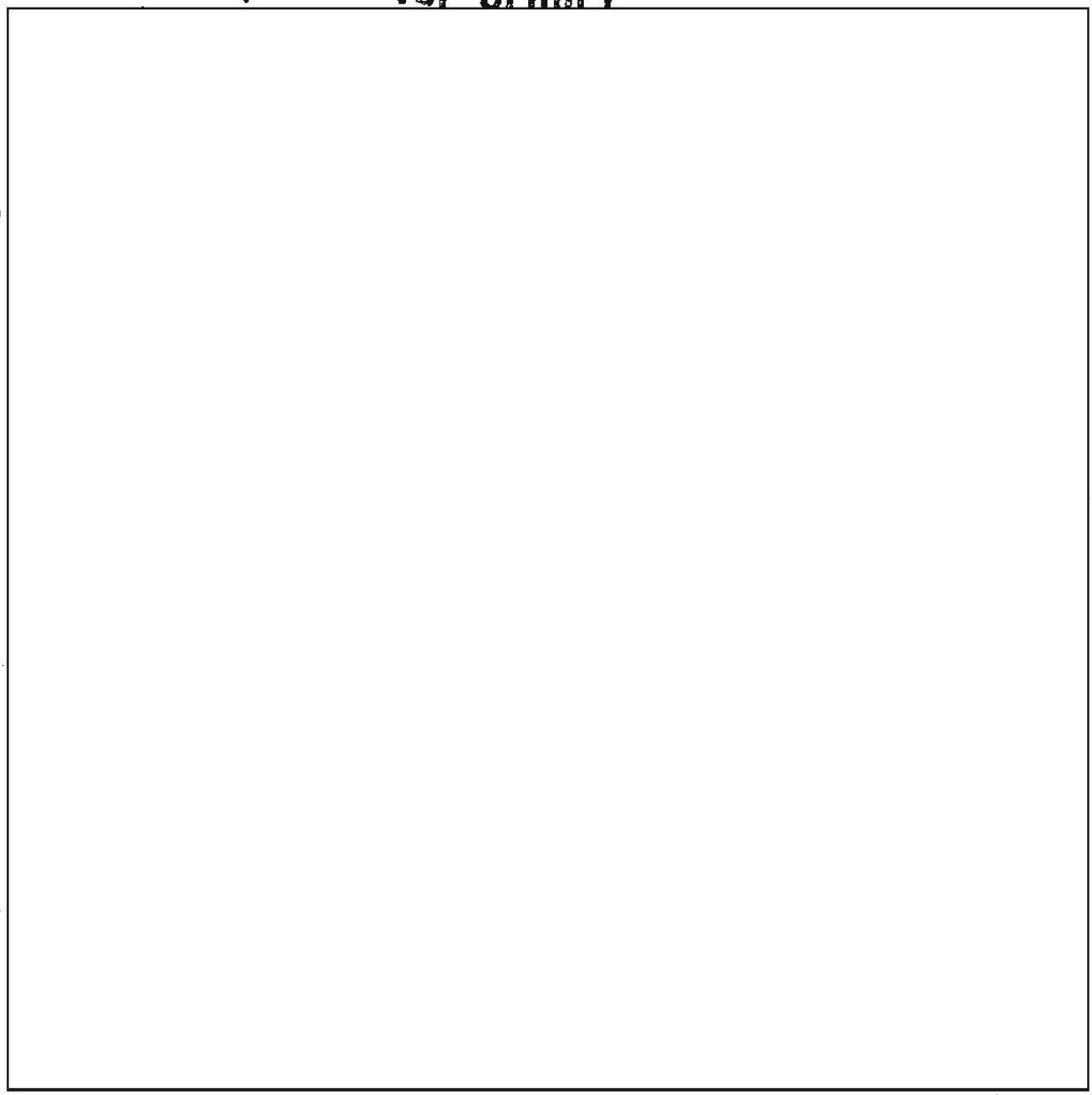
EO 3.3(h)(2)
PL 86-36/50 USC 3605



204. ~~Ibid p. 102~~. Ames Report, AS 93, F148, b.10a

205. Ibid p. 101.

206. Ibid p. 104 and 105.

207. Ibid p. 99.

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On 1 July a document conversion plan went into effect resulting in a simpler, sounder, and more comprehensive presentation of security policy and a reduction in the number of documents printed and in the size of the documents themselves.

A change from literal to numerical short titles ~~were~~ advocated and elimination of the "Sig" titles and the use of system numbers was involved. In the old system, ASA Crypto material had been designated with short titles regularly beginning with SIG- (SIGABA, SIGNUM). With the Agency expanding and newer equipment being developed, confusion was likely to exist in field operations if the older terminology continued. The old method of long and short titles had resulted in a system allowing insufficient adaptability to the handling of complicated equipment and associated material. Therefore, at the stimulus of the Chief Signal Officer who pointed out that the trigraph SIG was allocated to the Signal Corps and no longer appropriate for ASA usage, a new system was devised for gradual introduction. Replacing the trigraph SIG was the trigraph ASA, to which was added a fourth letter indicating the type of material of the individual item according to the following table:

B Basic Document	P Production (Keys)
D Crypto Device	R Rotors
F Cryptanalytic Equipment	S Strips
G General Crypto Documents	T Tapes
K Key Lists	X Cifax Equipment

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L One-Time Pads (hand) Y Ciphony Equipment

M Crypto Machines Z Codes

N Intercpet Equipment

Since most of these letters are the initial letter of the name of the type they designate, it is easy to recognize the item. In addition, a digit was added to the tetragraph to represent the model or individual item, thus ASAM-1 is the first cipher machine, Converter M-134-C, formerly known as SIGABA. The principal items now in use are as follows:

NEW TITLES

ASAM 1	Converter M-134-C (SIGABA)
ASAM 1A	Cipher Unit Basket (SIGIVI)
ASAM 1B	Special Cipher Unit Basket, CCM, (SIGAMUG)
ASAM 1/1	Crypto-operating Instructions (SIGQZF)
ASAM 1/2	Maintenance Instructions (SIGKKK-2)
ASAM 2	Converter M-228(SIGCUM)
ASAM 2/1	Crypto-operating Instructions (SIGMES, SIGMIK, SIGMOM, SIGYEG)
ASAM 2/2	Maintenance Instructions (SIGHOBY)
ASAM 3	Converter M-228 Modified (SIGHUAD)
ASAM 3/1	Crypto-operating Instructions (SIGLOP)
ASAM 4	Converter M-294 (SIGNIN)
ASAM 4A	Cipher Unit Basket (SIGROCO)
ASAM 4B	SAFE (SIGPRAB)

208. Annual Report, AS-80, Fy 48, p. 18.

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ASAM 4/1	Crypto-operating Instructions (SIGPOB)
ASAM 4/2	Maintenance Instructions (SIGDOLM)
ASAM 5	Converter MX0783/U SIGROD)
ASAM 5/1	Crypto-operating Instructions (SIGBEC)
ASAM 5/2	Maintenance Instructions (SIGLIL)
ASAM 7	Converter MX-507 (proposed)
ASAM 12	Converter Attachment AN/CMC 12 (HALF JODO)
ASAT 1/1	Operating Instructions for One-Time Tapes (SIGSAP)
ASAT 1/1	Operating Instructions for the Strip Cipher Device (SIGUHR)
ASAG 2	Cryptographic Operations
ASAY 2	Speech Equipment AN/GSQ-2

With the international situation becoming increasingly tense, plans were instrumented to safeguard certain high grade cryptoprinciples. In areas where danger of physical compromise were increasing the high level cipher machine ASAM-1 (SIGABA) was withdrawn and replaced by ASAM-5, SIGROD/CSP 1700, a machine affording adequate security by employing a crypto-principle already known, and therefore lessening the danger to communication security if physically compromised.[209] The program of replacement by ASAM-5 to all military and air attache offices was instituted by the end of the month.

In the laboratories at Headquarters, ASA, the man hours and material in wiring and soldering cipher machines rotors was greatly reduced. A new rotor was developed using circuits

209. ASA historical study, Issuance of Cipher Machines to US Military Attaches, 1947.

which are "printed" with metallic substance on a non-conducting plastic plate. Where the old method required the services of a skilled worker for at least one half hour to produce one rotor, the new technic made it possible for 3 workers to produce 1,000 such rotors a day.[210]

Further, a policy was established to design a base crypto equipment which could be used with different interchangeable cipher components. This, with one component, the machine could be issued to low-echelon groups for field testing training, or maneuvers without danger of compromising a high grade crypto principle. On the other hand, the use of another cipher component converted the machine into a high level equipment with greater security. One base component thus fulfilled the purpose formerly requiring two different cipher machines. Emphasis was also placed on decreasing the size, volume, and weight of mechanical equipment, which resulted in reductions up to two hundred and three hundred percent.[211]

When a large group of special military characteristics for Air Force equipment were received, it was necessary to revise the philosophy of design of the entire cipher machine program. Or it would have been impracticable to build a large number of individual equipments for each special re-

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210. Annual Report AS-80, Fy 48, p. 10.

211. Annual Report, AS-70, Fy 48, p. 5.

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quirement, hence the policy was established to design a base unit that could be used with various and different cipher components.

The one base unit would fulfill most requirements for teletype encryption and thus satisfy at once the military characterics for the Air Force and the Army Field Forces for several machines. In addition to the economy in manufacture and development, this type of construction has valuable cryptologic advantages which may be summarized.[212]

Experiments were conducted to determine whether electronic devices or circuits could be used to replace many of the electro-mechanical or all mechanical components, so as to eliminate troublesome moving parts. It was found that a wholesale use of electronic circuits would not of itself bring about a weight reduction or increase readibility of operation, but that a judicious and skillful mixture of electronic circuits and electromechanical elements could result in tremendous improvement in weight and size as well as in efficiency of operations. A typical example was power supply. A single dynamo, which weighed about 22 pounds, was designed to replace the ASAM-9 and individual D C power supplies. The result was a reduction of about 6 pounds and one fourth the volume.

Development of Converter ASAM-4 (formerly M-294-SIGNIN) to replace the large Converter M-228 (SIGCUM) and its heavy

212. Annual Report, AS-80, Fy 48, p. 5 and 7.

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and bulky 131 teletype set, had progressed during the year to the point where service tests were planned by the Army Field Forces at Fort Fort Bragg and also in the Air Force. This machine was designed as an integrated tele-crypto-mechanism. That is, it combined in one package the two separate units mentioned above. Either keyboard or teletype tape signals could be used. The security was of the same grade as that of Converter M-134-C (ASAM-1, or SIGABA.)

A project of original promise resulted in a $40,000 loss when the SIGJODO, the device designed to shorten the time needed to convert SIGABA encryptions into a form capable of being transmitted by teletype, was found not to measure up to expectations.

In actual operation it turned out that the SIGJODO was even slower than the combination of the SIGABA and the ordinary teletype keyboard transmission, and maintenance of the SIGJODO was very high. Moreover, the heading had to be punched separately on the tape before transmission and it was found that WDSC was actually repunching the tape, thus eliminating all the advantages which SIJODO was designed to accomplish. It was therefore decided not to issue SIGJODO to field units and to disassemble 23 of the 25 existing units. The total cost of the project was $125,000 and $85,000 was salvaged from usable parts.

Reports on the operation of the Half-JODO, ASAM-12 were much better and no mechanical or electrical difficulties have been found in its use. For this reason, later in the year,

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a circuit was made which permitted the ASAM-12 to be used for both encipherment and decipherment, instead of only decipherment as in the original models.[213]

In the fields of ciphony and cifax development was toward reduction in size, weight, power, and maintenance requirements and an Air Force testing of Speech Equipment ASAY-2 and ASAY-3, AN/GSQ 2,3, the high echelon replacement for SIGSALLY. The program called for completion of cifax and teletypewriter adapters to be associated with this new speech equipment, completion of keyer components to be incorporated into both ciphony and cifax equipments, construction of a breadboard model and completion of contract negotations for an ASAY-2 terminal, and preliminary investigation of televisions techniques. Air Force tests started in July resulted in modifications to improve reliability, eliminate much key generator maintenance, and increase flexibility and security.[214]

Research and Development techniques of the Agency were at their best in the project for Speech Equipment ASAY-7, a key generator for radio set AN/TRC-25., point to point line of sight device. A security test for the proposed device was necessary and a study of cipher resulting from the encipherment of random noise was required to determine if the device

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213. Annual Report, AS-80, Fy 48, p. 12.

214. Annual Report, AS-70, Fy 48, p. 6.

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would compromise itself when used. For this purpose it was necessary to construct analalog of ASAY-7 and generate some 50,000 elements of key, according to the proposed requirements of the ASAY-7 Generator. To carry out the project a special relay device was designed and constructed using the principles developed earlier for the [redacted]

A Threshold Discriminator was designed for the requirements of a cryptanalytic problem in the [redacted]. One step in the processing consisted of subtracting possible key from cipher on an I B M tabulator printer. [redacted] Wire contact relays were energized by the digits to be counted. Voltage impressed on the control grid of a vacuum tube were varied and a tube relay energized by a conducting tube was used to indicate the digit whose frequency caused the listing.[216]

The standard "relay gates" or frames for making available for I B M devices the many hundreds of relays which had been of duo type was replaced by all purpose wire contact relay "gate" which required only a fraction of the current. In

215. Annual Report AS-92, Fy 43, p. 12.

216. Ibid, P. 14.

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addition an increase in the number of relays as well as in the number of points of each relay brought out the plugboard made the new piece of equipment more versatile than the older type it replaced.[217]

In the decipherment of simple columnar transposition messages, the columns were written from the key-punched text on a card operated typewriter. Since most messages demanded both short columns and long columns, the problem of producing a strip of text of varying length hindered the production of work of this type. A count device was developed which eliminated the difficulty by counting the strokes of the typewriter. When a pre determined critical value was reached in the counting device, it halted the card feeding and started the machine. The count device consisted of 2 stepping relays (minor switches) and 5 duo-relays which obtained the stroke impulse for counting.[218]

In order to furnish the cryptanalist with a printed record of the mark-space pattern of key tapes and to provide the various totals as required, a tape worksheet was devised. The listings to be used as a worksheet in cryptanalysis.

All five levels of the baudot teletype code were listed simultaneously, an 'X' indicating a mark and a [illegible] a space. At the end of the take a total was printed showing the length of key. The device consisted of a teletype tape reader con-

217. Ibid.

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nected to a tabulator. No special equipment such as relays or cams was required since the selector and counter capacity of the printer was more than adequate for the work.[219]

The new equipment and the adoption of further machine techniques were soon felt in operations. With the aid of these machine techniques the [redacted] was solved in July.[220]

In July, intercept totals were the lowest for the year, 110,130 groups.[221] Back in headquarters, 5,570,000 IBM cards were consumed in cryptanalytic activity.[222]

Europe made good progress on assumption of Russian military cryptanalysis and traffic analysis missions during the year.[223]

As has been indicated, planners in the Army Security Agency had been active for some time in formulating plans anticipating the separation of the Air Force from the Army and the Unification of the Armed Forces, which was accomplished by the National Security Act of 1947 enacted as Public Law 253 and effective 18 September.

Agreements were reached between the Director of Intelligence of the Army and the office of A-2 of the Air Force relative to the assumption by the Air Force of certain signal intelligence and communication security responsibilities. Progress was delayed by disagreement

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219. Annual Report, AS-92 Fiscal Year 1948, p. 10

220. Annual Report, AS-93, Fiscal Year 1948, p. 166.

221. Annual Report AS-94, Fiscal Year 1948, Tab 1.

222. Ibid, Tab 2.

223. Msg AIGAS-23 to Chief AmFac, 8 August 1947, in Summary Annual Report Staff, Fiscal Year 48, p. 25.

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within the Air Force as to which Division was to assume their signal intelligence and communication security functions and responsibilities. The Army appeared to win the first round which was in the form of a conference held on 26 August at Arlington Hall between the Chief of the Agency and a representative of the Intelligence Division of the Army and a representative of the office of A-2 of the Air Force. It was then concluded that high level communication security and signal intelligence activities would be continued under the Army and Navy and that the Air Force would not set up a field organization to engage in strategic signal intelligence operations. On the other hand the Air Force would participate in the existing Army organization. The Air Force would assume certain responsibilities for the security of its own communications and would be responsible for low level air tactical type signal intelligence.[224]

The resulting agreement with slight alterations was published on 16 September. The Army was to be responsible for the secret ink laboratory and for the operation of fixed intercept stations, and for the development of additional ones, [illegible] the Air Force would conduct units in locations impractical for the Army or when they constituted an adjunct to facilities organically assigned to the Air Force.

224. Annual Report, Plans and Operations, p. 54 and 55.

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Low level tactical type traffic which the Air Force would intercept would include air-to-air, air-to-ground, and ground-to-ground carrying information of interest to Air Force commanders, and weather. The Air Force would carry out direction finding, to whatever extent they thought necessary, and Air Force personnel were to participate in traffic analysis activities at Headquarters ASA. Tactical air intercept sources were to supply the Air Force with traffic of cryptographic systems exploitable in the field, the Army Security Agency was to render "backup" on this cryptanalytic effort. Air Force personnel were to participate in the cryptanalysis of strategic traffic at Headquarters, ASA, and also share in research and development at that Headquarters.

Research and development of items of peculiar interest to the Army Security Agency, would continue to be an ASA responsibility. The Air Force could elect to develop integrated equipment in which the cryptographic component was an integral part, the ASA participating in the development of the cryptographic component, and the Agency would continue to develop non integrated equipment. The Agency was to turn over some crypto equipment to the Air Force. The Army would continue to procure crypto equipment. Operating instructions

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were to be prepared jointly by the three services, Army, Navy, and Air Force. The Army would handle the training, with the Air Force providing some instructions. A total of 32 troop-basis spaces at Headquarters ASA would be turned over to the Air Force. Other details in general followed the policy of the agreement of 26 August.[225]

In the carrying out of these agreements, some difficulties were encountered.

Repeated attempts to effect the implementation of the agreement resulted in a series of discouraging disagreements over details.[226] In seeking the solutions for these problems, leaders in the units affected gradually approached a point of view pointing toward a complete reorganization of the communication intelligence and communication security field.

In the meantime during August, other changes in the direction of unity of the Armed Forces were being made. A joint policy on approved circuits was published on 22 August, providing that all Army approved circuits would be reported to the Chief of the Agency. An approved circuit over lines constructed to minimize mechanically the opportunity for compromise and also kept under surveillance so that it provides a considerable degree of security. Army and Navy commanders were obliged to consider the security aspects of these approved electrical communication systems and to issue directives authorizing approved circuits for transmission in

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225. Plans and Operations, Tab 13.

226. Annual Report, Plans and Operations, Fy 48, p. 53.

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the clear of information of any classification except TOP SECRET. In tactical operations, when time could not be spared for encryption, messages not TOP SECRET could be sent in the clear. Messages already encrypted could be retransmitted in the clear provided that the message was paraphrased. Conversely clear messages had to be paraphrased prior to encryption and retransmission.[227]

With its continuing world wide net of intercept stations and its extensive research and development and other expenses, the Agency submitted a budget of $13,859,269 for the fiscal year 1948. This amount was cut by Congress to $5,397,120, which was inadequate to pay the salaries of the 2,395 personnel authorized. An additional $815,000 was granted to care for pressing needs.[228]

Among other items the budget provided for the establishment of a fixed intercept station on Okinawa within two years.[229]

In the unification of the Armed Forces which was the chief event of September 1947, the Communication Intelligence Field was somewhat ahead of the rest of the Armed Service. For on 16 September, two days before the National Security Act went into effect, the agreement effecting the transfer of intelligence functions to the Air Force was published.[230]

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227. Tag Ltr, to Chief ASA and multiple addresses, 22 Aug 47, sub Joint policy on approved circuits.

228. Summary Annual Report ASA Fy 48, p. 6

229. Ibid, p. 34.

230. Annual Report, Plans and Operations, Fy 48, p. 55.

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The day before, on 15 September, an ASA liaison office was established at the Headquarters, Army Ground Forces at Fort Monroe, Virginia. This represented the first step in establishing ASA liaison personnel at all major commands when required.[231] Liaison continued with the Signal Corps. When the Agency contemplated undertaking a project which might be of interest to or come under the cognizance of the Signal Corps, the matter was referred to the Signal Corps before a research and development project was established. In addition by means of research and development project cards, Signal Corps projects of possible interest to the Army Security Agency were brought to the attention of project engineers and suitable liaison was then established. This active liaison was continued in order that equipment would conform in detail with Signal Corps design. Signal Corps standardization data governed much component selection. In the special field of communication equipment, ASA engineers concerned with teletype development familiarized themselves with the Signal Corps progress in the development of the teletype, and of connectors, relays, and similar components. Coles Signal Laboratories, at Camp Coles, Red Bole, N. J., near Ft. Monmouth, recommended that existing liaison with the Agency be expanded to include development of the electronic governed dynamotor and miniature telegraph relay.[232]

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231. Memo No 123, Hq ASA, 15 September 47.

232. General Notes on SC and Navy Liaison, Hist Subsection, AS-22, files.

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In September, the pressing problems were in the field of personnel. In order to reduce the flow of officers and enlisted men with administrative rather than communications intelligence specialities, gathered from EUCOM sources for ASA Europe, it was decided that all ASA replacements be forwarded from the Zone of Interior on requisitions prepared by Hq ASA in Washington.[233] Measures were also directed against placing European cryptographers on the United States payroll for employment in signal intelligence or other types of work to thus deny their services to other government, a limited number of such personnel was involved.[234]

To provide additional Non-Morse intercept operations, a course was developed by representatives of the Intercept Control Branch, the Organization and Training Section and the ASA School.[235]

At this time, the School was improved. On 6 November a new T/D 32-1022 went into effect for the training division. The division constituted, the school was reorganized with a Division Headquarters and three training branches. Five new positions were allotted to make it possible to have military subjects presented to the advanced class by qualified personnel. Instructor positions totaled 16. Officer instructors lacked teaching experience and background for the various

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233. Messages ARL-8991, 11 Aug 47 and WX 84032, 12 Aug 47.

234. Staff Study, (~~TS~~), ASAE to Chief, ASA, 19 Sept 47.

235. Annual Report, Organization and Training Section, Fy 48. (~~S~~)

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subject to be presented. As course preparations were limited it became necessary for each instructor to do considerable study in the specialty in which he was expected to teach.

The Officers Training Division continued to occupy space in one of the large operations buildings at Headquarters, ASA.[236]

A step in the development of the Agency pattern for manning units was the establishment of a casual detachment at Headquarters, ASA, Pacific. All unclassified replacements were assigned to this detachment pending assignment to other units in ASA Pacific.[237] This organization was short in personnel. Of an authorized strength of 93 officers, only 58 were assigned and of a strength of 1,265 enlisted men, only 410 were obtained.[238]

[redacted] In spite of these added missions the intercept totals were somewhat diminished in size.

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236. This was located in Wing 4 and in the rear of Wing 5 in Building A.

237. Msg No WT 989, Chief ASA to Chief, ASAPAC, 20 September 47.

238. Annual Report ASA Pacific, Fiscal Year 1948, p. 12.

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For October 128,175 groups were intercepted, for November 127, 879, and for December there was an increase to 145,177 groups.[239] IBM Card consumption, however, was higher with a total of 5,940,000 cards used.[240]

Processing of low grade intercept in theater headquarters was becoming of increased importance. It was decided to furnish all pertinent technical information on low grade Russian systems and selected extracts from decodes to the Chief ASA, Europe for assistance in their low grade Russian mission. Both ASA Europe and ASA Pacific were making good progress with cryptoanalysis of [redacted] and the application of traffic analysis to these targets.[241]

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Next to Russian interest in the European Theater was in the Balkans and Central Europe. [redacted] US intercept consisting of coverage of [redacted] at a few positions in ASA Europe. There was a fairly extensive coverage of Greek Guerrilla and coverage of the [redacted] from Vint Hill Farms Stations.[242]

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Military networks operated by satellite countries continued to show a strong USSR influence. Albanian traffic had features resembling certain outward characteristics of both Russian and Yugoslav traffic. An air-warning type of traffic obviously derived from the Russian and the trend of following Russian message features were noted in Yugoslavia.

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239. Annual Report AS-90,, Fiscal Year 48, Tab 1.

240. Annual Report AS-92, Fiscal Year 48, Tab 2.

241. Msg Col Hayes to Chief ASAPAC, 8 August 47 (~~TS CREAM~~)

242. Annual Report AS-93, Fiscal Year 48, p. 128.

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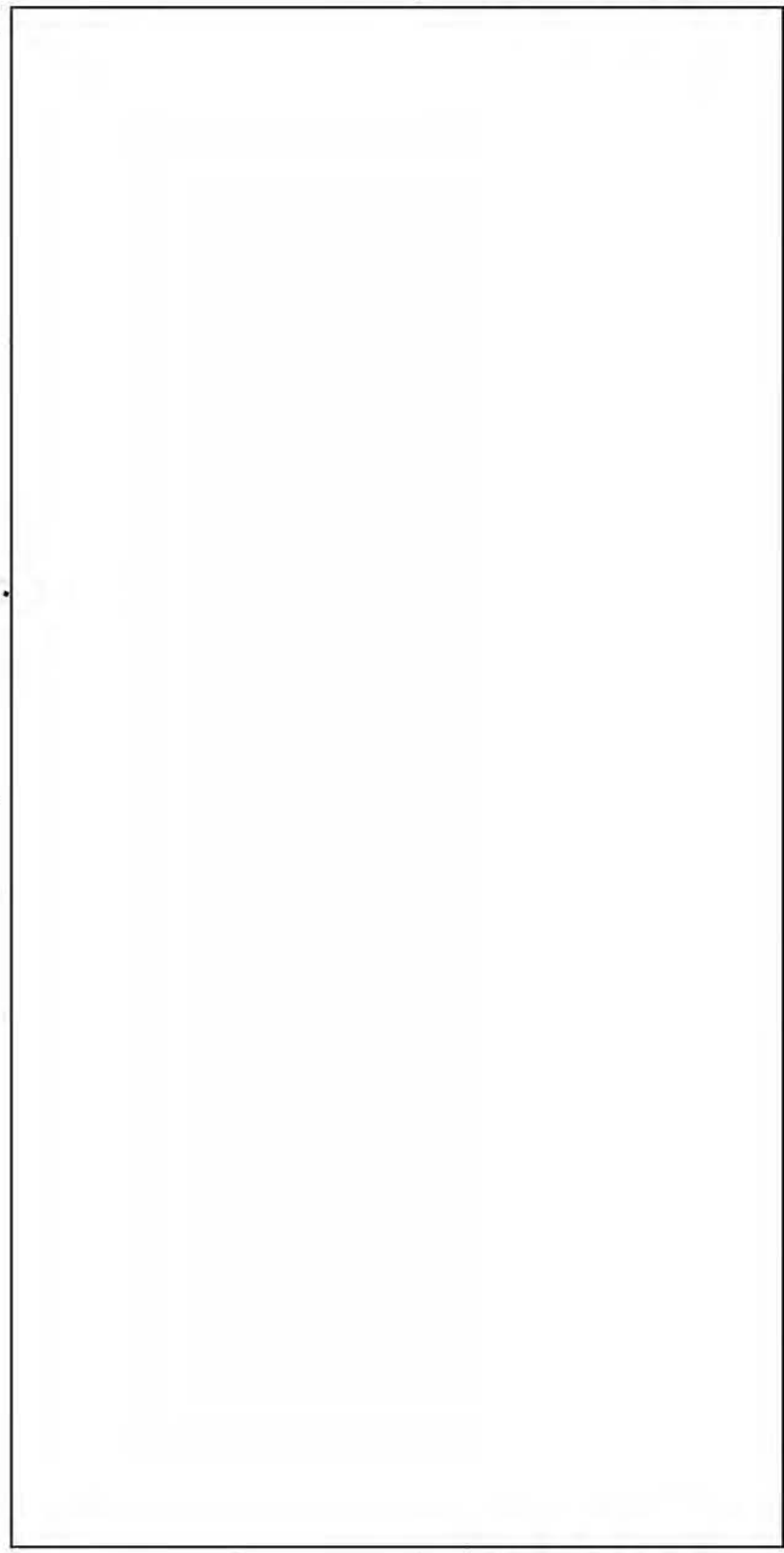

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[redacted]246

Effective 1 January 1948 there was an important reorganization of the Code Signal Intelligence Center, successor of the General Code and Cipher School. Under Sir Edward Travis, who continued as director were three assistant directors, Brigadier J. E. Tiltman, Chief of Cryptoanalyst training, and indirectly Research. Group Captain E. M. Jones, Chief of Production and Chairman of priorities committee of the Signal Intelligence Security Committee of the Center, and Captain D. A. Wilson in charge of administration of the Center and of physical security. The British had a Signal Intelligence Board.[247]

During the later half of the interim period, Commander Grant C. Manson, USN, Lt. Colonel William G. Bartlett, GSC, and Captain J. A. Williams, USN, serviced in turn at Senior United States Liaison Officer in London, Lt. Colonel Bartlett becoming Deputy Liaision Officer and continuing as Special Security representative for Europe after he was relieved as Senior Liaision Officer.[248]

All ASA liaison personnel in England were assigned to the office of the Military Attache, London, and no responsibility existed on the part of ASA, Europe toward this personnel.[249]

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246. Annual Report, AS-93, Fiscal Year 1948, pp. 107, 108.

247. Memo for Chief, ASA, 1 Dec 47 (TS), Subject, Organization of L.S.I.C.

248. JLG, Activity Rpt, in ASA 310.101 Coordinator of Joint Operations, and Memo for Chief, G-2, 27 May 49, in ASA 310, Liaison CHQ.

249. Ltr, Hayes to Dir, ASA Europe, 24 January 47. In Summary Annual Report, ASA Staff, Tab 71.

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From material processed by ASA Europe little of Signal Intelligence value to the Commanding General, EUCOM was obtained, critical lack of operational personnel preventing adequate local exploitation of intelligence of this nature. Requests of the Chief, ASA Europe for permission to disseminate to EUCO information from reports forwarded to Headquarters, ASAE, from ASA Washington or from the London Signal Intelligence Center were not granted because by direction of the Director of Intelligence, War Department, Headquarters, ASAE was unauthorized to disseminate any material not obtained from local sources. As a result, dissemination of information to CG EUCOM was virtually discontinued.[250]

A study was made in ASA Europe of German amateur radio operators transmitting within Germany. As a consequence, the Director of Intelligence, EUCOM, proposed that consideration be given to the licensing of German amateur radio operations within the U. S. occupied zone.

TICOM activities were extensive in the European Command. Wilhelm Fenner, former Chief of the cryptoanalytic group of the Signal Intelligence Agency of the German Supreme Command, was held in custody for two months and submitted to a lengthy written interrogation which was forwarded to Washington. Approximately 400 books and pamphlets were removed from the Laboratory of Feuerstwein, leading German Cryptoanalogist. Original documents of the German Signal Intelligence Service of the Army High Command were recovered from Austria.[251]

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250. Ltr, Hayes to Chief, ASAE, 13 Feb 47, subject: Clarification of Signal Intelligence Missions of Theater ASA organizations.

251. Annual Report ASA Europe, Fiscal Year 47, p. 19.

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Until January 1948, all responsibility for crypto-communications of US Army Forces, Europe unit holders was vested with Headquarters, ASA Europe. Following the establishment at that time of the USAFE Crypto-Security Center, responsibility for cryptosecurity was transferred to that Center.[252]

[redacted]

provide raw material necessary during this period for cryptoanalytic attack, intercept facilities had to be expanded. There was a marked demand for Russian language experts which had to be met. The agency went through a difficult period endeavoring to hire sufficient linguistic experts of unquestionable loyalty to supply this demand.[255]

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252. Annual Report, ASA Europe, Fiscal Year 48, p. 45.

253. [redacted] on 14 January, Annual Report, AS-92, Fiscal Year 48, Tab 2.

254. Annual Report, AS-90, Fiscal Year 47, Tab 1.

255. Summary Annual Report, ASA, Fiscal Year 47, p. 22.

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Intercept operators continued to watch the shifts in international commercial radio. In January a regular circuit was working between [redacted]

An intensive study of Soviet nests in Hungary, Roumania, and Bulgaria was being made.

There was more work to be done than personnel to accomplish these missions. In early January 1948, Chinese military targets were left uncovered because a reduction in teletype operators at Adak necessitated a further reduction in ASA assignments. It was planned to shift the Russian Taper military targets to ASA Pacific and transfer the Chinese military targets currently covered at ASA Pacific to Adak. The Deputy Chief of the Agency ruled, however, that Adak should not be assigned Chinese military targets and the facilities previously utilized for Russian Taper cover were returned to the Navy Agency, CSAW for cover of Russian Naval and Police targets. After these changes were carried out, ASA Pacific was covering the Taper targets previously covered from Adak. Adak was doing some Russian Navy and Police targets for CSAW, and the Chinese military targets were not being covered. The Agency, was not neglecting Korea, however. Ground sources consistently reported deactivation and withdrawal of the 25th Army from North Korea. Traffic analysis, however, indicated that the 25th remained in that country, probably with headquarters at Pyongyang.[256]

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256. Semi Monthly Report, AS-90, Fiscal Year 1948, 16 June 48.

Nine hundred miles Northeast of Korea, a new two channel military radio printer link was identified which was serving the headquarters, Transbaikal-Amur Military District and an unlocated Army in the area was intercepted. It was the first radio printer intercepted below military district level in the district.

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[redacted]

drew a letter of appreciation from the Special Assistant Secretary of State and the Director of Intelligence. It was the first offering by the Russian Plain Text unit of headquarters, ASA.[257]

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[redacted]

257. Semi-Monthly Report AS-90, 16 January 48.

258. Summary Annual Report, ASA, Fiscal Year 47, p. 26-27.

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[redacted]

The study of the SIGD machine with particular reference to its application [redacted]. It was hoped that preliminary discussion of the general engineer specifications could be held with representatives of the International Business Machine Corporation.[261]

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From a restudy of the master blocks in the Moscow-Washington lane for 1943 matched with the same for 1942, revisions were made resulting in approximately 125 new pages of overlap.

[redacted]

Less spectacular, the security monitoring missions of the Agency were being continued. The Security Divisions was monitoring three channels of WAR (Washington) circuit to Ft. Shafter and a fourth channel was being monitored from Vint Hill Farms Station. A total of 91 compromises was noted in two days traffic.[264]

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259. Semi-Monthly Report, AS-90, 16 January 1948, p. 8.

260. Summary Annual Report, ASA, Fiscal Year 47, p. 26-27.

261. Semi-Monthly Report, AS-90, Fiscal Year 48, P. 3.

262. Ibid, p. 6.

263. Semi-Monthly report, AS-90, 16 June 1948, p. 3.

264. Semi-Monthly report, Security Divisions, 16 January 48 (S)

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In the fields of Research and Development and Supply there were items of interest in January. The Sig ROD was in general use as replacement for the SIGABA. All Army Security Agency detachments were using the ~~RIEMEC~~ SIGROD system completely for administrative traffic. Asmara was supplied with a European general SIGROD system in order that they could continue communications in the AGAN net. The Far East Command began use of the SIGROD in January and the Airways and Air Communications Stations in Alaska, Middle Pacific, and the Far East. The Air Force, however, indicated that the withdrawal of the SIGABA from certain units in Europe and in the Far East inconvenienced a considerable number of their stations.[265]

In ASA the question of supply of teletypewriter parts to overseas units was causing concern. Both ASA Europe and ASA Pacific were having difficulty in securing parts through normal theater supply channels. The stock levels at Headquarters, ASA, were limited on the basis of the teletypewriters used there, so that they were not able to provide more than emergency relief to the field. It was estimated that within a year approximately 300 teletypewriters would be in use in Agency units.[266]

With a shortage of personnel in the units, a teletype backlog was present. To assist in relieving this situation, and to insure the current breaking of tape communications, skeletonized versions of messages were copies consisting of the preamble, the first ten groups, and the last five. Messages were copied in this manner in all stations except

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265. Semi-Monthly report AS-81, 1 January 1948, p. 2.

266. Semi-Monthly report, AS-85, 16 January 1948.

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in Asmara, where because of courier limitations, all of the intercept was copied entirely.[267]

Back at headquarters, laboratory services Branch was feeling the effects of not being able to recruit a sufficient number of qualified toolmakers at prevailing War Department wage rates. The scale was 11¢ below what was being received for similar work in the vicinity. Delays were occurring in completing urgently required projects. Diversion of overflow projects to outside contractors would have been unfavorable compared with the cost of doing the work within the Branch.[268]

Military strength of the Agency then stood at 6,991, a figure only 68.9% of authorized strength.[269] Including 114 civilians assigned to the 7005th, Service Unit, the Agency had a total civilian personnel strength of 2,494 on 15 January. Average age of the civilian employees was 32 years.

The next important development in the Agency occurred in the middle of the Pacific where on 29 January 1949 Army Security Agency, Hawaii was established and given responsibility for all communication security matters for the Army and Air Force East of the Mariannas, Bonins, and the Philippines.[271]

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267. Semi-Monthly report, AS-90, 16 January 1948.

268. Semi-Monthly report, ASA Staff, 16 January 1948.

269. Semi-Monthly report, ASA Staff, 16 January 1948.

270. Semi-Monthly Report, AS-61, 16 January 1948.

271. TAG Ltr, Army Security Group (23 Jan 48), CSGID-M dated 29 Jan 48, subj Establishment of ASA Hawaii.

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With the activation of ASA Hawaii, the Middle Pacific Detachment, ASAPAC, stationed at Fort Shafter, T. H. was inactivated.

Army Security Agency, Hawaii, did not take over from the Middle Pacific Detachment until 16 February.[272] Pending establishment of the new headquarters, the Mid Pacific Detachment of ASA Pacific initiated its promised mission. Because of the geographical location of Hawaii, no Signal Intelligence functions were then outlined in its mission, although the 5th Detachment, also in Hawaii was carrying out intercept missions for Washington.

The mission of the Commanding Officer, ASA Hawaii was to advise the Commanding General, Army Ground Forces, Pacific and the Commanding General, Army Air Forces Pacific on Signal Intelligence and communication security activities of the Pacific Command. The new headquarters was to be an issuing office for cryptomaterial, and was to monitor friendly communications. The headquarters was located in the Pineapple Pentagon at Ft Shafter. Enlisted men were housed in modern three story barracks and married officers were generally housed at Schofield Barracks. Tables of Distribution for 16 February showed 5 officers and 23 enlisted men.[273] Action was also taken in February to establish a headquarters and headquarters detachments for Two Rock Ranch Station.[274]

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272. Annual Report ASA, Hawaii, "Historical Note."

273. Annual Report, ASA Hawaii, Fiscal Year 48, Tab 2.

274. Semi Monthly Report, ASA Staff, 15-29 February 1948.

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Small as these increments in personnel were, they nevertheless were a drain on the already depleted personnel resources of the Agency. In several directions, further action was being taken to make more personnel eventually available and to increase the usefulness of the personnel at hand. Job descriptions for all enlisted SSR's peculiar to the Agency were being prepared under the career guidance plan and proposed warrants were included in the job ladders. This career guidance plan was being worked out by the Security Division and the Operations Division, under the loose staff structure of the time.[275] Letters were drafted outlining procedures for enlisted men on duty both overseas and in the Zone of Interior, to return to ASA School for advanced training as part of the Enlisted Career guidance program.

In addition the scheduling of certain basic subjects and the assignment of responsibility for supply service and equipment were arranged with Second Army for an ROTC camp for the Agency.[276]

A conference was held on 3 February in connection with the proposed establishment of an ASA Academic Council to assist the ASA School faculty and to work toward the improvement of all ASA training. A charter for the group was drawn up.[277]

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275. Semi-Monthly report, AS-20, 16 June 1948.

276. Semi-Monthly report, ASA Staff, 16 February 1948.

277. ASA Staff Semi-Monthly Report 16 February 1948.

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At this time the enrollment of the school was 28 Army officers, 2 Air Force officers, and 3 Naval officers at Arlington Hall, and 142 enlisted men at Vint Hill Farms School. Vint Hill Farms Station was an inadequate site for the school, and a disposition form pointing out the inadequacies was forwarded to the Director of the Supply and Procurement Division and a list of available posts which would satisfy the requirements for the school was requested, the first movement toward the relocation of the school at Carlisle Barracks.[278]

In the meantime, measures were taken to improve the school at Vint Hill Farms as much as possible. Stock levels were set up for expendable supplies and provision made for non-expendable items for the non Morse equipment course.

Also for this course, an officer from the laboratory at Vint Hill Farms and an enlisted man were provided and two officer instructors were placed in sections at headquarters for background information and training in the non Morse equipment field. One was placed in the Intercept Control section and the other in the intercept equipment section.[279]

As soon as personnel were sufficiently trained to be useful they were rushed to the theaters where they were needed. A recommendation was carried out that certain selected enlisted men holding high speed radio operators MOS be shipped directly overseas upon graduation from the Signal School at Fort Monmouth rather than sent to Vint Hill Farms.

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278. Semi-Annual report, ASA Staff, 3 March 1948, p. 4 (#)

279. Semi-Monthly report, ASA Staff, 16 February 1948.

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A limited number were slated to complete their training in Europe or in the Pacific theater.[280]

Efforts were made to trim the manpower to fit the supply. It was agreed in February that ASA would release 150 overseas office spaces on the 30 June 1948 allotment.[281] Some duties could be taken over by other government agencies. A meeting was held with the State Department in which the Agency promised to cooperate in every way possible, subject to Department of the Army policies, in the transfer of Military Government responsibilities to State.[282] In the field of SIGROD maintenance, an investigation showed that 95 per cent of the Attache Offices throughout the world could be serviced by State Department personnel without much extra expense or bother, and that special arrangements could be effected for the rest. Remote location of some of these offices and the difficulty of obtaining entry made the new arrangement necessary. This was authorized in April.[283]

High echelon reorganization of the communications Security field continued. Papers for implementing the Army Air Force agreement were presented at a series of meetings in February.[284] Implementation of

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280. Semi-Monthly Report, ASA Staff, February 1-15, 1948 (Ø) p. 1.

281. Semi-Monthly Report, Staff, 15-29 February 1948, (Ø) p. 4 (Ø)

282. Ibid. p. 11.

283. Study AS-80, Issuance of SIGROD to Military Attaches, 1947-1949

284. Semi-Monthly Report, ASA Staff 16-29 February 1948, (TS) p. 10

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the agreement continued to encounter some snags. It was decided that all possible difficulties would be resolved on a General Staff Division level and unsettled problems from there submitted to the Deputy Chief of Staff, Army or Vice Chief, Air Force.[285]

Overseas supply for Army and Air Force units was worked out in an Agency recommendation regarding changes in War Department Circular No. 5, January 1946. The initial issue of cryptographic supplies for the Army and the Air Force under the new arrangement would be made, without requisition, by the Chief of the Agency to each theater ASA headquarters, if there was one, otherwise to a command issuing office serving the unit. Usually this office would be that of the theater Signal Officer. Additional supplies for the Army and the Air Force would be processed by letter directly or through the local commanding, depending on the existence of a theater ASA headquarters.[286]

After the passage of nearly three years, the status of the Agency under G-2 was reasserted. On 27 February, the new Chief of Staff, Department of the Army, reached a decision that the Agency was to remain in its existing status under the control of the Intelligence Division, General Staff. The Chief of Staff, General Omar N. Bradley felt that because the matter of communications intelligence and security are of

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285. Semi-Monthly Report ASA Staff 16-29 February 1948.

286. Semi-Monthly report, ASA Staff, 16 February 1948, p. 14.

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prime importance, the full responsibility for this field within the Department of the Army should be concentrated in one activity.[267]

In February the Agency took the initiative for improved communications intelligence from Korea. An ICM was forwarded to the Chief, Intelligence Group, ID' recommending that a cable be sent to General MacArthur from General Chamberlin, through SSO channels requesting assistance in continued procurement of [redacted] field in Korea.[288]

In February the Agency was recording substantial progress in the preperation of technical manuals and similar documents. ASA Manual S-560 Intercept for Field Application was announced as completed and distribution set for the last quarter of the Fiscal Year. Work was progressing on a translation of a German training manual of teletype intercept which was reproduced and copies forwarded to the ASA School.[289]

A manual on Reading of Undulator Tapes was being processed with effort to expedite its publication. Final manuscript and Art work for a TM on the Fundamentals of Traffic Analysis were completed and the document had been forwarded to the Intelligence Division and Tag for approval, review, and printing. Distribution and Accounting for Registered Cryptographic material was in the final review stage at the Army Publication Service.[290]

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267. Memo for the Record in re Summary Sheet of J. W. Bowen, Lt Col, Secretary, General Staff, Sub, Signal Communicate Doctrine of the Army, 27 February 1948.

288. ASA Staff Semi-monthly report, 16-29, February 1948.

289. Semi-Annual Report ASA Staff 16-29 February 1948.

290. Semi-Monthly Report, ASA Staff, 16 February 1948, p. 6 (S)

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In the Spring of 1948 Edward H. Hebern and the Hebern Code, Inc., brought suit against the Department of the Army for $50,000,000 alleging patent infringement on cipher devices which he had invented. Suit was also made against the Navy and the Air Force for the same reason. ASA was involved because there was a possibility that during the development of cryptosystems which utilized rotors, some similarity in principal might have occurred. For this case information was collected for each system procured regarding unit cost, producing Agency or manufacturer, and present patent status.[291] The Hebern case was still pending in early 1952.

In March the discussions between the Army and the Air Force in regard to the implementing of the Army-Air Force Agreement, reached an impasse on the number of military spaces and civilian authorizations to be transferred to the Air Force. They continued to rely on decisions on the General Staff Division level for solution.[292] Procurement responsibility for all photographic film and paper was assigned to the Air Force and all other photographic and photomechanical chemicals to the Signal Corps.[293]

It was decided in March that the Joint Liaison Group would be located at Arlington Hall Station as of 1 April. As a result of changes in the coordinator set up, Colonel Hayes, Chief, ASA, was coordinator of Joint Operations. There were three deputies, Captain E. S. L. Godwin,

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291. Annual Report, ASA-80, Fiscal Year 1948, p. 16.

292. Semi-Monthly reports, ASA Staff, 1-15 March 1948. p. 9 (Ø)

293. Ibid, p. 12 (Ø)

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USN, for Allocations, Mr. P. J. Patton, ASA for Intercept Control, and Lieutenant Paul Karl, USN, for Liaison.[294]

The joint communications and those required for foreign collaboration were supervised by the communications officer of the United States Communications Intelligence Board.[295]

In March measures were taken raising the Electronics section within the Research and Development Division to the level of a Branch, as a result of increased activity in the electronics field.[296]

An event in the electronic field of Research and Development Division was the granting of approval for the negotiation of a contract for the ASAM-13, a one time key device (Special mission system-Electronic SIG TOT). The necessary papers were forwarded.[297]

Budgetary matters took precedence in March. Early in the month an Army Security Agency budget planning board consisting of the Deputy Chief, and the Chiefs of Staff sections and divisions.[298]

A project for the installation of Direction Finders at Helemano, Hawaii for USM-5 was approved by the Department of the Army, including action for the acquisition of the land needed. The Chief of ASA Hawaii was instructed to submit papers for inclusion of the item in the US Army

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294. Letter Coordinator of Joint Operations, to SUOLO, 30 March 1948 in ASA 310.101 Corp of Joint Operations. (~~TS~~)

295. Annual Report, USCI B, 31 March 1948, in ASA 310.101 Coordination of Joint Operations. (~~TS~~)

296. ASA Staff, Semi-Monthly report, 1-15 March, p. 22.

297. Semi-Monthly Report, ASA Staff, 16-31 March 1948, p. 12 (S)

298. Tab 48, ASA Staff, Annual Report, Fiscal Year 1948, vol I. (Unclassified)

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Pacific Budget for 1950.[299] Housing was a concern for budget planning and recommendation was made for an expenditure of about ten million dollars for three stations. A total of $4,144,000 was recommended for family housing at Arlington Hall Station, an item of $4,311,500 for this purpose at Vint Hill Farms Station, and one for $1,650,000 for Two Rock Ranch Station. The housing project for Arlington Hall Station fell through.[300] In May, TAG informed the Agency of plans to allocate $200,000 each Fiscal Year for the period 1950-1960 to Arlington Hall Station, Vint Hill Farms Station and Two Rock Ranch Station; this allocation would total $600,000 a year or $6,000,000 for the decade.[301] Establishment of ASA Alaska was recommended for approval by Plans and Operations, a project which was to result immediately in an ASA Liaison office at headquarters, Alaska Command.

An achievement in April was approval for expansion and development of the Crypto-Communications Plan (ASAG-22) which provided an official guide for the development, testing, and procurement of crypto-communication equipment for the Army and Air Force.[302] Material Section at Headquarters ASA recommended approval of the [redacted] which it was expected would be completed during the Fiscal Year 1949. The recommendation was referred to the ASA technical committee for necessary sub committee action. The project was one of the series of such for developing a device from observation of target traffic which would duplicate the functions of the

299. Semi-Monthly report, ASA Staff, 1-15 March 1948, p.12.

300. Semi-Monthly Report, ASA Staff, March 1-15, 1949, p. 13. (C)

301. Semi-Monthly report, ASA Staff, 1-15 April 1948, p. 10.

302. Annual Report, AS-SC, FY 1948, p. 20.

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mechanism used for sending the traffic and hence make it readable, it was hoped. In this case Russian Military traffic was the target.[303] Another project for reaching Russian traffic was the temporary installation at Vint Hill Farms Station of a long wave rhombic antenna oriented on AZIMUTH 33° to be used primarily for radio reception tests on targets in the Moscow area.[304]

Operations reached a peak of [redacted]

It was the highest figure since the end of the war. Plain test messages had increased 317 per cent over the 1947 figure. During fiscal year 1948 there was a five fold increase.[305] Special coverage was given Russian military traffic during their D Day celebrations. This and other Russian missions proved to be most helpful to the traffic analysis specialists in formulating Russian order of battle information.[306]

Security was not neglected in this increase of production. Care was being taken not to expose the most valuable equipment from the reach of dangerous foreign influence. In April the Chief of Naval operations was informed that the Chief of ASA Europe had recommended that all SIGABA's be removed from the European Command.[307]

In spite of this boom in intercept and operations, the personnel

303. Semi-Monthly report, ASA Staff, 15-30 April, 1948, p. 11 (S)
304. Semi-Monthly report, ASA Staff, April 15-30, p. 8.
305. Summary Annual Report ASA Staff, Fiscal Year 1948.
306. Annual Report, Plans and Operations, ASA, Fiscal Year 1948, p. 8.
307. Semi-Monthly report, ASA Staff, 1-15 April 1948, p. 9.

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problem continued. Due to the low reenlistment rates in April for the Radio Squadron Mobile, the 2d Detachment, the 9th Detachment, and the 111th Signal Service Company, letters were sent to remedy the situation and a promotion policy was being studied.[308] Approximately a hundred enlisted personnel were transferred from the Signal School or ASA units, many of them to attend courses or undergo on the job training at Vint Hill Farms Station. Twenty three of these went to a spetial analytic course at Arlington Hall; twenty two others were to study non-Morse equipment.[309]

Continuing work on reorganization was affecting personnel. In April, procedure was outlined for the transfer of the Radio Squadrons Mobile from the Army to the Air Force upon implementation of the Army Air Force agreement.[310]

The Chief, ASA, Europe, visited the London Signal Intelligence Committee during April to assist in laying the ground work for increased collaboration between the Agency and London Signal Intelligence Center and the field units of each. Plans were made for a second Intelligence Conference to clear up certain intelligence exchange problems which arose since the first British -United States conference.[311] Improved relations with Canada were also being worked out. A subcommittee for military information control of the State-Army-Navy-Air Force Coordinating committee approved the release of information pertaining to certain crypto

308. Semi-Monthly report, ASA Staff, 1-15 April, 1948, p. 1.

309. Semi-Monthly report, ASA Staff, 1-15 April 1948, p. 1 (Ø)

310. Semi-Annual report, ASA Staff, 15-30 April 1948, p. 7 (TS)

311. Summary Annual Report, ASA Staff, Fiscal Year 1948, p. 7.

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equipment. Teletype models, transmitter distributors, typeperforators and subsets, were among items of equipment included.[312]

The Agency continued as heretofore its collaboration with the corresponding Agencies in the Navy which, although they were under the same head, the Chief of Naval Communications, operate as separate offices as regards cryptographic and cryptoanalytic activities. Some of the reasons for this collaboration were the necessity for providing adequate security equipment for joint operations, the elimination of duplication of effort, the possibility that a single piece of equipment might serve the needs of two or more services, and that different but coordinated approaches to the solution of the same problem might yield more valuable results than a single approach, and the fact that the relatively small number of commercial firms available for cryptographic research and development made it imperative to use the service of these contractors in coordination with mutual benefit to all. Collaboration with corresponding agencies of the British and Canadians were maintained for similar reasons. With the British, collaboration was concentrated on the cryptoanalytic phase of the work. Results were good.[313]

In May a very serious physical compromise occurred in the defection of a code clerk in Moscow. On the 14th, Sergeant James M. McMillan, Jr. assigned to the office of the military attache, Moscow,

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312. Memo for Record in ASA to Canadian Joint Staff, 16 April 1948 Subject: Equipment prices. IN 310.102 Liaison with the British.(S)

313. Summary Annual Report, ASA Fiscal Year 1948, p. 7.

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who was about to complete a two year tour there, defected to the Russians, stating in a letter to the United States Ambassador that he preferred the Soviet way of life to the American system. He had become involved with a Mrs. Biconish, Soviet citizen and wife of an American Sergeant then in the United States who formerly had been stationed in the Moscow embassy. Sergeant McMillan informed the Ambassador that a copy of his letter had been sent to the "Mayor of Moscow".

The Military and Naval Attaches and Embassy personnel who had been operating a combined cryptocenter since 2 March were notified by the Ambassador of the letter on 15 May. Activity of the center involving State and Army communications had been completely combined with an interchange of personnel and cryptosystems. The Naval Attache was located in the same room, but did not permit Army or State Department personnel to operate his systems. The combination to his safe, was kept, however, in a safe to which Sergeant McMillan had access. It was believed that all information transmitted in cipher between Washington and the Embassy since the setting up of the combined cryptocenter had to be considered to have been known to Sergeant McMillin, in addition to that contained in Military Attache crypto-communications since May 1946.

Systems compromised included: A SIGROD system involving use of rotors and printed key lists, held by most Attaches in Europe and the Middle East and by major Army installations in that area. On hand and subject to copying by Sergeant McMillan was material effective until 1 July 1948. Three one-time tape systems were compromised,

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including one link each with Washington, Headquarters; Headquarters, European Command, and Headquarters US Air Force, Europe. Two one time pad systems were in his preview, one with Teheran and an "air-gram" pad with Washington. Further, a SIGROD Emergency Key Phrase, which enables communication in cases of extreme emergency, has been memorized by Sergeant McMillan.

The problem of the security of continued communications was attacked at once with good success. A strip system not held by Moscow continued in effect for Confidential and Restricted and new rotors and key lists were available for immediate distribution to all holders. The Attache in Damascus, to whom the use of manual systems was a hardship for his reports of the Palestine War, was reached by a system not involved in the compromise which provided him with keying information to enable him to resume SIGROD communication with the Department of the Army. A new key memory phrases was sent to all SIGROD holds in uncompromised systems. The State and Navy Department took similar action.

On 16 May a meeting of representatives of the three departments involved was held in the office of the Director of Naval communications, at which it was agreed that a letter of instruction should be prepared outlining precautions against recurrence of the situation. Efforts were made to avoid unfavorable bearings on future consolidations resulting from the Moscow case.[314]

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314. Memo for Record, signed Chief, Methods Branch, 19 May 48, Tab # C8 Summary Annual Report, AS-SO, Fiscal Year 1948, Vol II, (ZS)

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The incident was one of 12 suspected physical compromises for the year. Only one other was declared. This case involved the Military Attache in Bogota, whose safe contained one time pads was found open. Of 136 reports of suspected cryptographic compromises, only 3 were declared. A total of 5,535 routine mail reports of cryptosecurity violations were received and processed by the Agency.[315]

The Moscow compromise was the outstanding occurrence in May. Operations were suspended during the first week of the month at the station in Korea operated by the 111th Signal Service Company. The shutdown was necessitated by unsettled conditions in Korea. Obstacles were in part technical in nature, in part against morale, and in part combinations of the two. One of the technical obstacles encountered by the operators was QRM (Interference emanating from a man-made source). One such source was the 30 Kilowatt diesel generators, which ceased when the generators were grounded. The Korean National Police Network and the Chinese Commercial circuits made assigned circuits difficult to copy. Faulty wiring of the Operations Building added to the grief of the men.

The poles of the antenna system were located inside of the fence which surrounded the camp. The sloping vee antennas however, were terminated in the rice field several hundred yards outside the fence. Upon several occasions it was discovered that the Koreans had cut the antenna at its terminating point, and at the point where

315. Tab 8, Annual Report AS-80, Fiscal Year 1948.

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it crossed the fence and had then carried it off. At other times they would just remove the terminating resistor of the antenna thus making it non directional and practically useless.[316] There existed an air of hypertension due to the openly hostile attitude of the local inhabitants. In spite of the utmost vigilance by Guards and K-9 dogs on patrol, the fence surrounding the unit was repeatedly cut and entered. The Commanding Officer upon one occasion, received word from a Korean informant of an imminent raid to be made on the organization by supposedly Communist inspired agitators. The matter was immediately turned over to the local intelligence units who arrested several ringleaders in the surrounding villages.[317]

This unit was engaged in intercept of Taper (Russian) air and military circuits and covered illegally operated stations in Korea which were thought to be part of a Communist operated communications network furnishing information to the North Korean Communists for the Russian 25th Army. Direction finding bearings were made on Russian operated stations broadcasting to Japan in Japanese.[318] When operations ceased on 5 May the operators and the assistant operations officer left for Headquarters,[319] ASA, Pacific. Orders for the move to Okinawa had arrived a couple of weeks earlier.

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316. Summary Annual Report, ASA Pacific, Fiscal Year 1948, Tab B, Report for 111th, p. 6.

317. Ibid, p. 12.

318. Ibid, p. 4.

319. Ibid, p. 4, 5.

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In May three stations were intercepting Russian simplex radio printer links. Russian internal commercial Morse intercept volume for Two Rock Ranch Station and Alaska were more than doubled. A Russian Order of Battle project was progressing satisfactorily in the Far East, material being substantially completed.[320] ASA Europe forwarded a 200 page addition to the Wilhelm Flicke history of German Signal Intelligence between World War I and World War II. In view of the increasing volume of [redacted] an old technical paper on a similar subject, solved twenty nine years before, was reproduced from old records at Headquarters, ASA.[321]

Equipment continued to be improved. In May a new type IBM Multiplier was obtained which permitted elaborate programming of the machine functions. As a result complex calculations involving several steps and employing dated from a single card were made easier. An Alphabetic Collator provided standard collating operations on alphabetic, mueric, or mixed material with electronic tube circuits.[322]

Several important administrative matters were handled. The Chief, ASA concurred in the establishment of an emergency crypto supply point in London. A joint memorandum was prepared to take care of disagreements with the Air Force regarding spaces, and further study was given to the Heberm patent case. Data requested by

320. Semi-Monthly Report, AS-90, 1-15 May 1948, px (~~TS-Ultra~~)

321. Semi-Monthly Report ASA Staff, 15-31 May 1948, p. 22 (~~TS~~)

322. Annual Report, AS-92 Fiscal Year 1948, Tab 4

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the Legal Division, OCSigO for the case were tabulated.[323] To conform to increasing duties, the Adjutant Section ASA Staff was redesignated, The Adjutant General Section.[324]

Attention continued to be directed in May to training. It was determined that for the most part the programs of instruction for enlisted specialists was out of date. Revision of all "A" Branch courses and the addition of one course for training in Friendly traffic was directed. The T/A for the school was revived to expedite requestion of equipment for the Non Morse courses in the enlisted division. Action was initiated to obtain Department of the Army approval of this non Morse program and assigned specification serial numbers for these specialists was a further objective.[325] Two half SIGJODO devices ASAM-12, were requested for the school. Two enlisted personnel took a course at Fort Monmouth in obtaining and interpreting direction finding information in connection with the Radio Set AN/CRD-2. They were to disseminate what they learned in a course to be given at the ASA School.[326] Most of the planning was for the course for enlisted personnel. The Officer's course was continuing with one basic class and one advanced class completed. The revised draft of the charter for the proposed ASA Academic Council was submitted to the Chief, ASA.[327] Work with civilian components

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324. Memo, Headquarters ASA, No. 111, 17 Mar 1948

325. Semi-Monthly report ASA Staff, p. 5, 71. (C)

326. Ltr, Headquarters Sig Opns Brs to Chief, Eng and Tech Div, OCSigO, 5 Mar 1948, with Inds, 1, 2, 3, 4, and 6.

327. Semi-monthly report, ASA Staff, 1-15 May, p. 26. (TS).

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was developing. The ASA Reserve had reached a strength of 796,[328] and plans were being realized for the National Guard. Programs of instruction for this component were completed in draft form for 14 different types of specialists.[329]

In June the 111th in Korea were making their own boxes to pack equipment for the move to Okinawa. The personnel measured each article and built the boxes on an assembly line basis. The men were looking forward to the move and morale was high.[330]

In the meantime, back in the Zone of Interior the ASA ROTC Summer Camp began at Fort Meade, Maryland on 21 June. Thirty advanced ROTC students from the University of Illinois, Texas Agricultural and Mechanical College, and the Massachusetts Institute of Technology were in attendance. The Army Security Officers who were professors of Military Science and Tactics from these colleges were present during the six weeks training period and there were three other officers from Headquarters, ASA and two from the 3rd Signal Service Platoon at Vint Hill Farms.[331] A new program in the Universities mentioned which would make 76 additional hours available for ASA Subjects was under discussion in the Army Field Forces. The additional time was to be spent

328. Semi-Monthly Report, ASA Staff, 1-15 May, p. 7 (TS)

329. Semi-Monthly Report ASA Staff, 15-30 May p. 6.

330. Summary Annual Report, ASA Pacific, Tab B, Annual Report, 111th

331. Annual Report, Or and Trng Sec, ASA Staff, Fiscal Year 48 (S)

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on Cryptoanalysis. Programs for the National Guard Bureau and the organized Reserves were in various stages of consideration.[332]

In Research and Development, efforts were continued to obtain an agreement with the Navy and the Air Force on the establishment of the Army and Navy Crypto-Equipment Coordinating committee to coordinate all research and development matters on cryptographic equipment, another move point in the direction of the eventual establishment of the Armed Forces Security Agency. It was decided on 5 June to attempt to obtain approval of the establishment of a panel on Crypto-Equipment in the Committee on Electronics of the Research and Development Board. Coordination with the Navy was in progress as the Fiscal Year closed. Experience of the previous year regarding the placing of contracts was used to good advantage during the year.[333]

The Agency continued to carry out its mission of portecting the communications systems of the Army from potential cryptanalytic attack by the agencies of foreign governments. Cryptosystem suitable for record, voice, and facsimile transmissions had to be planned, designed, produced in quantity, stored and distributed, together with instructions and provisions for maintenance.[334] A project receiving high priority was that of providing Rock and Pebble equipment for intercept activities. The first test models, which had

332. Semi-monthly Report, ASA Staff, 1-15 June 1948. CSCAS-22 Section (C)141

333. Annual Report, ASA Staff, Fiscal year 1948, p. 32.

334. ASA Summary Annual Report Fiscal Year 1946, p. 10.

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been received in April,[335] were being processed and the Organization and Training section was working on a manual for the operational maintenance of this equipment.[336]

Four SIGJODO's (ASAM 12's) were being service tested, two by the Army and two by the Air Force.[337]

During the Fiscal Year the Agency has supplied $37,700 worth of Crypto materiel to the State Department, $20,655.10 to Central Intelligence, $4,074. to the Atomic Energy Commission and $305 worth to the Federal Communications Commission.[338]

Steps were taken to recondition and place in a war reserve large quantities of certain items of crypto materiel. The equipment was securely protected against moisture and vapor deterioration. The Agency processed a total of 4,000 units of ASAM 1A (SIGIVI) and 175 of ASAM 1B (SIGAMUG), both rotor baskets for the SIGABA, 2000 units of the SIGABA itself (ASAM 1), 1,250 units of SIGCUM for increased security, and 150 units of the teletype cipher machine SIGNIN.[339]

Radio direction finding service with both low frequency and high frequency equipment was provided for a location near Sapporo, Hokkaido, Japan.[340]

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335. Semi-monthly report AS-90, February 1948.

336. Semi-monthly report, ASA Staff, 1-15 June 1948.

337. Annual Report, AS-80, Fiscal Year 1948, p.12.

338. Summary Annual Report, ASA, Staff, Fiscal Year 1948, p. 26.

339. Summary Annual Report, Fiscal Year 1948, p. 24.

340. Summary Annual Report, Staff, Fiscal Year 1948, p. 15.

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The results of the year in terms of operations were outstanding of the total number of intercepted messages, 45.1 per cent were in exploitable systems, 52.7 per cent were in various stages of research, and only 2.2 per cent were not attached, either because of lack of sufficient traffic in a system or lack of qualified personnel. All published messages totaled 74,796, of which more than nine-tenths were encrypted. There was a 7.5 per cent increase in the number of messages decrypted, in spite of a 2.2 per cent decrease in the total number of messages received. Reduction in the percentage of messages not worked on was 71 per cent.[341]

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341. Summary Annual Report, ASA, Fiscal Year 1948, p. 67.

342. Annual Report, AS-93, Fiscal Year 1948, p. 76.

343. Ibid, p. 86.

344. Annual Report, AS-93, Fiscal Year 48, p. 95.

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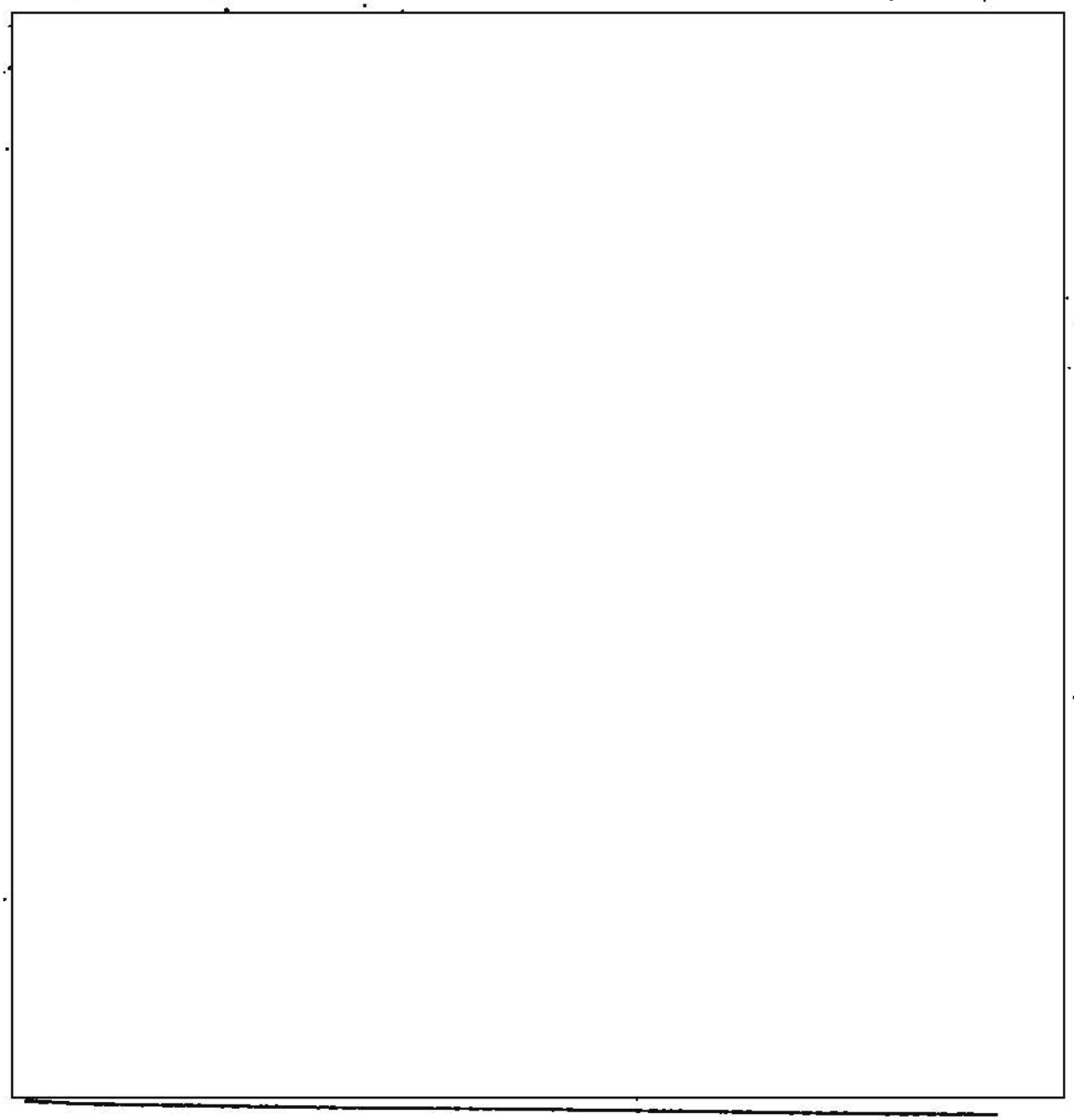

345. Annual Report, AS-93, Fiscal Year 48, p. 114.

346. Ibid, p. 162.

347. Ibid, p. 176.

348. Ibid, p. 114.

349. Ibid. P. 182.

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With the Moscow compromise and the withdrawal of the Agency from Korea in the face of Communist interference, the Interim Period came to an end. For the expanding critical situation created by Soviet authority had by that time affected the Agency adversely on two sides of the world. A new crisis was brewing and the Communication Intelligence and Communication Security divisions of the Agency, directed into new channels, again had assumed war time importance.

In three years the Agency had completed the transformation to peace time patterns and was expanding again, concurrently continuing its essential mission in spite of sweeping reduction in personnel and revolutionary changes in methods and equipment.

Nearly all tactical units had been demobilized and activities reduced all along the line to conform to the post war Army needs. Since many former military leaders had been retained on a civilian status and the greatest advances were made in fields of Research and Development and in Cryptanalytic operations with emphasis on civilian technicians, the Agency was in a phase of technical operation with the military leadership temporarily assuming a role of diminished importance. While the Chief of the Agency was engaged in staff activities of far-reaching importance, the Agency during these years was chiefly an organization of accomplished technicians supported

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by the intercept units of the 3d Signal Service Battalion and growing theater headquarters.

Revolutionary strides in the production and uses of IBM and other electronic equipment, improved equipment for fixed stations and for better security along with the construction of analogues of foreign devices and the breaking and reading of many new systems were chief accomplishments. Traffic analysis and direction finding techniques were charting the Soviet communication systems and providing their order of battle. Planning pointed to improved equipment for security purposes.

On the staff level, the setting up of theater headquarters, provision for housing and other building projects, improvements in training and provisions for civilian components, were achieved. The working out of arrangements for the separation of Air Force units, and improved liaison were steps toward the integration of activities in the communications intelligence and communications security fields.

The next phase in the development of the Agency was to be a military one and to include the strengthening of the staff organization and the integration of the Agency for more effective leadership and the reestablishment of field units for tactical missions.

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