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THE RADIO INTERCEPT SERVICE

OF THE GERMAN AIR FORCE

by

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NOTES BY TRANSLATOR

Numbering of Chapters. In the German text Chapter (Teil) 1 was the Preface or Foreword. In the English translation it precedes the study as a Preface, Chapter 2 of the German text becoming Chapter 1 and the following Chapters being numbered accordingly, so that the English version has only twelve Chapters instead of the thirteen in the German text. References have been changed accordingly.

Arrangement. In the original German, Cahpters 1-10and 12-13 were in one volume, Chapter 11 in a second Volume. To avoid confusion Chapters 1-9 have been placed in one volume and numbered consecutively from 1-286, Chapters 10 (Teil 11 in the German text)-13 in a second volume, pagenated consecutively from 1-289.

Missing Parts of the Study. In Volume Two, Chapter 10 (Teil 11 in the German text), SectionsBIV-VI and C., D, and E are missing.

Miscellaneous. In Chapter 12: Dead Zones, Fading, etc., the measurements and distances have been retained in the metric system , which appears to be international usage in scientific writings. Where the writer refers obviously to radio intercept operations specifically, that term ahs been used, in other cases the terms radio intelligence and communication intelligence havebeen adopted in the translation (for

example: Funkhorchdienst=Radio Intercept Service; Funkauf-klaerung=Radio Intelligence; Nachrichtenaufklaerung=Communi-cations Intelligence (to include wire communications, etc.); Funkmithoerdienst=Radio Monitoring Service). The German term Dolmetscher=Interpreter has been rendered as Translator to avoid conflict with Auswerter=Data Interpreter. Early in the translation the German Feste Funkhorchstelle was trans-lated as Stationary Radio Intercept Station; later in the work the term static was substituted for stationary.

PREFACE

In submitting this study, the author feels confident that he has given the subject of the Radio Intercept Service a more comprehensive, more accurate, and more factual treatment than will be found in any other source. The study affords an insight into the inception of the service prior to and during World War I; its further development during the Inter World Wars period; the creation of the German Air Force Radio Intercept Service, and in particular the development of that service during World War II. Beyond that it offers also precise information containing the fundamental principles for the establishment of a Radio Intercept Service for a future German military establishment.

The size of the study was dictated by the scope of the historical events involved, the diversified branches of this military service, and its eminent significance.

In the past a detailed knowledge of the Radio or Communications Intercept Service has remained restricted to those who served in it. It therefore appears advisable that the present study should be restricted for use by those directly concerned with this branch of the military sciences.

The compilation presented exceptionally great difficulties and took up very much time. No literature exists on this specialized field of endeavor, and even the Press,

as a rule so assiduous, has failed to give it any attention because of the lack of knowledge and source material on the subject. Following World War I professional journals admittedly did occasionally contain brief mention of service in the communications intelligence service, but such mention was always limited to small segments of the whole field and to personal wartime experiences. In post-World War II publications the subject is conspicuous by its complete absence.

Another point is that no printed instruction existed dealing with the training, organization and missions of the German Air Force Radio Intercept (or Intelligence) Service. Only fragmentary instructions and Tables of Organization and Equipment were issued. All training was by word of mouth and practical instruction during current activities within the radio intercept elements of the units concerned, particulatly of the static radio intercept stations, and in preparatory courses at the several air fleets, which courses developed into permanent Radio Intercept Schools during World War II.

Radio (or Communications) interception (or intelligence) was considered too distinctly a special field of activities to be made known to wider circles than necessary.

In spite of the very specific and serious difficulties encountered, the author has been able to complete the study assigned to him and to complete it in the desired form.

He served in a leading position in this specialized field, was responsible for the build-up of the German Air Force Radio Intercept Service, and was therefore qualified to write on the entire complex of activities of the German Radio Intercept Service, its organization, the nature of its equipment, the selection and training of its personnel, the significant dates in the process of the build up, and the subject of personnel strengths and equipment authorizations, and to write on these subjects with accuracy. His pre-World War II and wartime assignments furthermore qualified him to give an appraisal of the development prior to and during the past war, and thus to offer an intelligible, accurate, and exceptionally detailed account, in spite of the great difficulty involved.

On the subject of the development of the German Air Force Radio Intercept Service during World War II, the author has been able to support his own experience and knowledge by the records and the memory of personalities who served in leading positions in the Radio Intercept Service and gained wide experience in the field, in all theaters of operations, and takes this opportunity to express his gratitude for their assistance. This support enabled him to achieve an extraordinary degree of completeness also in this very difficult part of the work, which is presented in Chapter 10 (Teil 11 in the German text).

What has been said above should not be construed to preclude further research and further supplementattion of the account presented in this study.

The author can justly claim to have completed a task which, besides the historical presentation, is devoted particularly to providing all fundamental data needed for the establishment and development of a future Radio Intercept Service and for the training of its personnel.

Berlin-Charlottenburg
30 August 1955

S/ K. Gottschling
Colonel (Retired).

THE RADIO INTERCEPT SERVICE OF THE GERMAN AIR FORCE

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COMMUNICATIONS INTERCEPT SERVICES

VOLUME I

PRE-WORLD WAR II DEVELOPMENT

CHAPTER ONE

DEFINITIONS

The Communications Intercept Services, which will be referred to in this study as the Intercept Service, serves a dual purpose, namely, (1) that of gathering intelligence information through the interception of communications and (2) that of concealing own potentialities, plans and operations by means of disseminated or suppressed communications, activities which will be referred to in this study as Camouflage and deception.

I. THE GATHERING OF INTELLIGENCE INFORMATION THROUGH COMMUNITIONS MEDIA; PRINCIPLES AND ORGANIZATION.

1.

1. "The gathering of intelligence information by the Signal Corps is conducted by means of monitoring all accessible foreign technical communications traffic in the air and on the ground by means of intercept and listening posts; heliograph observation teams and the tapping of communication lines. These activities require uniform direction, specially trained personnel, and the maintenance of strict secrecy."

2. The Communications Intelligence Service is an integral part of the overall Intelligence Service. It will be integrated within that service and will supplement the results

obtained by other media, or serve to confirm them.

The close contact of the Intercept Service with the Signal Corps is due to the techniques it employs.

3. Branches of the Intercept Service.

a. Radio Interception. This consists of the ~~IMIKK~~ monitoring of the radio communications traffic of hostile and neutral states, for example, the radio communications of their diplomatic services and their military services; and the locating of their radio stations by means of radio locating activities

b. Wire Communications Interception. This consists of t the interception and recording of the telegraphic and telephonic communications of hostile states by means of wire tapping and a listening service using special listening apparatus to listen in to the telephone and ground telegraph communications of the enemy.

c. The Monitoring Service, which monitors conversations and sounds by means of monitoring microphones.

d. The Monitoring of General Telephonic Communications. The purpose here is to obtain useful information from telephonic communications of the general public by monitoring the telephone networks in enemy territory.

e. The monitoring of heliograph and other light signal sommunitactions.

f. The capture of enemy message dogs and message carrier pigeons.

4. In addition to the above it is necessary to differentiate between a fixed intercept service, operating in permanently established posts on the one hand, and a mobile intercept service employing mobile teams, platoons, and companies assigned in accordance with the requirements of the current situation and mission.

5. The Communications Intelligence Service (Nachrichtenaufklaerung) of the Intercept Service processes the contents of the intercepted voice or teletype or otherwise written messages and, by means of a technical evaluation of the communications traffic draws conclusions as to the organization, composition, and strength of the enemy forces; by means of radio direction finding instruments and the observation of light signal posts it establishes the location of enemy radio and light signal posts and their movements and from a consolidated interpretation deduces an intelligence pattern.

6. The essential for successful intercept operations is constant training. Only a program of continuous training will insure personnel capable of a proper recording and processing of intercepted communications and will make it possible to keep pace with the constant technological progress

in the field of technical signal communications and the constant search for ever new means to safeguard and conceal communications traffic.

In like manner, constant observation and evaluation, and current practice at decipgering the material obtained from foreign communications traffic are all essential to provide the conditions indispensable for successful intelligence operations in this field in the eventuality of war.

An intercept service can not be improvised without a serious loss of time in which it will produce no useful results. For the above reasons, the Intercept Service must be maintained constantly in operation.

7. In the performance of its mission of interception of foreign communications an intercept service makes use of the following instruments:

Radio receivers, to listen in to the radio and wireless telegraphy traffic of the enemy ;

Television receivers to intercept enemy television messages;

Radio locators to determine the position of enemy radio stations;

Listening instruments to monitor telephonic communications through exploitation of ground currents;

Microphones to monitor conversations conducted without technical aids;

Line tapping instruments to tap telephone or telegraph lines for the interception of voice or other messages.

In accordance with the current mission at any given time the various units of the Intercept Service will be equipped with the above instruments.

8. Radio reconnaissance is conducted by the following forces:

a. Fixed radio receiving stations of the Signal Services and of the Intercept Service and their forward posts near the borders. The results obtained are processed on the spot and at the ministerial deciphering center;

b. The sonic observation or listening companies;

c. In special circumstances by other Signal Corps units.

9.

9. In detail, operations are determined by the current mission, technical possibilities, and the existing telephone and road network. Early commitment is essential since a number of days might pass in some circumstances before useful results are obtained. The mission assignment should state the mission, reporting channels, the technical chains of command (for instruments, personnel, and communications facilities), and the economic controls.

10. Examples of Radio Reconnaissance Missions.

a. Reconnaissance within area bordered on right by..... on left by ..... Primary Mission: To determine location of enemy command communication network.

b. Determine whether enemy radio posts operating south of the line .....

c. Are enemy withdrawing forces from ..... area?

d. Is new radio traffic noticable in ..... area from which the arrival of new forces can be assumed?

e. How many divisions has enemy ....Army committed in foremost lines within ..... area?

f. Are enemy movements noticable in ..... area?

g. Where are airfields in use by enemy located?

11. The data obtained by the Intercept Service requires processing before it can be used. In this processing the individual observations and features noticed are consolidated and interpreted, final deductions are drawn, and an intelligence report is prepared.

12. The processing stations should be located as closely as possible to the various field command headquarters. Copies of the analyses and reports should be furnished to nearby command headquarters besides the headquarters to which the station is assigned. This will enable them to obtain valuable information supplementing that obtained through other media,

to check the accuracy or otherwise of information already available to them from other sources. Very close cooperation is indispensable between the combat unit intelligence officer and the processing officer at the intercept processing station for a proper mutual analysis of the overall results obtained through reconnaissance. Frequent inquiries and visits at the intercept processing station should be avoided in order not to delay operations there. Any pressure exerted to speed up reporting might result in overhasty, unreliable, and faulty reports.

13. The work of the intercept processing station is to

analyze direction-finding data in order to determine the location of enemy radio transmitters;

analyze enemy communications operations and volume for the purpose of determining the enemy organization and disposition of forces from the volume and pattern of enemy communications;

analyze the content of communications intercepted, if necessary after they have been deciphered, in order to obtain an insight into enemy reports and orders;

prepare a final analysis consolidating the findings from the individual analyses to form a radio intelligence report.

Where it is not possible within a short time to

furnish a complete intelligence report, interim reports should be issued at short intervals giving the results of the partial analyses. As a rule the next superior headquarters of the intercept unit concerned will establish the reporting times. In any event particularly important items of information should be reported immediately.

14. Telephone intelligence information, obtained by by plugging in to or linking up with the telephone lines used by the enemy often produced highly useful results.

15. Sonar or listening operations are a responsibility of the sonar or listening observation platoons included in the corps headquarters signal battalions. The assignment of listening instruments in the zones of the various divisions is decided from case to case.

Monitoring microphones can be used with good results for the purpose of listening in to conversations, for example in prisoner-of-war centers.

16. Telephone reconnaissance operations can develop on within the system lines still operated by the German Post and Telegraph Service (Deutsche Post) or on lines and with installations no longer in official German use, as well as within the systems inside enemy territory.

In the frontier areas, and in the event of any withdrawal also in the rear areas, preparations must be made during

peace in collaboration with the Intelligence Service by means of the establishment of a network of reliable trained personnel to act as reporting agents, and the issue of code names, code keys, etc., and in certain circumstances of means of transportation to such reporting personnel.

During operations and also during quiet periods it might prove advisable within the homeland and, depending on the population, in enemy territory to commence telephone reconnaissance activities without advance preparations.

Telephone reconnaissance is an important media of battle reconnaissance for all troops within the homeland and in friendly foreign territory.

17. The exploitation of permanent type signal communications for the transmittal of information is not included under the heading of telephone reconnaissance.

18. Monitoring of Light Signal Communications. In order to produce worthwhile results the use of light signal units in light signal intercept operations must be regulated by specific orders.

The mission of a light signal observation team is to keep the enemy front under observation in order to detect and record enemy light signal communications. As a rule it will only be possible to intercept light signals flashed from the enemy rear to receiving posts at the enemy front.

Any messages thus intercepted and recorded must be channeled to the established receiving posts as speedily as possible.

Care must be exercised in evaluating any flashed messages, since allowance must be made for deception.

19. The Capture of Message Dogs and Carrier Pigeons. In the event of the capture of enemy messenger dogs or if carrier pigeons are caught or found in a wounded or dead condition, any messages found on them must be taken from their containers and forwarded to the nearest troop headquarters.

II. THE USE OF SIGNAL COMMUNICATIONS MEDIA FOR PURPOSES OF CAMOUFLAGE AND DECEPTION.

1. For purposes of camouflage the Signal Corps makes use primarily of selected methods of employing wireless means of communication. These methods can take the form of jamming enemy radio communications; radio silence; the maintenance of secrecy in and the monitoring of friendly communications traffic; other technical measures; and deceptive communications traffic.

2. "Camouflage by means of communications media," to give it a precise definition, consists of security maintained with the own communications traffic to protect it against interception by the enemy intelligence services, and

of deception by means of communications media.

3. "The Protection of Own Signal Communications Traffic against enemy Intelligence" includes all means devised to prevent or complicate the interception of own messages by foreign intercept services. Communications secutity thus consists of a concealment or camouflage of the own communication traffic with the object of keeping the enemy ignorant of ones own actual conditions and intentions.

4. Deception by Means of Technical Communication is an operational and at times a tactical measure. Its purpose is to mislead the enemy by simulating the presence of forces not actually present, of troop movements, and so forth. This deception should not be practised exclusively in conjunction with and to support other measures of deception, for example to substantiate simulated troop movements, false agents' reports, simulated plans of attack in other sectors, and so forth. If it becomes necessary to take deceptive measures in cooperation with the Army, the Air Force, the Navy, and the Propaganda Department (including radio broadcasting services), and all other means available to the Government, then it it proper not to talk of operational measures any longer, but to describe them as strategic or military-political measures.

5. Security, Jamming, and Deception operations,

11 have to rely on support from the own intercept service to be successful. Such operations are carried out by the air signal units under orders from the headquarters concerned and are also supported by flying units.

6. Jamming Operations, a camouflage measure as previously mentioned, are designed to completely disrupt enemy radio communications if possible, but at least to seriously delay such enemy communications. Such operations should only be ordered by high level commands, from the level of air fleet headquarters upwards and in agreement with the higher command levels of the army (from field army headquarters upwards). Jamming, similarly to deception, is active camouflage. The disruption of enemy communications is achieved by the use of special jamming stations. Best suited for jamming operations is a powerful transmitter, without suppressor, which, used together with a receiver, is tuned to a frequency differing by a few hundred kilohertz from that of the jamming transmitter. The conduct of jamming operations presupposes a precise knowledge of the enemy radio traffic system and support from the ~~XXXXXX~~ ~~XXXXXXXX~~ traffic and operations analysts ~~XXXXXXXXXX~~ of the permanently installed intercept stations.

III. Service Regulations and General Directives for the Intercept Service.

1. What has been said in I and II, above, is based

12 on German Army Regulations for the Intercept Service, as follows:

a. Army Field Manual 421/6: The Use of Means of Communications for Intelligence Purposes--The Intercept Service (Aufklaerung durch Nachrichtenmittel--H.-Dienst) and particularly on Part 421/6a: Principles and Organization (Grundsaetze und Gliederung).

b. RAN: Directives for the Use of Means of Communications for Intelligence Purposes (Richtlinien fuer die Aufklaerung durch Nachrichtenmittel) together with Bulletin D-78 : Deception and Concealment (Taeuschung und Verschleierung).

2. For details on regulations and directives for the conduct of the Intercept Service the reader is referred to the following:

a. Part 5a, 12 Regulations for the Use of Means of Communications for Intelligence Purposes in the Army (Dienstvorschriften ueber Aufklaerung durch Nachrichtenmittel beim Heer).

b. Part 6: Areas of Responsibility of the Intercept Service for Purposes of the Air Force (Das Aufgabengebiet des H.-Dienstes fuer Zwecke der Luftwaffe) Paragraph III.

c. Part 11 d, II, Paragraph 3: Training Regulations (Ausbildungsvorschriften).

Teil 3/1

CHAPTER TWO
ORIGINS OF THE INTERCEPT SERVICE; DEVELOPMENT OF THE GERMAN INTERCEPT SERVICE IN WORLD WAR I

I. ORIGINS OF THE INTERCEPT SERVICE PRIOR TO WORLD WAR I

1. The systematic monitoring of wire and later also of radio communications was first practiced in Austria. As early as in 1908 a service was established there for a careful monitoring, observation, and decoding of diplomatic communications. The various crises and wars in the Balkans later afforded the Austrians opportunities to further make profitable use of this monitoring system, by means of which they were at all times informed on the plans and intentions of the powers involved.

2. The first large scale use of wireless communications for military purposes was during the Italo-Turkish war of Tripolitania. This communications traffic was also closely monitored by Austria as a power closely interested in its neighbor, Italy. As a start, Italy established a complete network of wireless stations along the coast and, as the Italian forces advanced, extended this network into the interior. This facilitated a safe functioning of the command and communications transmission in spite of the difficult road conditions prevailing. Wireless communication with the Italian zone of interior was handled by the wireless stations on units of the Italian Navy stationed along the coastline

of Northern Africa. All ~~XXXXX~~ wireless communications in those times were handled by stations using high power, so that Austrian stations were able to monitor all traffic without difficulty. The Italians were very frank in their communications, which were usually transmitted in the clear; at the most they used very primitive codes. Owing to these circumstances, Austria had the best opportunity to develop a systematically planned intercept service long before the war.

3. The French commenced the establishment of an intercept service prior to World War II, probably in early 1913. As was the case with the whole French espionage system, the new service was centralized in the Second Division of the Ministry of War. When World War II broke out, the French already had an established organization; nothing similar was available to Germany at the time. The French Intercept Service commenced operations as soon as the situation became strained. They maintain that around the end of August and the beginning of September 1914 they were able to intercept German communications in the clear and that already on 10 September 1914 they succeeded in decoding a coded German telephonic message.

4. In Germany, the radio stations installed in the various fortresses in the eastern and western parts had, in addition to their normal functions, occasionally listened in to foreign major transmitting stations.

3 major transmitting stations, the object being to inform themselves on this communications traffic against the eventuality of being ordered to interfere with it in the event of war. The wireless messages intercepted in this way were not interpreted for use. Germany thus in every respect was far behind developments in this field and was only made aware of the importance of an intercept service by chance at a later date. This only happened during the Battle of Tannenberg.

II DEVELOPMENT OF THE GERMAN INTERCEPT SERVICE IN WORLD WAR I.

1. The large wireless transmitting stations in Germany admittedly commenced a limited system of listening in to wireless communications when the political situation commenced becoming increasingly strained. At least during the first five weeks of World War I, however, there was no possibility to decode wireless messages transmitted in code, so that the listening-service necessarily had to remain restricted to the interception of messages which by chance were sent in the clear.

2. As far as the Western Theater in World War I is concerned, no evidence has been uncovered of any case in which the German side intercepted any messages having any important bearing on operations up to the spring of 1915. This is probably due (1) to the fact that the French and British were

4 exceedingly cautious in their wireless communications traffic and (2) to the fact that they had available within their territories a completely intact telephone network for the transmission of their messages. According to the documents available, the German side during this period did not succeed in a single case in decoding British or French messages in cipher.

3. In the eastern theater, conditions were completely different. Partly because of the difficulties they encountered within the own territory as well as in occupied foreign territory in the transmission of messages, and partly under the pressing urgency of special conditions and situations, the Russians made exceptionally large use of wireless transmission and even transmitted important reports and orders in the clear. In August 1914 German wireless stations, particularly those at Koenigsberg, Graudenz, Thorn and Posen, therefore repeatedly were able to pick up Russian messages which proved of exceptional importance for the German Command. As previously mentioned, however, these were only chance results. It was not before mid-September 1914 that the German side succeeded in decoding Russian messages sent in code. From then on it was possible to organize a systematic intercept service.

Owing to the above circumstances the entire pattern of operations in the eastern theater during the war of movement in 1914-15 provides a practically complete example of how

5 the decisions and plans of the German Command were influenced by the information obtained through interception. Notable examples are: The Battle of Tannenberg; the Battle at the Masurian Lakes; operations along the middle reaches of the Vistula River in October 1914; and the operations at Lvov. Immediately prior to the Battle of Tannenberg, a number of Russian messages were intercepted in clear text during the night of 24-25 August 1914, which revealed clearly to German Eighth Army Headquarters the intentions of the Russian Comman for the next two days. Although these wireless messages were of imminent importance , it is necessary to emphasize here tha the decisively important decisions leading to the victorious outcome of the battle were not made on the basis of the intercepted Russian messages but had been made already before. However, the messages proved a valuable confirmation of the soundness of the decisions which had been made. It is necessary to emphasize this point, because certain historical writers in Germany and abroad endeavor to deprecate the fame of the German Army commanders who directed the Battle of Tannenberg

6 by exaggerating the careless Russian use of wireless communications. The detailed account of the Battle of Tannenberg published by the authority of the German Reich Archives states clearly on page 47 as follows:

In this way the disposition of the enemy forces

6 and the intentions of the enemy command became known to the German commander immediately prior to commencement of the battle. His decisions were not influenced thereby, but confidence was increased, since it was clearly evident that the enemy had not realized the German intentions and the imminent threat.

Altogether three wireless messages had been picked up. The one contained Rennenkampfs (Russian General) orders for 25 and 26 August, stating the objectives to be reached by the Russian Njemen Army on 26 August. A second message intercepted in the early morning on 25 August was from Rennenkampf to the Commanding General of the 2d Russian Guards Cavalry Division, General Rauch. According to this message Rennenkampf believed that the German army facing him was falling back on Koenigsberg, and assigned the cavalry defined reconnaissance zones during the pursuit operations which were to be initiated. The third wireless message was intercepted by the wireless station, under 1st Lieutenant von Richthofen, of German Eighth Army as

7 well as by the Thorn Fortress wireless station and was brought to Hindenburg's attention on the morning of 25 August. This message also was of exceptional importance and contained an order from the Russian Narev Army commander, General Samsonow, to the various corps under his command. The message revealed the order of battle and the plans of this army, which was

7 to attack on the following day. A point of interest here is that the 1st Lieutenant von Richthofen referred to was later at the head of the Army intercept station at Koenigsberg in the German Army reestablished prior to World War II, and allegedly a memorandum on the event described here was deposited in the former Reich Archives.

With a quick realization and appraisal of the importance of the information thus received, the German side from then on ordered a systematic monitoring of the Russian wireless communications traffic and obtained much useful information in this way. Unfortunately, a report on the valuable results obtained with this newly developed intelligence media appeared in the German press, causing the Russian Command to cease wireless transmissions in clear text and to make use of secret codes. However, the cipher messages of the Russian Command were decoded within a short while so that this valuable source of information remained available to the German Command.

8 4. However valuable this source of information was for the Command is best illustrated by what General Hoffmann in Der Krieg der versaeumten Gelegenheiten (The War of the Missed Opportunities) has to say on the subject:

> Throughout the campaign in the eastern theater only one Russian attack took us by surprise, namely, at the Aa River in the winter of 1916-17. In all other cases the

8 the concentration of the various Russian headquarters wireless stations evident from their messages reporting their arrival at their new posts revealed the concentration of Russian forces for some purpose.

In his account of the Battle of Tannenberg, General Hoffmann writes, inter alia:

> The planned withdrawal of the 37th Infantry Division proved a fortunate measure: It engendered in the Russians the belief in a general German withdrawal.
>
> The Russian Commanding General issued a pursuit order to his armys. The Russian wireless station transmitted
>
> 9 this order in clear text and we intercepted it. It was the first of innumerable orders which the Russians with inconceivable carelessness transmitted by wireless, in clear text originally and later in code. This carelessness greatly facilitated our conduct of operations in the eastern theater, and in fact in some cases was the only factor which made it possible for us to do so.

So far General Hoffmann. Ludendorf and Hindenburg in their respective memoirs also stress the imminent importance of wireless intelligence.

5. The experience gained at Tannenberg was thus the factor which initiated the establishment, on the German side, of a systematically organized intercept service. Initially,

responsibility for the new mission was assigned to the existing permanently established wireless stations. Early in 1915 wireless receiving stations , with the corresponding processing and decoding sections, were attached to the various army level headquarters in the field, and in February of that year a Central Processing Station was established at General Headquarters East. However, it was only from mid-1916 on that the German Intercept Service was properly developed. In June 1916 the first instructions for wireless receiving services were issued; a decoding control center was established at Army High Command Headquarters; after this one such center was established for each of the theaters of operations. In the eastern theater what was then called the beam receiving service, nowadays known as the DF service, had developed in the meanwhile. In addition to merely intercepting messages from enemy wireless stations, it was thus now also possible to determine their location. In this field a leading role was played by General Lindner, at that time in the rank of captain. At the end of 1916 each German army had its wireless receiving station and a wireless direction finding station.†

6. In the meantime, something entirely new had developed, namely, what at the time was called the Arendt Service, which employed a new instrument to intercept wire messages of the enemy. In systems using a single telephone wire, where

† The "direction-finding" instruments of the British were the first instruments used to locate enemy transmitters.

where the electric current returns directly to the ground, the current sets up waves similarly to what happens in space, so that here it was relatively simple to listen in to enemy communications with the Arendt instrument; However, this was also possible when a closed circuit system was used, because some current always escapes into the ground. The instrument was invented by a postal official named Arendt, after whom it was named. The present designation for what was then called the "Arendt Service" is Listening Service, which only commences operations in the event of mobilization. The results obtained with this new service were more of a tactical nature, since its use in general is restricted to an area extending roughly two miles into the enemy rear.

In 1917 the wireless receiving, direction finding, and Arendt services were consolidated in a single organization with the mission of intercepting, decoding, and interpreting communications.

Up to the end of the war this status of the Intercept Service remained almost unchanged.

III. FURTHER DETAILS ON DEVELOPMENT OF THE INTERCEPT SERVICE.

L. Eastern Theater of Operations. At the end of 1914 the permanently located wireless stations of the German Army for t the first time were assigned regular intercept missions. In addition, General Headquarters East at the end of

addition, General Headquarters East at the end of 1914 had Wireless Station E 1, in the western theater the Fourth Army had Station E 2, and early in 1915 Station E 3 was established at Mlawa for the Twelvth Army.+ After capture of the Narev fortresses, the other armies were also assigned intercept units. Initially, these units were not on the regular tables of organization, but in the autumn of 1915 they were included in the tables of organization as wireless stations.++

The first useful results in direction finding were obtained at Graudenz by Professor Dr. Kiebitz, a Captain of the Reserve, using radio-gonometers of the Telegraph Experimental Office. His work was greatly expilitated by the fact that the wireless operators concerned were for the most part students of the Dresden Technical College. General Lindner, then in the rank of Captain, Professor Leithaeuser, and Lieutenant Dr. Ulrich (Reserve), together with the staff of the Wireless Receiving Station 3 and again using equipment of the Telegraph Experimental Office, established three direction-finding teams on a non-table-of-organization basis at Mlava, Ortelsburg, and Plock . These three teams participated in the German advance in July 1915 and up to early 1916 were then stationed at Vilna, Lida, and Slomin, respectively. From 1 January 1916 on, regular

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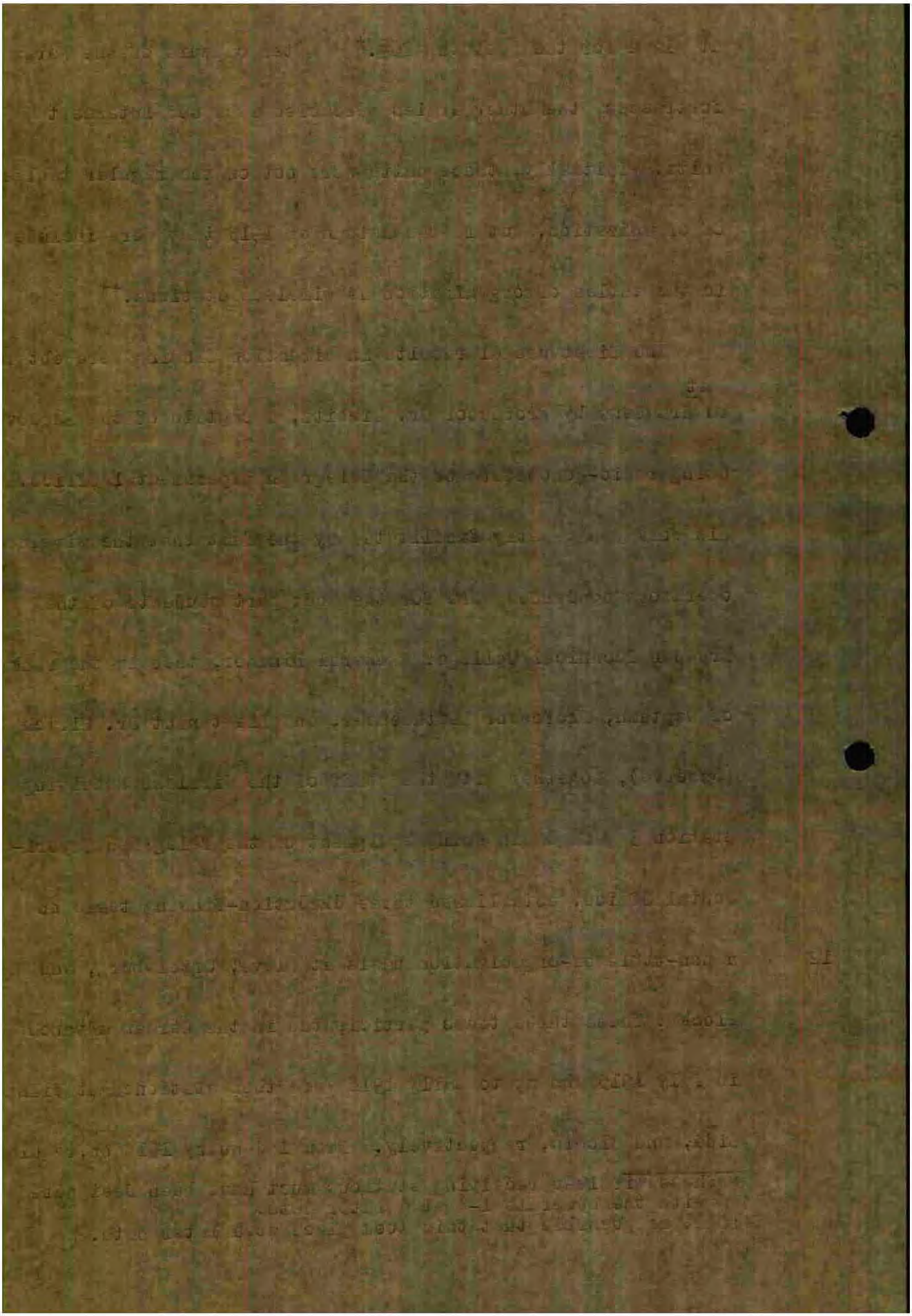
+ These wireless receiving stations must have been designated with the numerals 1-4 at a later date.
++ It is possible that this took place at a later date.



12 T/O radio D/F teams were established. As a start nine were assigned in the areas under General Headquarters East, and in 1917 ~~25 x D/F~~ a network of 25 D/F stations was established between the Baltic and the Black Sea. In March 1916, during the Russian offensive at Lake Narotsch, the wireless receiver teams for the first time were assigned the task of independently interpreting tactically the data they gathered.

The previously mentioned press report on the valuable results obtained with the new intelligence media was due to information from a wireless operator employed at the permanently emplaced wireless receiving station at Koenigsberg. An article appeared in the newspaper Koenigsberger Zeitung which discussed the means by which we had obtained our information on the Russians, with special reference to the Battle of Tannenberg. Strangely enough, the article escaped the notice of the censors. The result was that within twelve hours after appearance of the article, Petersburg (now known as Leningrad) was requested via London not to transmit wireless messages in clear text in the future.

Suddenly, all Russian transmissions in clear text ceased, and the German intercept units found themselves faced with the problem of wireless messages sent in code. The way in which
13 the change occurred revealed that no real consideration had been given in the past to the coding of wireless messages.

13 The letters of the alphabet were rearranged in accordance with a simple pattern and another weakness was that the signature of the coding officer appeared in each wireless message, a weakness which recurred time and again throughout the campaign in the eastern theater.

The names of these coding officers were known very soon and provided the decoding personnel with a guide in their work. The Russians made much use of wireless communication because their telephone network was totally inadequate. All headquarters down to division level, and sometimes even regiments, had wireless stations. This at that time was a marked sign of progress, particularly where the Russians were concerned, but it soon produced fateful consequences.

Even the more complicated codes used later caused no serious difficulties, and this applied, inter alia, to the 3-digit code from 000-999, which was even recoded with 5-digit numbers. A wireless officer in service at the time reports on this subject and on later developments as follows:

> About fourteen days passed before we began to grasp the system and the key to the code, a 3-digit number code ranging from 000 to 999. These were difficult times for the receiving stations of those days. Everyone worked at fever
>
> 14 heat without any chance for rest. Finally, however the key to the problem was found in the following way: The Russians

+ See p. 27.

14 adhered very strictly to a stereotype form in drawing up their wireless messages and/or orders, the contents of a typical message reading more or less as follows:

"To the Station Chief of the Wireless Station of the II Siberian Corps, Officer Candidate Kondratenko, for transmittal to Headquarters of the II Siberian Corps, General Brussilov.... (here followed the text of the order)

"Signature: Chief of the Wireless Station of the/1st Turkestan Corps, Lieutenant Iljakov, for Headquarters of the 1st Turkestan Corps, General Tereshtshenko."

In efforts to discover the code, the known ~~text~~formal text was substituted for the appropriate parts of the coded messages. A number of such messages thus treated were compared, and it was found that the test was correct. The groups of ciphers thus solved and their solution were then tested on other messages, the contents of which were still unknown, and by filling in the insolvable parts with the probable text fitting into what was known. The new groups of ciphers thus solved were then used on newly arriving messagesto see whether the assumed meaning was correct. If

15 they were found to fit into the pattern in three messages in succession they were reported to the center at General Headquarters East. By this method of association and care-

+ (p. 26): Lieutenant (Reserve), later Lieutenant Colonel (Signal Corps) Dr. Max Ulrich.

careful consideration it was possible to compile an almost complete pattern of this so-called technical code key, since very ample material was available daily for the purpose. The Russians were compelled to rely almost exclusively on wireless transmission because they had very few wire lines available, which naturally never extended to the points at which the various headquarters were located. In other ways, also, it proved relatively simple to obtain further clarification on their code keys. In some cases they would play entire sections of the key into our hands, for example, by replying in clear text to a coded message, or by repeating a message originally transmitted in a new code, the new repetition being in the old code because the receiving station was not yet in possession of the new one. Furthermore, owing to their reluctance to change codes, they were led into acts of extreme carelessness, as in the case of the 3Z code, which was used from the end of 1914 throughout the entire Russian offensive from the area of Mlawa-Prasnysz to as far as the Beresina River. Their transmissions of private messages over military wireless stations also provided us with liberal information concerning their plans. For example, a Captain Sementovski, [illegible], Chief of the Novo-Georgivsk wireless station, when that locality was enveloped by German forces transmitted his messages and greetings to his wife in Novo-Sibirsk

thrcugh his friend, Captain Seffer, who was in charge of the Grodno Fortress Wireless Station. These private messages to his wife frequently contained extremely interesting tactical explanations for our staff. In another way he rendered us a great service: We were at the time uncertain concerning the effect of our fire on the outworks of Novo-Georgievsk and the morale of the garrison within the fortress, and thus were not sure whether it was ready for an infantry assault. In this position we intercepted a message from him to his wife informing her that this was the last she would hear from him because his station was to be blasted at 0600 on the following morning and that he would not be able to communicate with her any more because he had to expect being killed or captured. All this he told his wife in the tender and extremely detailed way for which Russians are known. The German Command was wary of accepting all this at its face value and on the next morning at 0600 dispatched an aircraft to keep the wireless station, the location of which had been known to us for months past, under observation to see whether it was actually blasted. The airman returned shortly after 0600 with the report that an explosion had actually occurred at the spot indicated. Acting on this information the German Command ordered the assault on the fortress which was captured in abrief

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17 attack. At headquarters of the German Twelvth Army at the time this ~~xxxxxxx~~ last message from Novo Georgievsk was referred to as the "Swan Song of Novo Georgievsk."

On the afternoon of the day on which the fortress was captured we~~e~~ were on the spot to see whether anything of importance for us had been left of the wireless station. Practically the whole station staff was captured, since they were all still in the close vicinity, and were interrogated by our German translators. Initially our interpreters received no reply to their questions. Then one of our interpreters went up to the Russians and seized one of them by the sleeve, saying: "Come on Brother Ilja, don't try to be funny. We know all about you. Now look, you are Ilya, Where are Ivan, Sergej and Gavril, and where is the engine-man Waasilij?" Thereupon the Russians stared at him in surprise, and the ice was broken. They said: "That we would never have dreamed, but it is just so that the Czar and the Germans know everything."

From then on they answered all questions and time and again shook their heads in surprise when they were told things which they had thought they alone knew. Unfortunately, we failed to capture Captain Sementovski. As the wireless operators informed us, he had, although newly married, taken French leave with a pretty young nurse

18 from Novo Georgievsk. We found many thing at the station which were very useful for our purposes, the most important items being those we could use for our DF station, such as three completely new telescopic masts, gages, and detectors.

The 3Z cipher code referred to above remained in use by the Russians from the end of 1914 throughout the entire offensive from direction of Mlava-Praszcnysz to the Bere-

19 sina River, roughly in early 1916, so that some of our interpreters already knew it by heart, so that when a message in the code was placed before them they were able to say without referring to the code key whether the message was of any value to us or not. The Russians also had a 4z so-called tactical code. This code was too complicated for them, however, and they rarely used it.

Their call signals also were unmistakable. They all started with "ra", followed by the identifying letters of the station concerned, such as "rab" meaning Radiobobruisk, "rag" meaning Radio Grodno, and so forth. Furthermore, it was possible to identify the various stations by their tone, which was immediately noticable. All fortress stations emitted a relatively deep tone, and our operators were able to distinguish between them without difficulty. The field stations emitted a light tone similar to the Telefunken tone, but all were modulated and operated on a broad band.

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Call signals were rarely changed, and when this did happen, the new call signal was identified from the messages intercepted and by the three DF stations of the Twelvth Army within twelve to fourteen hours. A point to be taken into consideration here is that the number of wireless stations used in those days was so small, compared with present conditions, that a very small number of receiving stations and few personnel could handle the traffic. Furthermore, in most cases subordinate commands had to await being called by their superior headquarters, and an army headquarters in those days was interested almost exclusively in the enemy army or other army type headquarters opposite its own troops.†

2. In the western theater, as previously mentioned, the enemy commenced intercept operations at a considerably earlier stage than the German side. Immediately at the beginning of armed conflict the French Command instructed all wireless stations of its army in the field and all fortress stations to listen in to German wireless communications and to forward to General Headquarters all messages intercepted. According to French sources, their intercept service produced important results already during the first few months of the war. On 31 August 1914, for example, the French intercepted a message sent in clear text to German General von der Marwitz containing an order that his cavalry corps was to advance on the rail line

Soissons-Laon. This enabled the French to dispatch a composite brigade of the III Infantry Corps from Laon to defend the threatened rail line. Allegedly, the Eiffel Tower station also intercepted a number of wireless messages transmitted by the German GHQ Cavalry during the 1-12 September 1914 period, which provided the French Command with a fairly accurate picture of the movements of the German cavalry forces. It is an established fact that at the end of the Battle of the Marne the French for the first time succeeded in decoding German messages transmitted in code. It is said that the first such message was decoded on 10 September 1914. According to Millerand, French Minister of War at the time, the French in September 1914 also decoded a wireless message from the general commanding the German First Army , according to which that army was in a state of serious exhaustion and confusion and could only have continued its attack on 12 September. On the next day a message from General von der Marwitz transmitted in clear text was intercepted to the fact that his cavalry corps was incapable of movement. From these wireless messages the French, to use Millerands words "realized the scope of their own victory."

According to statements by Russian Quartermaster General Daniloff, the interception and decoding of a number of German messages between mid-September and early October 1914 enabled French General Joffre to take timely steps to prevent

21 the threatening development of the French northern flank by German forces.

In Lorraine General Dubail, commanding the French First Army, on 5 or 8 October 1914 received an intercepted and decoded wireless message from the German Fifth Army to Provisional Army Strantz containing an order to attack. This enabled General Dubail to take timely defense action which resulted in repulsion of the German attack.

Up to early in 1916 the only intercept activities by German units in France were those which the fortress wireless stations and Receiving Station 2 had been ordered to carry out.

Relatively simple as the development of the German intercept service had proved in the case of the Russians, all the more difficult was it to prove in that of the French. The French had wireless stations operating on frequencies completely different from those used by the Russians. In early 1915+ there was still practically no German intercept service in the West to monitor French field wireless stations. The reason for this was that the wave range on which the German field wireless stations operated did not extend to frequencies smaller than 400 meters.

+ On 1 March 1916.
+ (p. 32): For further details on the German intercept service in the eastern theater see Part IO a, 5.

22 A German wireless officer transferred from the eastern to the western theater reports on this subject as follows: +

"The order for my transfer from Wireless Receiving Station 3 in the eastern theater to Heavy Truck-Mounted Station 39 with the Fifth Army in the western theater early in 1916++ was accompanied by the following order from the Chief of Field Telegraph Services East:

23 "For the application and exploitation in the West of the experience on wireless receiving and direction finding gained in the East.

"After a detailed orientation at the Fortress Wireless Station Metz, the appropriate authority on the subject of intercept operations in our area, that of the Fifth Army Zone at Stenay and thus for the Verdun sector, no positive information was obtainable on the subject of intercept operations. Personnel of the Heavy Wireless Station 39 also were unable to furnish any information concerning any intercept activities which had been conducted. We therefore proceeded systematically to listen in to any French wireless traffic we were able to hear. However, all we were able to ascertain was that unidentifiable French stations were conducting communications with other stations, using the known abbreviations, such as "crv. and rtb." Strangely enough we heard only the calling stations and never any reply. We screened all

+ Lt. Ulrich (reserve). ++ On 1 March 1916.

the higher wavebands in efforts to hear replies, but without success. We therefore assumed that the replies were made by wire transmission or flash signal, or in some other form, but neglected to ascertain whether communications traffic was being conducted on frequencies lower than the previously mentioned wave-range of 400 meters.

It must be admitted, however, that at the time no receivers were available for wave-ranges below 375 meters, which perhaps accounts for the failure to tune in to lower frequencies. With very primitive means, including spools and condensers made by ourselves from the remains of destroyed receivers, we endeavored to construct instruments to receive frequencies as low as around 100 meters. We then experimented by coupling these with the Siemens 4-tube amplifiers turned in to Wireless Headquarters 5 by Arendt wire-listening stations as unusable. With their unenclosed transformers these had been unsuitable for the Arendt teams working in the wet trenches, since the loud whistling had made it impossible to obtain any amplification. After rendering the amplifiers serviceable by drying them in the sun, we were suddenly able to hear a large number of transmitting stations operating on wave-ranges in the 100-150 meter band.

After having ascertained in this way that the French also conducted two-way wireless communications, which could

37 furnish information that could be used for certain purposes, we requested the supply of receivers from the Communications Technical Testing Commission (Verkehrstechnische Pruefungskommission), Berlin-Charlottenburg, which could be tuned in to the previously mentioned wave-ranges around 100 meters. A start was just being made at equipping aircraft with wireless transmitting and receiving instruments, and the receivers designed for this purpose were supplied to us. In the same way the Commission supplied us, for experimental purposes, three DF instruments operating on the same wave bands. At that time the Fifth Army was the only German army in the West which had DF instruments. The frontage of the Fifth Army, running in an almost right angle was eminently suitable for DF operations and satisfactory results were obtained by using three instruments. Within a short while it was possible to establish the location of the French wireless stations up to the level of army headquarters stations. At the same time it was discovered that the DF data sketch thus compiled corresponded almost exactly to the pattern of the location of French headquarter as shown in a map made available to us by the Intelligence Officer of the Fifth Army. Later the receiving station with its DF instruments was also furnished DF instruments

operating on the 500-2000 meter wavebands, so that from 1917 on we were able to monitor all wireless communications traffic in the areas opposite us.

Towards the end of 1917 the receiving station was made a regular table-of-organization unit of the Fifth Army and was designated "Wireless Receiving Station at Fifth Army -- Wireless Battalion 5 (Funkempfangsstelle bei der 5. Armee - Funkerabteilung 5)" From then on the battalion each day furnished to the Intelligence and Operations Divisions at Fifth Army Headquarters a complete communications intelligence map together with interpretations. These data were also furnished to the Interpretation Section at the Army High Command and gave full details on the opposing enemy units, such as the positions of enemy headquarters and artillery observers, down to the level of corps. By the use of special data sheets on the individual French Divisions in the zone, and the recording on these sheets of every minute detail discovered concerning those divisions, it became possible after some time to identify immediately at any given time the relief of any one of the divisions or the commitment of a new division on line.

Early in 1918 a secret order by General Ludendorff established the fact that the activities of the communications intelligence processing stations made it possible to obtain a

27 tactical intelligence coverage together with the socalled "reliable reports". These reliable reports were those received by the various unit intelligence officers from spies, patrols, the interrogation of prisoners of war, agents, and so forth and were not always quite reliable.

The information gained through intercept activities was all due to breaches of transmitting discipline on the part of the enemy radio operators, certain personal habits of the various divisional transmitters, specific features peculiar to the individual transmitting instruments, and so forth. It should be noted here that, in contrast with the German system of stationary local wireless transmitting stations, the French wireless units were organic to their divisions and moved with them . Other indications were given by abbreviated signatures transmitted with messages, the habit of transmitting daily at the same time, each division having a separate time.

With the exception of these minor weakness in their wireless service, the French were very careful to communicate exclusively in code. Cases did occur, however, when we were able to obtain valuable information even from their coded messages. In February 1918, for example, a French battalion found itself in a critical situation at Verdun and transmitted a message directly to its parent division

28 requesting support. With our DF instruments we were able to establish the location of the battalion headquarters immediately . The key to the code used being also known to us we were able at once to decode the request for support, which was in the form of a report from the Battalion commander,a major named Foucar or something similar, stating urgently that his battalion was completely isolated by German fire, had no rations or food, and could only hold out a few hours unless support arrived. We immediately turned over the decoded messagesto the operations officer and, after a personal report to the army commander, who desired to be informed even on all minor details, the order was given to attack the battalion. The attack was launched after brief and appropriate preparations, and led to the capture of the completely exhausted battalion together with the battalion commander. The commander was shocked with surprise when our intelligence officer addressed him by name.

In like manner we were also able to obtain good results in monitoring the wireless communications of the French air units in the Fifth Army zone and were thereby able to support our own air units. In our DF operations we had often been able from the action of French artillery air spotters to determine the observation areas assigned to the artillery air spotters. In a conference with the Fifth Army Air Support

29 Officer and the officers commanding the fighter squadrons we discovered that it would be highly important for them ot be informed of the observation areas immediately whenever French aircraft appeared. The fact that direct communication existed between the receiving station at Fifth Army Headquarters and its DF teams made it possible to inform the fighter squadrons concerning enemy aircraft operating in their specific areas, stating that such and such a French aircraft was in Grid Square No.x directing the enemy artillery fire. The fighter squadron concerned could thereupon take off with a specific target, knowing that it would find the French airman spotting for the artillery within a specific area. In some cases the report came in within ten to fifteen minutes that French plane "xy" had been shot down or otherwise destroyed. On days with favorable flying weather we in this way sometimes succeeded in having as many as three French artillery spotter planes shot down.+

We will surely not find things so simple in any future war, although intercept units are the only units which can even during peacetime carry on the activities they would carry on during war and, which can, so to say, be involved in war during peace.++

+ Part 14 of "Wasbereiter (Pioniere) des Funkhorchdienstes" gives a complete account of the development of the German Intercept Service with all details.

++ See also Vol. 1, Chapter 10, a, 5, for details on the Intercept Service in the western theater.

CHAPTER THREE

THE INTERCEPT SERVICES OF FOREIGN POWERS DURING AND AFTER WORLD WAR I

As far as was essential, the intercept services of foreign powers have been dealt with previously in relation with the German intercept service. In this chapter the foreign intercept services will be dealt with in more detail, with a view to developments also after World War I.

Just as Germany had done, her opponents during the war had each developed a comprehensive organization for "observation through communications media." Particularly England and France were placed in a favorable position by this means to operate against Germany.

1. Britain. The British Navy in particular did thorough work in this field. According to a British post-World War I publication, Russian divers had salvaged a copy of the German naval code, consisting of two signal code volumes and one wartime code key volume, from the German cruiser Magdeburg sunk in the Gulf of Finland, although the volumes had been properly thrown overboard in accordance with regulations. The British Admiralty received these volumes from the Russians and had them in their possession as early as in October 1914. The British maintain that a study of this German Naval Code revealed to them the principles on

which the German Navy developed its codes, that this had enabled them to crack all later German codes, and that they were therefore able to interpret the wireless communications of the German Navy speedily. This placed the British Navy in the position of always knowing beforehand when the German Navy planned to put to sea.

It was not possible to conceal these circumstances from the German Navy, which exploited the fact to play false information into British hands. The deceptive messages transmitted by Admiral Scheer on the morning of the Battle of Skagerak are generally known. By exchanging his call number with that of the port of Wilhelmshaven he misled the British Naval Operations Staff into believing that the German Battle Fleet was still in the Jade and that the only units opposing Beatty were Admiral Hipper's battle cruisers. Support under Jellicoe arrived too late, after Beatty had already lost three of his best battle cruisers.

Korvettenkapitaen Kleikamp in Naval Field Manual (Marine-DienstvorschRift) No. 13 gives a good account of the influence of wireless communications intelligence on the conduct of naval operations in the North Sea in 1914-18. The manual was published in 1934.

The high standards of performance of the British wireless intelligence service was also evident in Britains air

force during the period between World War I and World War II. The lively wireless communications maintained within the British air force revealed many indications, which one was, however, able to obtain easily by other means, since Britain in view of her powerful position and her insular situation could afford to play her cards in accordance with peace-time conditions. Churchill in his memoirs mentaions that, under orders from the German Chief Signal Officer, General Martini, whom he mentions by name, a German zeppelin undertook a cruise along the east coast of Britain to spot the British radar network, but that the trip was unsuccessful because he, Churchill, had been able in time to order transmission silence.

2. The status of the intercept organization in France has been discussed in Chapter Two, above, where mention was also made of the results achieved by that service during World War I. On the whole, the French had cause to be satisfied with their intercept service. One French army, for example, reported that the intercept service frequently was the only source of information for its intelligence division. Because of the high capabilities of their own service and in view of German material captured, such as communications intelligence reports and even a German service manual concerning the intercept service, it was clear to the French that their German opponents were able to inform themselves by the same means just as well and perhaps

even better. For this reason the demand was made later in France that every officer, regardless of what arm he was in, should be made aware of the consequences resulting from misuse, ineptitude, and a neglect of regulations in the operation of communications media.

As far as the wireless communications of the German air forces were concerned, the French intercept service already handled problems very astutely. Thus, they kept German artillery spotter planes systematically under observation and had the station established by DF instruments. Then the information was transmitted to the French antiaircraft artillery and fighter units for counteraction. At the same time the observation balloon in the area concerned was informed and instructed to determine the German battery the fire of which the German plane was directing, and to bring down French artillery fire on that battery.

Between the two world wars France had available a well developed and soundly organized intercept network along her borders and coastlines, including stationary Army intercept stations at Metz, Besançon, Bourg en Bresse, Grénoble, Nice, Marseille, Toulouse, Bordeaux, Le Mans, Rouen, Amiens, Lille, all of which were equipped with DF instruments.

In addition to the stationary service, the French naturally also had a mobile intercept service, employed in a manner

5 similar to that described for the German service. Overall direction of the entire intercept service in France was a responsibility of the Chief of Wireless Communications in the Ministry of War. In the matter of intelligence activities he was subordinate to the Intelligence Division of General Staff which, among its various agencies, included a Cryptographic and a Processing Branch.

A lieutenant colonel was at the head of the Cryptographic Branch, and his rank indicates the importance attached to this service in France.

From the historical point of view it is also of interest to note that the French after World War I also maintained seven intercept stations within occupied German territories, namely, at Landau, Dueren, Koblenz, Mombach, Neustadt, Trier, and Kaiserslautern.

3. Czechoslovakia. With the exception of the legionaries who had received training in Russia, the Czechoslovak military services as they existed at that time were a product of the former Austrian army. It was therefore natural that the Czechs also organized their intercept service after the pattern of the excellent Austrian Communications Intelligence Service.

6 Already in existence was a network of stationary intercept stations. Their army wireless stations also conducted intercept operations, and it was observed frequently that they

6 formed motorized intercept platoons for the conduct of signal service field exercises or for participation in general maneuvers.

The Czechs owed much to their intercept services during the initial stages of their new state, for which reason they devoted great attention to it at all times. Even before they had their own independent state, the Czechoslovakian secret organizations had successfully operated an intercept service supporting the Western Allies and Russia against the Central European Alliance of Germany and Austria.

In 1917 a Czech engineer, Ocenasek, heard from Czech officials employed by the telephone services that a direct cable line existed between Vienna and Berlin and that it was in position outside of the City of Prague. He rented a house situated adjacent to the line and there established a listening-in station, by means of which he was able to intercept all messages on the line.

In the way it was possible for him to keep Czechs abroad, including their leaders in exile, Mazaryk, Benesh, Stefanik, etc., currently posted on events in the theaters of operations and in the interiors of the Central Powers. What the Czechs considered as the most valuable feature of this service was the fact that it enabled them to judge the very hour when time was ripe for them to initiate steps

7 proclaiming their own independent state. Ocenasek has repeatedly published accounts on these activities of his.

In detail the following remains to be said concerning Czecoslovakian radio communications:

The purposeful efforts of the Czech General Staff and its well trained signal officers resulted in great circumspection in the use of wireless communications. A noticable point was the small frequency of coded messages, which made it impossible to decode the few such messages intercepted. Very strict radio discipline was observed in the transmission of messages in clear text including the address of the ~~receiver~~ recipient and the signature of the sender. There was a notable lack of the mention of command post or other localities, troop units and agencies, airfields and similar details which in the case of all other countries, including Britain, France, Italy, and Soviet Russia, always occurred and filled complete volumes in the monthly intercept reports.

For these reasons, radio ~~xxxxxxxxxxxxx~~ intelligence against Czechoslovakia for a long time failed to reveal any headquarters or other agency, any name, or in fact any other worthwhile information. It had to be assumed that this radio discipline, or one might better say radio operating peculiarity, was due to very able experts of the former Austrian intercept service had entered Czech services after the end of World War I. These

8 experts had drawn their conclusions from their experience in World War I and were applying them for the benefit of their country.

However, only a small country with a relatively adequate network of wire communications could afford to maintain such severe restrictions under peacetime conditions. Bigger powers and particularly those with large air forces cannot exist without lively wireless communications traffic.

Another remarkable point in the Czechoslovakian system was that no trace was discovered of ground-air communications between the Army and later the Air Force intercept stations. It was assumed initially that the Czechs maintained no tactical ground-air communications. German intercept stations moved very far forward to the border later proved this assumption false and clearly showed that ground-air communications were maintained. The radio traffic thus intercepted also made it possible to track the air routes used.

4. Austria. The Federal Republic of Austria made strenuous efforts to rebuild its intelligence service, which included an intercept service and which had proved so valuable in

9 in the past. Intercept platoons and a Decoding Group were activated and in 1935 Generalmajor Ronge, the last chief of the former Austrian Intelligence Service, was appointed to head the newly established service. His work "Kriegs-und

Industriespionage (Military and Industrial Espionage)," published by the Amalthea Verlag deals in detail with the Intercept Service and is well worth reading.

With the annexation of Austria, the German Armed Forces secured a staff of thoroughly trained intercept service personnel, even though their numbers were small.

5. Italy and Poland. Little can be said concerning the intercept services of these two states during the period of the German Third Empire. Italy and Germany were close firends and for a long time excellent diplomatic relations had also existed between Germany and Poland. Radio intelligence operations directed against these two states therefore remained restricted to the necessary essentials. Poland's very limited radio traffic presented no problems. Its stationary radio network was known, and there was very little Ground-air-ground communications traffic. The organization of the Polish intercept service was of small interest and hardly produced any results.

6. The Soviet Union. Great attention had to be paid to the Soviet Union, if for no other reason then alone because of the relatively lively radio communications maintained over great distances in Soviet territories, and because of the liberal use made of radio communications during air maneuvers. The results obtained were very useful, revealing the creation

of an air force of considerable strength, but at the same time certain flaws in radio operation.

Nothing could be discovered concerning the existence of any Russian intercept service, far less so concerning the organization of or the results obtained by any such service. It had to be assumed that the Soviets were very well informed concerning Germany.

CHAPTER FOUR

REESTABLISHMENT OF THE GERMAN INTERCEPT SERVICE IN THE REICHSWEHR+

THE ARMY INTERCEPT SERVICE AND ARMY-AIR FORCE-NAVY COOPERATION

1. Germany's military collapse in November 1918 also resulted in a complete destruction of the German Wireless Intercept Service. However, a start was made already in March 1919 with tye establishment of a voluntary service, the Voluntary Processing Branch of the Army High Command (Freiwillige Auswertungs-Abteilung der OHL), which first set about salvaging as much as possible from what was left of the old service in efforts to establish a basis for a new intercept service.

2. The war against Poland in 1920 then gave cause for an official reestablishment of an intercept service. The Cryptographic Center of the Army High Command (Chiffrierstelle der Heeresleitung) was established within the Defense Ministry. Through circumspect direction and with able support from an energetic staff this center succeeded in developing the new Army Intercept Service into a valuable command instrument in spite of the steadily increasing demands. The Navy, which already had its own "Observation Service," developed that service through its own central agency.

+ Germany's post-World War I 100000-man Army.

3. The Army Intercept Service of the new German military establishment relied on a number of intercept companies operating in particular with a network of stationary wireless receiving stations established as close as possible to the borders but still far enough within German territory to insure that they would not be exposed to any immediate threat in the event of war. Premanently established DF stations were integrated with a number of these stationary wireless receiving stations. They were moved very far forward to the borders and were to serve primarily for direction finding purposes. On special occasions, for example, to monitor military maneuver in foreign states, the wireless receiving stations organized small mobile intercept units on a temporary basis and committed them as far forward as possible at the border for intercept and direction finding purposes. On some occasions they were assigned elements from existing intercept companies for this purpose.

4. The stationary receiving stations in the circumstances described above became local intercept centers. The following stationary receiving stations were in existence at the time:

Koenigsberg (later at Kranz near Koenigsberg)
Breslau,(later at Striegau)
Jueterbog (later at Treuenbrietzen)
Muenster-Mauritz
Stuttgart

2

Soecking bei Starnberg, near Munich

Pasewalk

Bayreuth.

The whole intercept network of the Army was controlled by the Army CINC Cryptographic Center, which handled the decoding of messages and the final interpretation of all data.

Each stationary radio intercept station,++ regardless of whether it was an Army, Navy, or Air Force unit, was assigned its defined intercept zone, which usually comprised a number of countries, which it was to keep under constant observation. The size and location of the zone of any station depended on the site of that station and its location in relation to the countries whose communications were to be intercepted and the distances involved.

The better the system of intercommunications is within such an organization, the faster will it produce resultsfor the command.

5. Apart from its stationary intercept network the Army also had intercept companies. Prior to the establishment of these companies it had been usage during maneuvers to organize, with great difficulty, temporary intercept platoons to monitor the radio traffic of both sides participating in the meneuver. The valuable experience obtained with these platoons was what

+ For more details on the stationary network of the Army see Chapter 5 a, 6.

++ Note by translator: It appears wise to use the term "radio" from here on instead of the term "wireless," since radio was introduced between the two world wars.

gave rise to the motorized intercept companies, the mission of which in any war was to be to keep enemy communications by radio under surveillance along the fronts. However, the training given these units was not fully in accordance with their intended mission , since they were used too often at monitoring German radio communications traffic. However,after a short while they were soon relieved of such responsibilities and employed in a manner more consonant with their purpose, namely, in peactime , besides participation in maneuvers, to monitor the radio traffic in fore gn countries so as to familiarize themselves with conditions in specific areas. In this way they supported the stationary intercept stations during peace. The areas to be monitored were classified as Zones I, II, and III and assigned to the appropriate intercept companies and stationary points;; intercept instrument operations and data interpreters from the intercept companies were detailed for temporary service in the Stabs Radio Intercept Stations, and activities were carried out in mutual support to maintain surveillance over maneuvers by foreign forces. The wartime mission of the companies was to be to intercept enemy radio traffic in the front areas, while the permanent stations were to monitor radio traffic in the enemy interior. More details will follow later on this subject.

6. The German Navy, as previously stated, did not

4 make use of the term "intercept" but designated its intercept service the "Observation Service." In accordance with the location of the German naval bases and according to the foreign navies against which the German Navy might have to operate in the event of war, the naval intercept stations were distributed along the shores of the North and Baltic Seas. The control center was at headquarters of the Commander in Chief of the Navy, but the subdivision of the whole network into subsectors insured a certain measure of decentralization, an essential feature in view of the long, indented coastlines along which the individual stations were situated. Apparently, no solution had yet been found by the Navy for the problem of mobile intercept stations, a subject on which more details will be found in Chapter 5, 14xxxx , together with more information on what has been dealt with here.

7. All that can be said here concerning the German Air Force Intercept Service is that its stationary network had to be adapted initially in accordance with the locality of the various AF Administrative Districts. Later, the governing feature was the location of the individual air fleet headquarters, the concentration areas of the operational air forces, and the requirements of mobile operations.

A later chpter of this study will deal with operations of the Army intercept Service, its cooperation with the Air

Force and the principles observed in both the Army and the Air Force.

8. Radio Intelligence Operating Procedures. Operating procedures, particularly in the event of mobilization, were to be more or less as follows:

a. The Army CINC HQ Cryptographic Center at the same time served as an organ of the Joint Military High Command. It therefore had a dual mission, that of gathering military-political/strategic intelligence data for the Supreme Commander, Joint Military High Command, and that of gathering data for the Army High Command.

b. The material was gathered by stationary intercept stations and interpreted by them and the Cryptographic Center. Military-political and/or strategic intelligence included information on such subjects as mobilization, Army-Navy-Air Force cooperation, propaganda (including radio broadcasting), relations with foreign states, supplies, public opinion.

c. The AF Intercept Service, which was headed by a Cryptographic Center similar to that of the Army, actively supported the Army's center in handling the missions mentioned above. In all other respects, however, it confined itself strictly to its assigned mission, which will be dealt with more fully in Chapter 5. This was essential because

all permanent intercept installations of the Air Force, besides being under the Air Ministry, were assigned under the various high level field commands of the Air Force, so that they also had to serve as intelligence gathering agencies for these.

d. The Army intercept companies were units of the Commander in Chief of the Army and had the mission of operational radio intelligence. The purpose of their activities was to afford the Command an insight into the enemy conduct of the war, and into enemy plans, down to the level of field army headquarters, not including the far enemy interior. These activities were thus designed in particular to provide a picture on the composition of enemy armies, the frontage held by each enemy army, the depth in which it was organized, supply organization and replacements, movements in the enemy rear, enemy assembly and concentration areas, and so forth.

Each German field army could be assigned intercept companies, but this was not always done. At mobilization the intercept companies were to activate intercept platoons for assignment to corps, each of which had one such platoon for the purposes of tactical intelligence. Divisions were at liberty to conduct radio intelligence activities with their own radio receivers when the occasion demanded.

9. In the case of the Air Force, the intercept companies

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7 were intelligence gathering organs of the Commander in Chief of the Air Force and of other high level headquarters of the Air Force. Their mission was to gather operational and tactical intelligence concerning the opposing operational air forces, in which mission they received efficient support from the stationary intercept stations of the Air Force.+

10. Tactical intercept intelligence for the air units assigned under the Army was to be conducted by the Army Intercept Service. However, the Tactical Air Support Commander assigned to an army or other headquarters was authorized to organize his own intercept service if he desired, using his assigned signal personnel for the purpose.+

11. The operations of the intercept units depended both in the Army and in the Air Force on the nature of the mission, the available technical capabilities, and on the available communication channels. Communications intelligence operations were always to be initiated by special orders; and early start was essential because a certain amount of time was needed for the operations to commence producing results.

12. The Radio Intelligence Mission Assignment Letter was required to state to the CO of the intercept unit concerned his monitoring area, on what main emphasis was to be placed and the purpose of the intelligence activities ordered, and the particular ty e of information particularly desired. It is only

natural that the intercept unit commander had to be precisely informed concerning the German situation; he also had to be informed on such subjects as German call signals, frequency allocations and so forth.

The intercept unit commander and the commander of the processing and interpreting section had to be located in close proximity to the headquarters they were serving.

13. Concerning the Listening Service operating with Arendt instruments in the Army it remains to be said that during peacetime no organized listening service existed. Plans provided that in the event of mobilization the signal battalions of the Army were to activate special listening platoons organized in teams. For the Air Force such listening services could not have served any useful purposes.

~~[illegible]~~

The Intercept Service was not the only, but it was nevertheless a highly important element of the entire Intelligence Service.

14. The Peacetime and Wartime Organization and Operating Procedures of the Naval Intercept Service were as follows:

+ (p. 59) See also Chapter 4, 15.
++ (p. 59) See also Chapter 4, 16.

a. Under peacetime conditions the necessity to maintain surveillance over the Atlantic, the Baltic Sea, and
9 the Mediterranean combined with the requirements for DF operations resulted in the following organization and pattern of operations:

(1) A Control Center at Headquarters of the Commander in Chief of the Navy in Berlin.

(2) Three Control Stations, namely, one at Neumuenster in Holstein; one at Soest in Westphalia; one at Landsberg am Lech in Bavaria. The latter was responsible for coverage of the Mediterranean areas.

(3) Four District Control Stations, namely , one each at Wilhelmshaven, Kiel, Swinemuende, and Pillau.

(4) Eight Intercept Stations, namely, one each at Borkum, Nordholz, List, Falshoeft, Arkona, Stolpmuende, Kahlberg, and Pillau. The latter station also had equipment for mobile operations. The intercept stations were responsible to their respective District Control Stations.

b. Operating procedures during war were the same as during peace. The Navy High Command had its Control Center at Headquarters of the Commander in Chief of the Navy, which controlled the three Control Stations; these in turn controlled the four District Control Stations with their assigned Intercept Stations. In contrast with the Radio Intercept Services of the Army

and of the Air Force, which operated through mobile intercept units assigned in the front areas during war, the Naval Intercept Service relied essentially on the above organization of stationary intercept units along the coastlines, plus new stationary units established there and along the coasts of occupied territories. For specific operations personnel were taken from these intercept units , formed into intercept teams, and employed on ships. The intercept service rendered particularly valuable services in establishing the position of enemy convoys, against which it was then possible to dispatch submarines and air units. Other ship movements were also successfully tracked. Cooperation with the intercept and radar services of the Air Force functioned well and produced good results.+

15 . Explanatory Information on Chapter 4, 9. Under peacetime conditions, main emphasis in Air Force intercept operations rested with the stationary intercept stations, which were maintained at full authorized strength even during peace. Prior to mobilization in 1939 this element of the Intercept Service had in operation under the AF Signal Corps four Radio Intercept Control Stations and ten Intercept Stations. (See Chapter 10, A, I, 4).

The intercept companies were still in process of activation . The only elements of this branch of the Intercept

+ For more details see Chapter 4, 6.

Services of the Air Force in existence prior to the war in 1939 were one motorized intercept company of the AF CINC HQ Air Signal Battalion, and nine motorized intercept platoons. One each of these platoons was assigned under the AF Training and Experimental School, and under the I and II Battalions of the First, Second, Third, and Fourth Air Fleet HQ Air Signal Regiments (See also Chapter 8, II, 4, b).

Peacetime training of the motorized intercept units was improved by personnel detachments to the permanent or stationary intercept stations. They also provided motorized intercept teams for the stationary units to operate planned forward receiving and DF operations.

In spite of the above training measures, however, the training status reached by these units was not equal to that of the stationary units owing to the short period which the military personnel served. Furthermore, they had not available good personnel replacements, which were available to the stationary units in their well-paid staff of civilian employees, men who had served for years as radio receiver operators, linguistically trained data interpreters, and decoders.

At mobilization each of the two intercept platoons (motorized) of each Air Fleet Headquarters Signal Regiment was assigned a permenent station of its air fleet. The two

11 platoons each expanded to form a company, the 9th and 10th Companyunder the Intercept Section of the III Radio Intercept Battalions ~~of~~ organized at the ~~m~~obilization under the air Signal Regiments ~~of~~ the First, Second and Third Air Fleets. Each such ~~company~~ company comprised a company headquarters section , 1 stationary and two motorized intercept platoons. These intercept companies were the radio intelligence units of the air fleet headquarters. A III Battalion for the Fourth Air Fleet HQ Air Signal Regiment was also formed at mobilization, but it received only a 7th Company consisting of a headquarters section and a radio receiver and interpreting platoon reinforced by the Weather Station 14 of the AF CINC HQ Regiment assigning Motorized Intercept Platoon

12 Herold, intended for operations in Slovakia. This 7th Company under the Fourth Air Fleet operated in coordination with the intercept station at Breslau, a stationary unit designated Weather Station 11. Intercept operations in the Fourth Air Fleet zone were directed by the air fleet's Weather Reporting Control Station 4, which also controlled Weather Stations 14 and 11 and a Special Purposes Weather Station(See also Chapter 10, B, I, 3).

The motorized intercept platoon[+] of the Training and Experimental Regiment at Koethen/Anhalt and the 6th Company of the AF CINC HQ

12 of the AF CINC HQ Motorized Air Signal Battalion+ at Potsdam-Eiche were reorganized at mobilization as two full-strength motorized intercept companies, each with two motorized intercept platoons, and integrated with the III Battalion of the AF CINC HQ Air Signal Regiment established at mobilization. This battalion consisted of the battalion headquarter staff, the AF CINC HQ Cryptographic Center (the chief of which was at the same time in command of the battalion), and the two companies, both motorized and designated the 9th and 10th (for more details see Chapter 10, A, II, 1c and Chapter 9, II, 4b, cc).

With the opening of the war of movement in the western theater emphasis in intercept operations shifted from the stationary units hotherto operated by 9th and 10th Intercept Companies under the III Battalions of each air fleet's Air Signal Regiment. The stationary units were now taken out of the companies and replaced in each company by a newly created second motorized intercept platoon, thus bringing it up to full strength as a complete motorized intercept company. The battalion headquarters and intercept control stations were rendered mobile and ~~accompanied~~ each accompanied its III Battalion in the advance into occupied territory . For the time being each battalion continued operating its stationary unit in the zone of interior , which was now concerned

primarily with long-range DF operations. In some cases even the stationary units were moved forward with the rest of the battalion into occupied territories. Each such III Radio Intercept Battalion as a rule had two stationary units, in some cases three, in addition to its Intercept Control Station and its two Intercept Companies, the 9th and the 10th. When necessary they were assigned additional motorized intercept and other units.

Besides these Radio Intercept Battalions assigned to the air fleets, each air fleet within its zone also had the Intercept Company (9th) Company of the air signal regiment assigned to each of its air corps. These units were assigned to execute special missions for the air corps , chiefly in connection with fighter operations, but in matters of intercept operations was under the Intercept Control Station of its air fleet.

It was due to these circumstances that each of the III Radio Intercept Battalions (Intercept Control Stations) later controlled a large number of intercept companies, which led later to the creation of Radio Intercept Regiments. The intercept control stations, hotherto only provisionally motorized, then became fully motorized intercept companies designated processing companies.

+ on pp. 64-65: This was the 2d Platoon, 2d Radio/and Intercept Operating Company, Air Signal Training and Experimental Regiment. The company had one radio intercept platoon (Mtz), one intercept operating personnel (Mtz) and one operating platoon (Mtz).

14 It happened occasionally that an air corps signal officer caused difficulties about the control exercised by the intercept control stations over ~~their~~ "his" intercept companies.

16. Explanatory Information to Chapter V, 10. It appears that the feeling had been that radio reconnaissance for the air units assigned under army command was primarily a responsibility of the Army Intercept Service. In cases of need the Commander of Tactical Air Support attached to an army group could have requested support from the Air Force Intercept Service. He also had the possibility of instructing his signal staff officer to organize an intercept unit of his own in particular for the purpose of detecting enemy fighters, of warning Army air units operating ahead of his sector, and of directing his own fighter units in operations against enemy fighters and his tactical reconnaissance units in theis operations. However, even if the signal staff officer had used his best radio operators for this purpose some time would have been lost before the provisionally established intercept unit could have operated profitably. Later in the war it would have been possible for the various air corps headquarters intercept companies to furnish the necessary reports to the units assigned under army commands.

CHAPTER FOUR (A)

Teil 5a
p. 1

DEVELOPMENT OF THE ARMY RADIO INTELLIGENCE SERVICE IN 1936-37 UNDER THE NEW GERMAN MILITARY ESTABLISHMENT

The present chapter will deal with the period during which the Army ~~Intelligence~~/Service was required also to serve the newly established German Air Force, until the Air Force created its own Radio Intelligence Service in about 1936-37. It also provides a short review of the development of the Army Radio Intelligence Service prior to and during the World War II, and sets forth the organizational, training, and operational principles of the Army Radio Intelligence Service which were of importance to the Air Force in developing its own service.

1. Introduction. Chapter Four dealt primarily with the reestablishment of an/Army intercept service, which from this point on will be referred to as the Radio Intelligence Service, in Germany's post-World War I small military establishment. Brief treatment was also given to the intercept service of the Navy, known as the Observation (Beobachtungsdients) Service, and a preview of the coming development of the Air Force Radio Intercept Service.

During the first three years of the new German military establishment, the Army Radio Intelligence Service was also required to provide for the needs of the Air Force. For

this reason it remained necessary to go into more detail on the further development and organization of the Army Radio Intelligence during this period of reconstruction of the German military forces, which is being done in this chapter.

The Air Signal Corps which was ~~at the time~~ being developed was at the time in no position to immediately operate its own Radio Intelligence Service. It had neither the necessary trained personnel nor the necessary organization for this purpose, and first had to create these essential conditions. For this purpose, the Air Signal Corps attached its own military and civilian personnel to the Army Intercept Stations in all areas, to the Army DF stations at the Borders, and to the Cryptographic Center of the Defense Ministry.

The personnel thus attached were only recalled after the establishment by the Air Force of stationary intercept stations of its own, from 1 October 1936 on, and after the establishment of its own Cryptographic Center in 1937. Officers, civilians, and noncommissioned officer personnel who had served formerly in the Army intercept Service and had in the meanwhile joined the Air Force Signal Service were also employed in the newly established Radio Intelligence Service ~~Service~~ of the Air Force. These measures enabled the new service to commence operating independently in 1937, although it still had to depend exclusively on its static intercept stations. The development of

6 a mobile Radio Intelligence Service took a longer time and by the time war broke out in 1939 it had only been possible to activate motorized intercept platoons for the radio operating companies included in the Air Signal regiments assigned to the air fleets and one such platoon for the Air Signal and Training Regiment, plus one radio intercept company in the AF CINC Air Signal Battalion.

A knowledge of the organization, principles, and peculiarities of the German Army Radio Intelligence Service of those days and of the actual facts concerning its responsibility for fulfilling the requirements of the Air Force in this field is of improtance at the present time because of the fact that in the present German military establishment there is to be only one single signal service serving both the Army and the Air Force, as the Army Radio Intelligence Service did at the time under discussion here.

Another point which merits mention is that the account given here is based exclusively on compilations which were prepared under peacetime conditions. It contains many views and principles which could in the past be treated only superficially or not at all . One such subject is that of the development, organization, and operations of the intercept companies, which is of interest because the AF Radio Intelligence prior to the war still lagged far behind that of the Army . (See also

7 present chapter, 15, Appendixes 1 and 2). Information of this type can not be furnished by other quarters concerning the intercept service of the Army, since they lack the necessary source material.

Under the circumstances described above it appears essential under the title The German Air Force Radio Intelligence Service to also give an account of the development and organization of the intercept service of the German Army under the post-World War I military establishment up to the year 1937 together with a preview of developments during World War II, because of that service also operated for the German Air Force.

The information offered in this present chapter is in every respect and in all parts an absolutely essential supplement to the account of the Air Force Radio Intelligence Service given in the remaining parts of the study.

8

2. Army Intelligence Service Chain of Command at Creation of Germany's Pre-World War II Military Establishment.

a. Graph showing dual controls of the Cryptographic Center in the Reich Ministry of Defense.

Not included in copy provided for translation

b. Explanations to above Graph. As is evident from the above graph, the Cryptographic Center of the Reich Ministry of Defense, which was the highest authority within the German Army Radio Intelligence Service, was under dual controls. Prior to the establishment of the new armed forces, the Cryptographic Center of the Reichswehr Ministry was designated "Cryptographis Center of the Army High Command.

+ Reichswehr: The small military establishment Germany was permitted to maintain under the Treaty of Versailles.

9 Prior to the creation of the new German military establishment in 1935 the Cryptographic Center of the Reich Defense Ministry had been designated Cryptographic Center of the Army High Command (Chiffrierstelle der Heeresleitung). As a branch of the Army Signal Corps it was assigned under the Chief Army Signal Officer, Army High Command, within the Reich Defense Ministry and at the same time under the Counterintelligence Division of that Ministry, since it also had to furnish this Division, besides the Army High Command, information on foreign armies and foreign states, and also received missions from both of them.

With the creation of the new German military establishment, known as the Wehrmacht, [illegible] and the new Ministry of Defense, the Cryptographic Center remained under the Army with its newly formed Office of the Commander in Chief of the Army, and its Chief Signal Officer (at the head of Inspectorate 7 in the General Army Office), and also remained under the Counterintelligence Division. The result of these controls was that the Cryptographic Center, just as it had formerly given its instructions and orders to its intercept agencies in intercept matters as an agency of the old Defense Ministry (Reichswehrministerium) continued to do so as

9 an agency of the new Ministry of Defense (Reichskriegsministerium). However, this applied only to Army units, and the Center had no command authority over the intercept services of the Navy and the Air Force. This information is offered here also in supplementation of that furnished in Chapter 4, 8 xxdx9x a, and b.

The Counterintelligence Division in the Reich Ministry of Defense at that time was organized in six branches:

I. Agent Employment Branch
II. Cryptographic Center, Army
III. Actual Counterintelligence activities
IV. Naval intercept services
V. Strictly naval intelligence services
VI. Intelligence concerning the Air Force.

For matters of actual intercept activities, the Cryptographic Center at the time had two sections, or rather sub-sections. Sub-Section b and Sub-Section d, the former dealing exclusively with decoding and the latter exclusively with the processing and interpretation of the data received through intercept activities. Initially, these sub-sections also handled the intercept data for the Air Force, until the Air Force had developed its own Radio Intercept Service.

Still in the initial stages of esta lishment, the Air Force Signal Corps had attached military and civilian intercept personnel for training purposes to all branches of the

static intercept stations newly established by the Army and to those of the Cryptographic Center. On this subject see also Chapter 8, II, 2,a.

3. Missions of the Army Intercept Service; the Peacetime and Wartime Organization of the Service. The reader's attention is directed here to what has been said on the definition of the concept of intercept services in Chapter 1, but the following additional information is offered here in more detail.

It is necessary to differentiate between peacetime and wartime intercept intelligence activities. The former were designed to provide data concerning the peacetime condition of foreign armies and, in the event of political tension, to detect timeously any changes introduced which could furnish information which would be of use in the event of war.

Intercept intelligence activities were to be organized in strategic, operational, and tactical intelligence. Tactical intelligence was primarily to provide data on the area in front of the enemy divisions on line; operational intelligence was to provide data on other movements in the rear of the divisions on line. Decisions based at the strategic level on intercept data was a responsibility of the highest levels of military command, using for the purpose the data interpretations furnished by the highest

11 intercept data interpreting agencies of the three military branches, namely, the Cryptographic Centers of the Army, the Navy, and, after it had been established, of the Air Force.

Broadly speaking, the Army intercept intelligence service was to provide, in the operational field, information on the composition of enemy armies, frontages held by individual units, organization in depth, supply operations and other movements in the enemy rear, reserves, morale in the enemy rear areas, and so forth. Tactical intelligence was to secure information on the details so important to the field commands on line. Whereas during peace the dissemination of intercept intelligence data was a responsibility exclusively of the Cryptographic Center, in time of war the intercept units assigned under the army group, army, and division headquarters were required to report their findings directly to these headquarters, and at the same time to the Cryptographic Center.

The Intercept Service therefore represented an intelligence medium used by the authorities shaping the politico-military objectives and also serving the higher and intermediate as well as lower levels of field command. Its direct contacts with counterintelligence, with the sections responsible for intelligence on foreign armies and, during

war, with those responsible for compilation of the tactical and other situation reports insured it a position of high priority within the whole pattern of intelligence media. Experience had shown that intercept activities could serve not only to confirm or discount intelligence data gathered by other means, but could procure data not acquirable by any other means. Experience during the war also proved that the volume of the data procured through intercept activities exceeded that of the data procured through other media.

In regard to the various types of intercept activities, it is necessary to discuss the most important type of all, namely, radio intelligence, and also the Arendt Service. For radio intercept operations use was made of stationary type radio receivers and DF installations as well as mobile radio receiving and DF stations. The instruments designed exclusively for radio reception were used to intercept both telegraphic and voice-radio communications, the DF instruments to determine the location of detected foreign transmitters. Both the radio receivers and the DF installations operated on long, medium, and shortwave frequencies, and in some cases even at that early stage on ultrashortwave frequencies. The goal had also been set of developing instruments of the highest possible capacity for radio receiving and DF operations, particularly on the shortwave

13 bands. A decision in this direction was taken as far back as in 1937, when a special section for the development of special types of intercept instruments was established within the Signal Equipment Branch of the General Army Office. This created the possibility to develop those types of radio and DF receiving instruments which would best serve the purposes of radio and DF intercept operations. The section also developed other special types of instruments, such as special types of telegraphy and television transmissions, frequency detectors, telegraphy printers and sound printers, and the way was also cleared here for the use of Hollerith instruments in the processing of intercept data.

14 The Arendt instruments (for telephone interception--see Chapter 3, II, 5), which had been further improved since World War I, naturally could not be used under peacetime conditions as trench communication intercept stations. Mobilization plans therefore provided for each corps headquarters signal battalion, besides its radio intercept and monitoring platoons to have a third platoon, called a Listening Platoon (Lauschzug), organized in four teams using the Arendt instruments in order to improve the tactical intelligence coverage.

In the matter of intercept data processing and interpreting it is necessary to state here that the

14 Cryptographic Center, ~~XIXXX~~ under conditions of peace or war, could only produce intercept data interpretations in the strategic and politico-military category, since it received the intercept results of all intercept units.

In 1936-37 Army Field Manual H.Dv. 421/6: Intelligence Gathering through Communications Media--Intercept Service (~~Aufklärung durch Nachrichtenmittel--H.Dienst~~) became effective. Part 6a of that manual: Principles and Organization (~~Grundsatz und Gliederung~~)+ established the following regulations governing the procedures in radio intelligence:

a. The units under the Commander in Chief of the Army, namely, the static radio intercept stations with forward frontier posts, whose intercept data is interpreted by themselves and by the Cryptographic Center of the Reich Ministry of War

b. The Intercept Companies

c. The intercept platoons in the radio operating and radio intercept companies of the military intelligence battalions, in special circumstances also by the unit signal forces

d. the intercept companies were to be committed under uniform command for intelligence gathering all along the lineand initially were to be assigned general radio intelligence missions until such matters as intelligence operating areas, main emphasis, and specific objectives could be determined; their assignment under the various field armies might have to be considered.

+ See Section 12 or present chapter, below.

15 e. The intercept companies were organized each in a headquarters platoon with a data interpreting team, a Radio Intercept Platoon a (for longwave interception) and a Radio Intercept Platoon b (for medium and shortwave interception). Platoons a and b handled the initial interpretation, while the data interpreting team at company headquarters did the final interpretation.

f. Participation by other units of the signal corps required special orders from the army field headquarters concerned. During an advance the corps and division headquarters signal units as a rule were not to be available for intercept activities.

During pursuit operations the higher level commands as an exceptional measure were also to make use of the unit signal forces for intercept operations.

On the subject of "Intelligence Gathering through Communications Media" see also Chapter 1, "Definitions...."

I.

The following information is offered in supplementation of what has been said above.

During peace the Cryptographic Center relied principally on the static intercept stations and their forward frontier DF posts, all of which had the most modern types of radio receivers and DF installations procurable, and which also handled the preliminary interpretation of data and cooperated with the assigned intercept companies. The Cryptographic Center was thus the central agency for all

16 intercept intelligence data procured.

In the eventuality of war, existing circumstances show that the intention was to assign the intercept companies to the various armies as operational intelligence units. The mission of these companies was to procure information providing an insight into the enemy conduct of operations up to and including the army level, but not extending into the enemy interior, which was to be a mission of the static intercept stations.

Tactical intelligence was to be a mission of the intercept units, namely, the intercept platoons and telephone listening platoons with their teams from the radio operating and radio intercept companies of the various corps headquarters signal battalions (see under f, p. 80).

This organization and commitment provided for in the mobilization plans, after several changes and three reorganizations resulting from the mobile operations of World War II took their final shape with the reorganization of 1942 roughly as follows:

The importance of the static intercept stationw which existed already during peace in the zone of interior decreased in favor of the motorized units committed in occupied enemy territories, and the static units in a steadily increasing measure served primarily for training purposes

17 and for long-range direction finding. The forty intercept companies committed in the field, each with a DF platoon of 8-10 DF teams (there had been only eight such companies prior to the war) were consolidated to form sixteen"motorized intercept (communications intelligence) battalions," which in turn were organized under eight"intercept (communications intelligence) regiments (motorized)." The regimental headquarters with their data interpreting control stations were assigned under the various army groups. For these army groups as well as for the armies, corps,and divisions,these regiments and their battalions with their "strategic and tactical intelligence companies" conducted long-range operational and tactical intelligence operations. At army level, each army was assigned as a rule one intercept battalion from one of the regiments, the battalion having two intercept companies and a data interpreting section. Independently of these intercept companies from the intercept battalions, combat divisions each had their own "tactical intelligence teams" incorporated in the divisional signal battalions. These teams were posted so far forward that they were able to intercept the radio communications between the enemy forces on line immediately in front of their own division.

Corps headquarters were assigned "auxiliary inter data interpreting centers" The mission of these was to [illegible]

18 interpret immediately, for use by units on line, the intercept data received from the forward platoons of the intercept companies and from the tactical intelligence teams of the various divisions, in order to avoid the loss of time which would have resulted if this data had first been transmitted to the rearward intelligence interpreting centers. Acoording to tables of organization, the radio intelligence units were not under the army, corps or division headquarters, the only exception being the divisional tactical intelligence teams. Excluding these divisional intelligence teams, the communications intelligence system of the entire army employed roughly 15,000 personnel. This whole system was headed by a Chief Communications Intelligence Officer (~~General der Nachrichtenaufklaerung~~), with a few special type units, under Chief Army Signal Officer in the Army General Staff. Headquarters of the Commander in Chief West included a Senior Radio Intelligence Officer, and each army group had a radio intelligence staff officer, who at the same time was commanding officer of the army group's communications intelligence regiment. There were eight such radio intelligence staff officers each tactically assigned under the appropriate army group signal staff officer(see also Section 3, above).

The former Cryptographic Center of the Reich Ministry of Defense with its highly important de-coding section had

19 meanwhile become the Cryptographic Branch, Joint Military High Command (~~Chiffrierstelle im Oberkommando der Wehrmacht~~), and an Intercept Control Center under the Inspector of Army Signal Troops already during peace served as the highest data interpreting center of the Army Intercept Service; during the war this center was designated Communications Intelligence Control Center of the Army Chief Signal Officer. Besides these two centers at the hoghest level, another Cryptographic Branch with a number of intercept posts under its control had been formed and placed in the Joint Military Signal Affairs Group of the Joint Military High Command Operations Staff (~~Wehrmachtfuehrungsstab~~). However, the missions of this branch were not of a primarily military nature and it was therefore not designed to serve as a top-level intercept services center for all three branches of the military establishment. This failure to consolidate the separate intercept services was that ~~xxxx~~ the service of the Army, the Navy, and the Air Force each went its own way, and the outcome was a dissipation and duplication of effort and reduced capabilities, particularly in the critically important function of de-coding. In regard to this important function in particular the Cryptographic Center of the Joint Military High Command, in view of its many years of experience and its carefully trained staff definitely should have been used as the final center for

all ~~ed~~-coding activities. However, the three military branches had created their own installations in this highly specialized field, each carefully isolating itself from the other, so that mutual work in the scientific methods to solve the highly complicated enemy code systems was precluded. (See also Chapter 10, E, 2).

4. ~~Commitment and Intelligence Missions (Army and Air~~ Force). The commitment and operations of intercept units depended on such factors as the assigned mission, the technical possibilities for interception, and the existing communication lines. At all times special orders were required to initiate what were called "communications intelligence operations (~~Aufklärung durch Nachrichtenmittel~~)", and it was essential for such operations to be initiated in good time, since experience had shown that some time, usually two or three days passed before appreciable results could be obtained. The initiating order had to be given timeously enough to enable the intercept unit concerned to reconnaiter suitable sites for its forward DF posts and for its rearward radio receiving teams, to man the posts and sites thus selected, and to insure that these teams had at least one to two days before the maneuver began to familiarize themselves with the normal radio traffic in the area they were to cover. In such cases the unit committed, such as an intercept company, was under the command authority, in intercept matters, of the Cryptographic

Center, Reich Ministry of Defense, and of the combat command to which it was assigned. With the latter the intercept unit commander and the chief of his interpreting had to maintain very close contact by establishing their post as close to the tactical headquarters of the combat unit as possible.

The intelligence gathering mission for the officer commanding the intercept unit was required to provide the following items of information:

(1) General situation, own and enemy.

(2) Enemy and own ground and air situation; own plans.

(3) ~~Intercept activities situation~~: own call signals and frequency allocations. The commitment of own military and other official radio stations. Already detected features of enemy ground, air, and radio traffic.

(4) The zone of intelligence operations and its boundaries, main emphasis required (intercept and DF), specific targets for intelligence activities.

(5) Forward boundary line for operations and, if applicable, indication of specific points from which it was desired that the teams should operate, particularly in the case of the commitment of intercept companies.

(6) Diagram or details on wire communication lines already in existence or to be constructed.

(7) Locality of the command post of the superior combat command.

Communications intelligence operations could provide data on the following:

(1) Mobilization; coordinated Army, Navy, Air Force movements during mobilization. War objectives, propaganda activities, inter-state relations, supplies, morale in

22 the enemy interior. All of these items came under the heading of military political, strategic intelligence.

2. Coordinated action and plans, troop units. These items came under the heading of operational intelligence.

3. Strengths, organization, geographical disposition, plans, commitment of new units, unit frontages, enemy assumption of own plans. These items came under the heading of tactical intelligence. (See also Chapter 5a, 15, Appendixes 3 and 4.

23 5. The Assignment of Intercept Zones to Intercept Companies; Cooperation between Intercept Companies and Static Radio receiving Stations from March 1936 on; Training in the Intercept Services.(See also Chapter 4a, 6, b).

The basic training target was to enable units to intercept and interpret radio traffic within their assigned intercept zones. For this purpose each intercept company was assigned three separate intercept zones:

a. A Category I Intercept Zone. Here a standard of tarining was to be reached which would insure that the company concerned could at any given time be committed to monitor the radio traffic within the zone and would be able to conduct a comprehensive observation and interpretation of such radio traffic.

b. A Category II Intercept Zone. Here a standard of training was to be reached which would insure that the company was able, after a short period of initiation, to

23 monitor and interpret the radio traffic occurring within the zone.

c. A Category III Intercept Zone. Here, the company was to be able, after a lengthy period of orientation, to monitor and interpret the radio traffic occurring within the area, for which purpose it was furnished all necessary data. No special training was required in this field. The necessity could arise to reinforce the company with trained personnel from a static intercept station if it were committed in missions in this field.

Efforts were to be made to assign Categories I, II, and III zones in such a way that the intercept companies could monitor them as completely as possible from their garrison post. Their operations were to cover all radio communications and other radio traffic by static and mobile Army radio units, static and mobile radio units of the Air Force, and static and mobile radio units of a semi-military or other military nature, such as border guard and border defense units, etc.

In several Category I Intercept Zones radio traffic during peace was so little that practical training in monitoring and interpreting was not possible. In such cases practical training was to be given in the Category II or Category III zone.

The unit zones thus allocated were as follows:

Intercept Company	Intercept Zone	Category
41 (Koenigsberg)	Poland, Lithuania	I
	Russia	II
	Latvia, Esthonia	III
18 (Liegnitz)	Poland	I
	Czechoslovakia	II
	Russia	III
7 (Munich)	Czechoslovakia	I
	Italy	II
	France, Austria, Switzerland	III
25 (Stuttgart-Cannstadt)	France (including north-African colonies)	I
	Switzerland	II
	Spain	III
9 (Wetzlar)	France (Continental)	I
	Belgium	II
	Britain, Holland	III
Army & AR Signal School (Halle-Saale)	France & Belgium	I
	Britain	II
	Holland	III

Data for their monitoring and interpretation activities were furnished to the intercept companies by the Cryptographic Center, Reich Ministry of War.

Intercept companies and static intercept stations having identical intercept zones were required to exchange all monitoring and interpreting results obtained.

Identical unit zones were as follows:

Intercept Zone	Allocated to Intercept Company	Static Interc.Stat.
Poland	41, 18	Koenigsberg 1, Jueterbog 2, Breslau 3.

25 Intercept Zone	Allocated to Intercept Company	Static Interc. Station
Lithunia, Latvia, Esthonia	41	Koenigsberg
Russia	41, 18	Koenigsberg, Jueterbog, Breslau
Italy	7	Munich
Czechoslovakia	18, 7	Jueterbog, Breslau, Munich
Austria	7	Munich, Breslau
Switzerland	7, 25	Munich
France	9, 25, 7 Army & AF Sig School	Stuttgart[6], Muenster[5]
Spain	25	Stuttgart
Belgium	9, Army & AF Sig School	Muenster
Britain	9, " "	Muenster
Holland	9, " "	Muenster

If monitoring of an assigned intercept zone was not possible from the permanent garrison post of the intercept company concerned intercept personnel were to be detached for temporary service st the static station having the same assigned intercept zone, or to one of its frontier posts. Generally speaking personnel were not exchanged between the companies and the statie intercept stations, but in special cases such exchanges could take place on orders from the corps area command headquarters concerned. owever, data interpreting personnel from the intercept companies could be detached for temporary service for a period of three months with the static stations for training purposes. Data interpreter personnel were also detached for participation in the data interpreting instructio courses given at the Cryptographic Center of the Reich

27 In a steadily increasing measure the intercept companies were committed to cooperate with the static intercept stations in monitoring foreign military maneuvers from 1 June 1935 on. The intention was to employ each intercept company in two mobile field missions per year, the orders for these field task assignments in each case coming from the Reich Ministry of Defense. For further information on this subject see also the present chapter, 6b and 15, Appendix 5.

6. The Army Radio Intercept Network.

a. The Army Static Intercept Stations and their Frontier DF Posts. Static or permanent intercept stations of the Army existed in 1935 in Koenigsberg, Jueterbog, Muenster-Mauritz, Stuttgart-Cannstadt, Munich (Soecking bei Starnberg).

The static Intercept Station of Koenigsberg was far distant from the borders of Eastern Prussia. However, the corps area command had disapproved its displacement farther forward. For this reason frontier DF posts had been established near the border in special permanent-type premises,

28 namely in Neidenburg and Lyck. However, since the intercept station, which was situated within the precincts of the city of Koenigsberg, had very unfavorable conditions

Footnotes on pp. 89-90: 1. Koenigsberg, later Cranz; 2. Jueterbog, later Treuenbrietzen; 3. Breslau, later Striegau; 4. Soecking/Starnberg, near Munich; 5. Muenster - Mauritz; 6. Stuttgart-Cannstatt.

28 for radio reception, it was transferred to Cranz, on the Baltic caost, approximately 17 miles (27 kilometers) north of Koenigsberg. In the spring of 1936 astart was made at constructing the station in accordance with the most up-to-date principles. At the same time the authorized personnel strength of the station was doubled, since it was too weakly staffed in view of the insular situation of Eastern Prussia. The peacetime authorized strength was increased to 88, this number to be increased to 200 in the event of war. Furthermore, plans provided for an additional DF post at Tilsit.

The intercept Station at Koenigsberg was commanded by Major von Richthofen, on whom more details will be found in Chapter 2 "Origins of the Intercept Service....." II, 3, "Battle of Tannenberg."

The static intercept station at Jueterbog, in the caserne building of the then Army Signal School of Jueterbog/Brandenburg was transferred to Halle on the Saale together with the movement of the Army Signal School to there. In mid-February 1936 it moved into premises newly constructed in line with the latest experience and with all technical innovations in Treuenbrietzen, a site particularly favorable for radio reception and DF operations. It also had an authorized personnel strength of 88, and became the intercept control station for all intercept stations in the

eastern territories from Pomerania to Silesia. It had frontier DF posts at the eastern borders in the border district of Posen, Western Prussia, in Fraustadt, Meseritz, Schneidemuehl, and Schlochau. Among those who at one time or another commanded this static intercept station of Jueterbog and later of Treuenbrietzen was Captain Landeweg, who during the war became colonel and commander of a radio intelligence regiment.

The static intercept station of Breslau, initially in a special building in the Kuerassier caserne in the outskirts of the city, found its operations disturbed to such an extent by the radio traffic of the signal battalion also stationed there that it was moved after 1935 to Striegau, 30 miles southwest of Breslau. For this station DF posts had been installed in Landsberg, Upper Silesia, 9 miles northeast of Kreuzberg; in Leobschuetz, also in Upper Silesia; and in Labelschwerdt, County Glatz. Another such post was established during 1935 in Lautzen, Eastern Saxony. Among the officers who headed the Breslau intercept station were 1st Lieutenant von Kobyletzki, during the war Major and staff signal officer at Stalingrad, where he was reported missing, and Captain Stromeyer.

Another static intercept station was installed in Pasewalk, western Pomerania, where there was only a small intercept post in 1935. The reason why this post was ex-

29 expanded to a regular intercept station was the fact that conditions were so exceptionally favorable there for radio reception, particularly for shortwave frequencies. Radio communications on shortwave frequencies could be received without interferences there from China, Manchuria and Mongolia. It is believed that there was also an intercept station in Luebber, Spree Forest.

30 In western Germany the static intercept station Muenster was in premises on a country estate in Muenster/Mauritz. This station in 1936 had a radio receiving and DF post very near by in Muenster-Mauritzheide. It also had in position a reinforced intercept platoon, the 1st Platoon, 3d Company of Signal Battalion 26, at the western frontier. Its radio receiving center and cut-off signal transmitter (Kommando-~~Sender~~) were in the Citadel in Julich. Four DF teams were in forward posts: one 3,500 meters northeast of Nidegen; one 1,000 meters north of Muldenberg, Engelgau (3,500 meters northwest of Tondorf); one 5,000 meters southsoutheast of Loevenich (1,500 meters north of Gevelsdorf, south of Erkelenz); and one 4,000 meters northeast of Alde-Kerk.

Besides being under control by the Cryptographic Center of the Reich Ministry of Defense, the station at Muenster was also assigned under Corps Area Command VI, Muenster, and its Counterintelligence Staff Division. Furthermore,

in regard to the interpretation of intercepted French data it had very close contacts with the intercept station at Stuttgart. Appropriate measures were taken for the development of the station's system of frontier DF posts. Commander at Muenster at the time was Major Morneweg, but he died soon after. (See chapter 10, 15, Appendixes 6 and 7).

The static intercept station Stuttgart was in a building specially constructed for radio intercept purposes on a rise in the northern outskirts of Stuttgart. Because of the neutral zone along the Rhine this station could not instal frontier DF posts. For this reason the station placed radio intercept teams secretly in what were called weather stations for purposes of concealment, for example, in the Black Forest area at Ebersteinburg, 4,500 meters northeast of Baden-Baden; in the Rhine Palatinate, in a wooded section between Ixheim and Mittelbach 2,500 meters south of Zweibruecken; in the Eifel Rhine Province at Schoeneseiffen, 6,000 meters west of Schleiden. With cancellation of the status of demilitarization of the Rhine zone, properly installed frontier DF posts were established, as in the case of the eastern borders of Germany. Major Paechter was in command at the Stuttgart station.

The static intercept station Soecking, near Starnberg

and thus relatively far removed from Munich, had a specially constructed building for radio intercept operations. Plans here provided for the installation of frontier DF posts in Weiden, Upper Palatinate, and in Passau, work on which was to commence in 1936. During the war the Air Force took over the ~~XXXXXX~~ Soecking intercept station, which then served as a training school, from 1940 on, for the III/(Intercept) Battalion, Air Signal Regiment 3 (See ~~XXXXXXX~~ chapter 10, B, IV, 2c (7))

In addition to the static radio intercept stations listed above, it is said that another station was planned for installation at Bayreuth in 1937. Besides the frontier DF posts, which were constantly in operation, other operating sites were reconnoitered close to the borders of Germany and used from case to case to cover foreign military maneuvers. As stated previously, such action could only be taken secretly in the demilitarized zone along the Rhine.

32 b. ~~Radio Intercept Companies and their Cooperation with the Static Intercept Stations~~. In 1932 the entire intercept organization comprised only static intercept stations. During each maneuver, however, two intercept platoons were organized , under great difficulties, to participate in the maneuver. The experience gained with these platoons was very good, for which reason the decision was taken to establish regular radio intercept companies. In the event of

32 war, these units were to be committed in the front areas to monitor the operational and tactical radio communications of the enemy armies. The already existing static radio intercept stations were to retain all of their other responsibilities of the past in the event of a mobilization. (See also present chapter, 3, above).

As a start one radio intercept company was activated at the Signal School, which during the time of Germany's post-World War I small army was Jueterbog. At the time the static radio intercept station of Jueterbog was also in the casernes of the Signal School. The company later moved to Goettingen and finally, probably on 1 October 1934, was transferred to the Army and Air Force Signal School, of which it formed a part, at Halle on the Saale. In 1933 three new such companies were activated, one each in Koenigsberg, Liegnitz, and Hofgeismar, the latter of which was transferred in 1936 to Wetzlar. In addition to these existing four radio intercept companies, another two were activated

33 in the autumn of 1935, one in Stuttgart/Cannstatt, and one in Munich, so that in 1935-36 there were six radio intercept companies in existence. Another was planned for activation in Muenster, and just before the war there were altogether eight of these companies.

Certain difficulties were encountered initially in

33 the training and operations of these companies, which was in part due to misconceptions concerning their missions. Quite generally they were considered as units suitable only to monitor own radio communications , particularly during own maneuvers. Such activities could quite rightly be considered as good practice for the units, but were not in line with the basic principle underlying their creation. Their missions was to familiarize themselves in constant practice with foreign radio communications traffic and to master all the characteristic features of radio traffic within the radio intercept zones allocated to them, as such zones had long since been allocated to the various static radio intercept stations. Appropriate measures to this end were taken under Army High Command Directive E-13 AHA In 7 Ic/IV of 18 March 1936 allocating to the various intercept companies and the various static intercept stations zones in which they were to cooperate in accordance with their missions. At the time there existed under the Army High Command three Group Commands, namely, Group Commands 1, 2, and 3 and Signal Staff Officers 1, 2, and 3 within those commands, as well as Corps Area Commands I-X. The above directive was addressed to these high level commands and to the Army and Air Force Signal School at Halle on the Saale , and, for information, to the Commander in Chief of the Air Force

34 (Ob.d.L. L.A. NVW und W.A.Abw) (See also present chapter, 5, above).

This directive created a ~~fixed~~ basis for the final practical training of the intercept companies. Concerning their cooperation with the static radio intercept stations, the following additional information is offered in brief to supplement what has been said previously in this chapter, in Section 5, above.

Each static radio intercept station during peace had its specifically allocated intercept zone, the communications within which it was to keep under constant observation. For Koenigsberg this zone comprised Russia, Poland, and the Baltic States, and this same zone was allocated to Intercept Company Koenigsberg. The Treuenbrietzen station (formerly at Jueterbog) and the intercept company of the Signal School at Halle were to supervise communications in Czechoslovakia and also in Russia and Poland; the Breslau station and Intercept Company Liegnitz were assigned the same zone as the Treuenbrietzen station and the Signal School company, while the Munich station and Intercept Company Munich as their zone had Italy, Austria, Switzerland, Yugoslavia, and Czechoslovakia. The Munich company was also intended to cover France. It was to be so trained that it could be committed to cover communications in France at any time.

34 What greatly facilitated matters in this regard was the fact that France, Czechoslovakia, and Italy all operated on the same system of circular or angular frequencies in their radio communications (Kreisfunkverkehr). Radio operators given proper training for any one of these three countries could therefore whenever required be used to monitor the communications in one of the other two countries. Otherwise the chief area for the Munich station and company was Italy. ~~XXXXXXXXXXXXXXXXXXXX~~ Stuttgart-Cannstatt with its intercept company monitored communications in France, northern Africa, Spain, and Portugal. As far as France was concerned there was close cooperation between the Stuttgart and the Muenster stations, since these were the two stations responsible for the western frontier areas (see present chapter, Section 14, Appendixes 6 and 7). Muenster and Intercept Company Wetzlar monitored communications in France, Belgium, Holland, Britain, and the Skandinavian countries.

The above areas for intercept operations, which were already assigned among the static radio intercept stations according to their geographical locality, were classified in Zones I, II, and III and assigned among the intercept companies as described more fully in Section 5, above.

During peace the intercept companies also had the mission of training cadre and replacement personnel for the

35 intercept platoons to be activated at mobilization for assignment under corps and divisions in the field.(See this chapter, Section 3).

7. The Direction and Working Procedures of a Static Intercept Station. The static radio intercept stations were established in the period from 1924 on. They were employed, in accordance with the headquarters to which they were assigned administratively, more or less in the frontier areas. They had to be at sites with particularly favorable conditions for radio reception, and all had premises in permanent type buildings. Close to the frontiers each intercept station had a number of frontier DF posts, also in permanent type buildings. Frontier DF posts were first installed along the eastern frontier, since the demilitarized Rhine zone made their establishment in the west impossible.

a. Direction of Operations in a Static Radio Intercept Station. Each station was always headed by an officer. During the years of Germany's post-World War I small army, very junior officers were usually assigned, later it was more usual to assign older captains or majors of the reserve. The chief of an intercept station had simultaneously the disciplinary command authority of a company commander. He had under his command a sergeant, responsible for all military duties, and a radio technical sergeant to supervise

and maintain in good repair the technical installations and equipment, plus the other personnel required for the execution of his intercept missions. A percentage of these personnel, particularly the translating and data processing and interpreting staff, were highly qualified civilians, besides clerks, carthographs, telephone and teletype operators, and motor vehicle drivers.

b. Radio Receiving or Interception. This part of the service was divided into two functions, that of searching for the frequencies used by the stations being monitored, and the actual uninterrupted function of monitoring the detected frequencies. Very close cooperation was essential here between the radio receiver operators and the data processors, if necessary, the radio operators were required to follow direct instructions from the data processors. F ller information on this subject is offered in Chapter 6 B, I, Item 2.

Radio reception was carried out primarily at the station itself, in addition to the radio reception activities of the station's outposts closer to the frontier.

These actual receiving and processing activities at an intercept station employed in thos days roughly 30 military enlisted men, 6 medium grade and 1 lower senior grade officials of the civil service. These civilians were radio

37 operators, and the one senior grade slot was intended for promotion for the most able of their number, since the career in the intercept service as a rule did not go any higher than the intermediate grades. In addition, there were three slots for senior intermediate grades for data interpreting, decoding, and translating personnel. As a rule seven radio receivers were maintained in operation arranged according to frequencies and not according to the countries covered.

c. The DF Service. Direction finding was conducted at the intercept station itself with static DF installations or in coordination with other intercept stations and in addition by the forward DF posts (see Section 6, above), which for this reason were designated "Frontier DF Posts." For more information on this subject see also Chapter 9a.

d. Processing or Analysing. This function was broken down into Operations Analysis, Traffic Analysis, DF Analysis, Content Analysis, and Final analysis or Interpretation.

(1) Operations Analysis. The task here was to identify speedily and with certainty from the data procured the radio communications which were to be kept specifically under observation according to the assigned mission.

(2) Radio Traffic Analysis. From an analysis of all communications intercepted it was possible to determine interrelations between the various participants and thereby

38 the organization of the radio communications system, from which it was possible, in turn, to draw inference concerning the tactical organization and the related matters of strength ratios, troop movements, and plans.

(3) DF Analysis. This served to determine the geographical position of the radio transmitters detected and allowed conclusions as to the headquarters and other agencies connected with them.

(4) Content Analysis. By means of solving the simple codes used between the units on line or decoding the more complicated codes used in communications between higher commands, an analysis of the contents of intercepted messages made it possible to read and understand those messages.

(5) Final Analysis or Interpretation. Here, the finding of the above processes of analysis were consolidated

39 and the final interpreters of data forwarded such findings to the appropriate superior headquarters, and other official or command agencies as urgent, daily, or radio transmitted reports in accordance with their urgency.

Of all the functions of a radio intercept station, that of data interpretation must be considered as the most important, and the staff sub-division handling this function had very highly qualified personnel, including civilian employees,

among them three or more translators, a chief and second and possibly a third data interpreter, who also handled all clerical work. At times special de-coding personnel were also assigned.

The Chief Data Interpreter was the man with the best training, who was responsible for the whole process of data interpretation; the second maintained the card indexes, making all necessary entries immediately and keeping the indexes currently posted; the third handled the registry.

All daily reports, DF reports and text passages were first submitted to a translator, who sorted them out, determining which were important and which were unimportant. The unimportant he deleted, and then passed the material to the third data interpreter, who registered all radio messages intercepted. At this point the material was divided, the daily reports and DF reports going to the Chief Data Interpreter, the passages of text going to the translator. Messages in clear text were consolidated under the heading "Radio Reports," decoded messages were consolidated under the heading "Reliable Reports." Intercepted messages from aircraft were consolidated under a special heading "Aircraft Reports," from which such details as aircraft types, parent units, etc., could be determined. The Second Data Interpreter screened

the material and made the necessary entries in the card index. Even reports and messages considered incorrect had to be taken into account. For further information on the subject of data interpretation see Chapter 6, A, I.

If necessary, the processed and interpreted data was forwarded to the appripriate quarters currently and immediately, otherwise it was consolidated in final reports. The various reports going out were known as "Daily Reports," "Communication Operations Reports (Nachrichtenbetriebsmeldungen)," and "Radio Situation Report (Funklagemeldungen)." During peace each radio intercept station reported to the Cryptographic Center, and exchanged its intercepted material with all stations assigned the same area as itself.

The above is a broad outline of the handling of the material intercepted on any one day. Since the organization and the working procedures were subject to continuous modifications, however, it can only be regarded as tentative.

For more information on the same subject specifically in regard to a ststic radio intercept station of the Air Force the reader is referred to Chapter 9: "Organization, Working Procedures, and Missions of AF Static Radio Intercept and Control Stations."

8. Data Processing and Interpretation in the Field, under Conditions of War. To supplement the above account of the

41 the basic feauture in the peacetime data processing and interpreting done at a static radio intercept station the prodedures under wartime conditions will now be dealt with. In the case of the Army Intercept Service these procedures were established already in 1936-37 and probably remained basically unchanged. The reader is also referred here to what is said concerning data interpretation in the field during war by the Air Force Intercept Service in Chapter 10, E. 6., as a supplementation to which the following is offered.

In the case of the Air Force, the procedures planned for war were applied even during peace when the situation in special missions required. These procedures produced quicker results than the normal, particularly in the case of the static radio intercept stations, although the organization of the work remained the same. In spite of the expedited procedures, the results produced had to be just as reliable, for which reason the wartime methods could only be applied by thoroughly trained personnel. In particular the final data interpreter, whether he was an officer or a civilian official, had to have a complete mastery of the characteristics of the intercept area involved and have an appropriate knowledge of military subjects.

Under the wartime field data processing procedures, the ~~final interpretation of~~ radio intercept and DF data

41 went immediately and by the fastest channel, by telephone
42 or teletype or, in certain circumstances, by motorcycle messenger, to the data analyzing and interpreting agency. Motorcycle messengers were used only if this agency was within a certain distance from the receiving radio and DF posts. On receipt of the data the "Operations Analyst" first screened the material, made the necessary index card entries, and determined the interrelations of the various stations from which messages had been intercepted. The DF Data Analyst used the DF data to compiled a map overlay showing the position of the radio transmitters detected together with their call signals, the time when located, and the frequency used by each. This was called the "First Map (I.Bild). The Radio Traffic Analyst entered the data findings of the DF Analyst on a second map overlay, adding dxtails on their interrelation do as to produce a geographically oriented radio traffic map, which was called the "Second Map." This immediately revealed the various radio traffic circuits, since, as is known, the various radio transmitters within a communications circuit all operate on one and the same frequency. Furthermore all radio transmitters, with the exception of the control station, within a radio traffic circuit belong within the jurisdiction of a certain headquarters.

The next step was to clarify the whole radio picture

42 from the basic viewpoint that, just as is the case with written communications, radio communications have to follow official channels. This was a feature which facilitated clarification of the radio picture to an extraordinary extent. Once any one of the intercepted radio stations was properly recognized it was possible from this starting point to draw further conclusions. For example, if the radio transmitter of a corps headquarters was detected, it was known that traffic from that station went forwards to the corps' divisions and rearward to its superior army headquarters, and at this point the interpretation could begin. If a regiment was identified from an intercepted message, it was known that traffic from that station went rearwards to division and corps headquarters. If a division was found communicating directly with its superior army headquarters, it was relatively safe to assume that this was either a mobile division or an infantry division on some special mission.

Another important and very helpful point was to establish the distance at which a radio transmitter was located from the foremost front. A transmitter 30 miles in the rear, for example, was most probably that of an army level headquarters, and it was at least safe to assume that it was the transmitter of some relatively high agency to be so far in the rear. From a message intercepted from or to that station it was then

possible to determine the nature of the headquarters involved. The reader is referred here to what is said at the end of this present section concerning the principles applied in the clarification or analysis of the geographically oriented radio traffic map.

Another important point was to establish the type of radio instruments in use. There was radio traffic with transmitters with an operating range only as far as division headquarters, others with a range extending to corps headquarters. If the data included an occasional item of this nature it was immediately possible to infer its position within the whole network of communications. For example, it was possible to state: "This is an Air Force transmitter" or "This is a corps transmitter." If two radio transmitters were identified as operating in very close proximity it could be assumed that they belonged to the infantry and artillery commanders of one and the same division.

The final data interpreter had to be thoroughly conversant with the speed of movement of the individual forces and familiar with all details of the radio traffic procedures.

The Radio Traffic Analyst issued a Third Map, the tactically clarified radio traffic map, acting under instructions from the final data interpreter, who had in the meanwhile drawn further conclusions on the tactical organization from his analysis of the contents of material before him. The Content Analyst

read the intercepted messages and translated them. This finished material was submitted to the Final Data Interpreter.

The Second (Geographically Clarified) and Third (Tactically Clarified) Radio Maps were now transposed to one and the same overlay, which was called the Third Map, although it was in actual fact the Fourth Map, and was the Situation Map. This map lacked the radio traffic interrealatiosn; the tactical symbols were substituted for the radio transmitter symbols, but the radio transmitter markings were left in. The frequencies and call signals used could also be omitted if the tactical agency involved was reliably identified. If a headquarters was reliably identified, or if the radio transmitter for the infantry communications and that for the artillery communications were identified, co clusions could be drawn concerning the organization; the final interpreter naturally had to be informed in detail on the enemy organization.

After the above work was completed a written radio situation report was prepared supplementing the radio situation map. This written report explained the map and took the place of an oral report.

Before leaving this subject, principles applied in clarifying the geog aphically oriented radio traffic map are offered as follows:

45 (1) The organization of a radio network is the same as the tactical organization of the troops concerned.

(2) If the location of the intercepted radio transmitters is not established, the radio connections and radio traffic interrelations permit deductions concerning a force to which an intercepted transmitter belongs.

(3) The position of a transmitter and its distance from the fighting front provide indications on the troop unit and/or headquarters concerned.

(4) Within a radio communications system all transmitters with the exception of the control station serve one and the same headquarters.

(5) Radio communications traffic follows the same official channels as written communications.

(6) The appearance of new transmitters indicates the arrival or approach of new units; an increasing or decreasing volume of radio communications indicates a change in the current situation.

(7) The geographically oriented radio traffic map must be completed with informatuon from the Content Analysis.

More information on field data interpretation under conditions of war (immediate and battle data interpretation) in the Air Force is offered in Chapter 10, C, 6; B VI, Italy, 4, (g) 1; and B, IV France, 1e.

9. Employment of the Intercept Services to Monitor Maneuvers. In 1926 the powers allied against Germany in World War I held their first post-war maneuvers after reorganizing

46 the land forces and in some cases introducing an entirely new organization. When the French held a maneuver in 1927 at Chalons sur Marne, the German Army Intercept Service, which had in the meanwhile been reestablished, was committed to monitor it. In 1928 the service monitored a combined Anglo-French maneuver in the occupied territories of Germany around Cologne-Trier. From then on all maneuvers in neighboring countries were monitored, admittedly with varying success. Particular attention was given to obtaining coverage on the West. Polish maneuvers werea relatively rare occurrence. Czechoslovakia held maneuvers roughly every two years, and monitoring produced good results although the mountain ranges in between frequently interfered with radio reception.

47 The agencies committed in these intercept operations were primarily the static intercept stations, established specifically for such purposes, with personnel reinforcements from the intercept companies. In some cases the intercept companies were employed with personnel reinforcements from the static intercept stations. These companies were not yet adequately trained to handle such missions alone, the major weakness being due to the short time their military personnel remained in service. In 1936 it was assumed that three years would pass before the personnel

47 who had meanwhile been assigned for longer terms could produce satisfactory results. As a rule the foreign maneuvers thus monitored were conducted in the June-October period.

These maneuver monitoring operations differed quite considerably from the operations which would have to be conducted during actual war. In any maneuver there were always two ~~opposing sides~~ opponents to monitor, and the intercept units had to adapt themselves to differentiating between the two sides. Then it was necessary to identify the referee radio network, and the "assumed circumstances in the maneuver plan" played a certain role. In combination these circumstances could result in a very confusing pciture procured through radio interception.

10. The Monitoring of Radio Broadcasting Stations. Introduced initially merely for entertainment, broadcasting gredually assumed a leading role in the dissemination of news. Its importance in politics and government was evident from the fact that it was nationalised in many countries. Its great importance in the conduct of any future war had also already been recognized. From experience in World War I it was considered as one of the most significant media available for psychological warfare, which already revealed itself in the Abyssinian War. It had become perfectly logical to speak of a "Broadcasting" weapon. Here,

48 an important factor in itself was already the number of broadcasting stations in existence, and in this respect Russia was in the lead as a major radio broadcasting power, followed in order of sequence by France, Germany and Britain, a remarkable feature here being that Britain had 11 shortwave broadcasting stations. Since only 2 percent of the population of the Soviet Union at that time had radio receivers, it was perfectly obvious that its large number of powerful stations was intended primarily for propaganda in foreign countries. Italy had a relatively small broadcast audience, so that radio broadcasts during the Abyssinian War could not have the desired influence on the Italian population.

Broadly speaking, most countries had the same ambition they have today, namely, to possess as many ~~broadcasting~~ listeners ~~stations~~ as possible, if ~~for no other reason than because of the~~ only for their desire to collect the ~~for high~~ revenues required to meet broadcasting ~~costs~~ and ~~the costs of~~ the costs for suitable programs. In the event

49 of war, however, this contained an element of risk, because it increased the percentage of the population which could be exposed to enemy propaganda. Italy had recognized this danger and had taken police measures to silence all radio receivers capable of long-range reception.

49 Russia, as previously mentioned, was in the lead in the radio broadcasting field and particularly so in the matter of propaganda broadcasting for foreign countries, and this propaganda it directed in particular against Germany after Hitler's accession to power there in 1933. However, even within the Soviet Union itself, radio broadcasting had very specific missions. In every caserne there was a loudspeaker in the room of the officer on duty over which orders, alerting reports, and so forth could be transmitted. For the same purpose every town of any appreciable size had a local broadcasting station. Against the eventuality of war, experiments had also been made at the construction of protable radio transmitters which were to be dropped by parachute behind enemy lines to broadcast propaganda there. Plans for an air defense exercise at Moscow in 1936 provided for the use of such instruments

Quite generally the view had been accepted that in the next war radio broadcasting would play a great role as a military medium for the dissemination of news to friend and foe. The Italians, for example, transmitted

50 their news reports during the Abyssinian War directly from the scene of battle.

For air raid warning and reporting services the significance of radio broadcasting as a means of communication

was already realized, and the French had even gone so far as to construct an interesting gadget just invented which automatically registered the presence of gas in the atmosphere coupled with a broadcasting device which then automatically gave the alarm.

Plans also existed for the use of broadcast to instruct secret agents operating abroad by means of coded orders. In Germany the suspicion existed that a foreign broadcast station was even being used at the time for espionage purposes of this kind.

If there was any differentiation at the time between military, economic, and psychological warfare, it can be said that the latter type of warfare only gained real shape in World War I, although at that time still without the use of radio broadcasting, which only made its appearance in the 1920s, in the form of propaganda by means of leaflets dropped from balloons and particularly by means of the stories spread by Germany's opponents of German atrocities, both within their own and in neutral countries. At that time already the effect of such propaganda was overrated and it was assumed that any war in the future would be primarily a war of propaganda. These ideas were supported by the propaganda warfare carried on during the conflict between Hungary and

51 Yugoslavia at the time, as well as by the use of radio broadcasting in the Sino-Japanese conflict , in which even the Chinese broadcasting stations were used to direct lectures in the Japanese language to the population of Manchukuo.

The British from the very beginning achieved a complete mastery of the art of broadcasting, which was clearly shown in its propaganda campaign against Italy in the matter of Abyssinia. The Italians, in contrast, realized too late the serious weakness inherent in their propaganda in that it ceased at their own frontiers. It was too late for Italy to achieve any success against British propaganda.

One means to prevent weaknesses in ones own radio broadcasting was to keep it under constant surveillance. This could be done, for example, by a department, usually of a technical nature, of the postal authirities. In France, for example, the Minister of Posts and Telegraphs had established a comprehensive monitoring service, which operated eight radio receivers to monitor the twenty French broadcasting stations in existence. In Germany, this was done by the Reich Central Post Office through ~~eight~~ six monitoring posts. This monitoring service by the postal authorities also covered foreign broadcasting activities, particularly to detect infringments of the existing

51 technical agreements. In Germany the Research Office served to monitor domestic and foreign radio traffic of all types, particularly in political aspects, using six of its own and nineteen police stations for the purpose.

More information on the subject of the Reich Central Post Office and the Research Office is offered in Section 13 of this present chapter, below.

Other departments which maintained surveillance over froeign broadcasts were the Foreign Office and the Propaganda Ministry in Germany; the Reich Radio Broadcasting Corporation monitored both domestic and foreign broadcasts for the arrangement of its own programs, and even SS and Hitler Youth Movement radio receiving stations made their appearance in this field.

The plan was that these various departments were to exchange the material they accumulated in this way.

The German Army Intercept Service monitored 36 broade casting stations and the data thus accumulated was analyzed exclusively by the Cryptographic Center of the Reich Ministr of Defense. The material accumulated was broken down into separate categories for interpretation, the first category being the news services. All such material was recorded in two card index files, the first containing all radio broadcasting stations of the world, together with precise

52 details on their location, transmitting frequencies, power, operating range, and so forth, the second containing all other information of any importance, such as the number of listeners served by each station, the organization, its political relations, broadcasting and Army relations, broadcasting and police relations, and so forth. The material was then interpreted for use in the German conduct of the war, in which the logical objective was to gain the support of neutral broadcasting stations, break the will of the opposing nations to resist, and improve the morale in Germany.

53 In the field of psychological warfare there was no such thing as peace, the war was continuous. For this reason those responsible for the conduct of psychological warfare had to be just as prepared for action as those responsible for the conduct of military warfare. A special style of propaganda had to be developed for each country; a close study had to be made of the opponents and their weak points had to be searched out, the points through which it would be possible to reach the general public of the opposing nation. Those employed in psychological warfare had to have a very precise knowledge of the mentality of the opponents and of the neutral nations , otherwise their propaganda could not be effective. In Germany this eminently important subject

53 was only approached at a very late stage.

On the subject of broadcasting surveillance by the German Air Force Radio Intercept Service the reader is referred to Chapter 10, C, 7 and Chapter 9, 11, b.

11. The Army Heinrich Network. If the radio intercept service was to be fully capable of meeting the requirements of its type of mission, which called for the speediest possible reporting on the information intercepted, it was essential for that service to have a communication network with its own exchanges, and as far as possible a telephone network newly constructed for its specific use.

Under peace conditions it was essential to link up the static intercept stations with their forward permanent frontier DF posts and other operating posts which the intercept companies assigned for the purpose were to operate in cooperation with the appropriate static intercept stations, and with the Cryptographic Center. Furthermore, the the various static intercept stations monitoring one and the same zone and serving the same frontages had to be interconnected by telephone lines which were permanently open or at least permitting easy connections.

Mobilization plans provided for a telephone network also for the intercept companies committed in the field connecting them with their forward receiving and DF teams and with their rearward controlling stations, including

54

the Cryptographic Center and, when necessary, with the static intercept stations situated in the front areas. The Heinrich network, which was planned for construction was to meet all these requirements.

12. Army Regulations Governing Communications Intelligence Gathering Operations. Special Operational Principles and the Experience Gained. In 1928-1929 it was felt that sufficient experience had been gained to issue regulations governing signal communications intelligence activities. These were issued accordingly under the title Directives for Intelligence Gathering through Communications Media (Richtlinien fuer die Aufklaerung durch Nachrichtenmittel), and were adapted to the intercept organization as it existed at that time and which consisted exclusively of the static intercept stations and the Cryptographic Center. For purposes of concealment the static intercept stations were designated Static Radio Receiving Stations.

In addition to the above regulations there existed a bulletin (Merkblatt D-78) Intelligence Gathering through Communications Media--Deception and Concealment (Aufklaerung durch Nachrichtenmittel--Taeuschung und Verschleierung), which

55

was intended more for self-instruction than as a regulation.

With the continuing expansion of the Intercept Service,

55 and particularly in view of the development of a mobile branch comprising the intercept companies, as well as because of newly acquired experience in this field, a revision and supplementation of the first regulations became necessary and this was planned in a special field manual for the service. In order to incorporate the new regulations, the drafting of which commenced in 1935, with Army Field Manual H.Dv.421 Training Regulations for the Signal Services (Ausbildungsvorschrift fuer den Nachrichtendienst) it was to be issued as Part 6 (H.Dv. 421/6) of that field manual. Field Manual HDv. 421/6 was to be in the following six sub-divisions:

421/6a: Principles and Organization
421/6b: Radio Intelligence and Interpretation Service
421/6c: Listening Service
421/6d: Plugging In, Tapping, Monitoring.

Under covering letter CINC Army, Az 89/124c/36 (Secret) 20 May 1936, the new HDv. 421/6a was forwarded to AF CINC, Inspectorate 7, to the Army and Air Force Signal School, and to the higher level staff signal section (3) chiefs for concurrence.

A special secret volume had been printed for voice-telecommunications/ intelligence . It was intended to regulate this type of
56 intelligence gathering during the opening phases of a war and combat on German soil through the telephone offices

56 and exchanges situated in enemy-held terrain.

The principles contained in the first regulation and in the amended version, HDv. 421/6, have been treated previously in detail in Chapter 1: Definitions....., Chapter 6; Basic Principles Regarding Interpretation etc., and Chapter 7: Urgently necessary Troop Measures to Complicate Enemy Intercept Activities. In this present chapter, these subjects therefore need only cursory treatment.

Finally a few operating principles and experience factors given serious attention prior to World War II remain to be related.

Each intercept company was to cover a frontage of approximately 60 miles; the individual DF teams were to be interspaced at a maximum of 36 to 38.5 miles apart, but care had to be taken to avoid too acute angles. The data interpreting sections were to be as close as possible to the tactical commands concerned.

The individual DF teams would usually be committed in individual operations, but it was understood that they might at times be employed in centralized operations. This would require the commitment of all receivers at the interpreting station, would facilitate an accelerated interpretation of all radio intedcept and DF data, and offered the advantage

57 of more accurate direction finding from a wider base line. However, there was also a possibility of interferences because of wide frontages when weather conditions differed along the line, particularly at the ends, with resultant reception failures. It was found a sound solution at the time to adopt a middle course: in addition to the centralized commitment of all receivers at the data interpreting center, smaller units were committed in the flank areas to intercept low-power communications which could not be heard at the central station.

In DF operations it was found thatthe most favorable procedure when a radio station was detected was for all DF ~~stations~~ teams of the unit to tune in to it at the same time. The best solution here was considered at the time to be that of distant control of the DF stations, but the system still required perfectioning.

In radio voice as well as in wire voice communications intercept activities efforts were made to use recording devices against the evantuality of a lack of suitable linguistically qualified personnel.

Successful radio receiveer operating called for very diversified training and a corresponding immediate interpretation or recording of the information obtained. The items of information which the operator could procure from his instrument were numerous and important. All information considered

58 authentic had to be recorded immediately together with all identifying features, such as fluctuating tones, transmitting characteristics of the transmitter operator, and so forth. It was essential for the receiver operator to immediately recognize the pattern into which the call and similar signals belonged and to state which station was involved.

Even at that early stage direction finding was considered as an important medium for identification. It was assumed that radio messages would be in codes becoming increasingly difficult to decipher. In such circumstances the DF service by determining the location of enemy radio stations could produce information allowing deductions concerning the disposition and operations of the enemy. This implied that in certain situations the Intercept Service would have to shift main emphasis to DF operations. This in turn necessitated DF instruments simple to operate in addition to appropriate training for the personnel in the various direction finding methods. The DF operator would not only be required to take bearing according to specific orders, but on his own initiative would have to search out and detect as many stations as possible. Thus, he was reuqired to take fixes on large transmitting stations in order to check the accuracy of former findings. In former times it was considered favorable to place DF instruments on elevated sites. However, this principle was soon

58 abandoned and sites were sought in level terrain. Practical experience showed, however, that this also was not always the right thing to do. It was found, for example, to be a mistake to commit DF instruments behind wooded sections, since the woods deflected the rays coming in from forward, so that the possibility existed of their being received as though coming in from the side.+

13. Monitoring The Radio ~~Intercept~~ Networks of the Reich Central Post Office and of the Research Office.

a. The Central Post Office as part of its monitoring system had established a ~~direction finding~~ network of radar search and DF installations. This was purely a search and direction finding service, not a locating service such as that of the Air Signal Corps. The center of this monitoring network was in the Central Post Office in Berlin. This center directed six such stations, each staffed by three officials and located in

Heide/Holstein; Gumbinnen, Eastern Prussia; Cosel, Upper Silesia; Muehldorf on the Inn; Freiburg in Breisgau; and Cleve, Rhineland.

The missions of this service were

(1) To monitor, purely from technical aspects, all foreign and German radio traffic, including military, to insure proper adherence to the allocated frequency bands, the allocated operating times (this applied particularly to broadcasting stations); to detect interferences through overlapping etc.; to determine ~~the location~~

59 by DF operations the location of any station not identifiable from the frequency on which it operated; and to apply the penalties prescribed against contraveners of the radio regulations, including foreign radio traffic--a function of the frequency control police.

60 (2) To maintain constant technical surveillance over official telegraphy traffic under the same aspects as under (1) above.

(3) Upon request to furnish to military authorities, including the military intercept services, information on any interferences or new stations detected, and to provide technical support in the monitoring of German and foreign maneuvers.

(4) To monitor amateur transmitters, legal and illegal including the monitoring of their messages for the purpose of detecting and stopping the transmission of subversive or other anti-State communications, including the stations of the SA and SS, to detect any transmission, camouflaged in this way, of anti-State and particularly Communistic communications.

b. The Research Office in Berlin was established after Hitler's accession to power by the Prime Minister (Ministerpraesident) of Prussia, under whose control it remained. The organization was undertaken by suitable personnel from the staff of the Cryptographic Center, who volunteered for this work.

The Research Office was completely separate from the Intercept Services of the military, and did not cooperate with them. In fact, it was strictly prohibited for the

Footnote #, p. 127: For Army DF operations during World War II see also Chapter 4a, Section 14.

60 intercept organizations of the Army, the Navy and the Air Force to attempt in any way to contact the Research Office or any of its field agencies.

The missions of the Research Office were

(1) To intercept and interpret foreign broadcast traffic.

(2) To intercept and interpret inter-State diplomatic and other important foreign radio traffic.

(3) To monitor inter-State wire communications.

(4) To monitor illegal radio and wire communications traffic within Germany and abroad.

(5) In addition it is alleged that an intercept service was maintained for purely political purposes, using microphones and other political monitoring media.

The Research Office was headed by the Prince of Hessen. It was organized by Senior Ministerial Councillor (Ministerialrat) Schimpf, formerly on the staff of the Cryptographic Center, who died shortly thereafter as the result of an accident. Other members of the Office staff at the time included Senior Government Councillors(Oberregierungsrat) Reznicek and Kohlbauer, also from the Cryptographic Center.

14. Army DF Operations in World War II. (Supplementary to Section 12, above). The conditions of war brought about a radical change in the pattern of DF operations.

(1) Intercept operations in occupied enemy territory

were based fundamentally on the employment of mobile units and their elements, s o that these also had to assume responsibility for DF operations in such territories, a function performed during peace by the static intercept stations with their long- range DF activities. This naturally did not preclude continued activities by the static stations in the zone of interior insofar as they were still in operation. Furthermore close-range DF operations for tactical purposes had become a matter of supreme importance in the conduct of military operations because of the massing of enemy forces in the front areas. Since the distances to the enemy transmitters to be located were relativels small the DF operating base lines could be kept narrower by spacing the DF teams closer together. This increased DF coverage at the front , which was thus more intensively watched.

(2) The signal intelligence regiments under the army group headquarters with their long-range and close-range intelligence companies conducted operational and tactical close-range intelligence.

(3) Each long-range intelligence company had one data interpreting, one radio receiver (for long-, medium-, short-, and ultrashortwave receiving), and one DF platoon, the latter with its long- and medium-wave operating base line of between 90 and 150 miles. The long-range intelligence companies inter-

62 intercepted primarily morse telegraphic communications and reported their material to the signal intelligence regiment headquarters. See Diagram 1, to Chapter 4a, Section 14, Appendix 8.

(4) The close-range intelligence companies were organized in four composite platoons for medium-, short-, and ultra-shortwave radio interception and for shortwave (close-range) DF locating with an optimal DF operating base line of 18 miles (3 base lines of each 3 DF postsof each 6 and at most 9 miles), plus a wire communications intelligence platoon which need not enter into the present discussion.

The companies reported their intercepted material to the signal intelligence headquarters under which they were assigned and, using any means of communications available immediately reported intelligible and urgently important information directly to the appropriate corps, division or combat group headquarters. See Diagram 2 to Chapter 4a, Section 14, Appendix 8.

15. 8 Appendixes.