

# The War in the Ether :

## "Rote Kapelle" Case

~~(Confidential)~~

Translated from original German materials By  
Dr. Ray W. Pettengill

(\*Kapelle means on the one hand a chapel, on the other an aggregation of musicians - a band, orchestra or choir; therefore here a group that plays together.)

Let us state at the start that this case has nothing to do with a church chapel. Neither was such a chapel used to set up an agent's transmitter, nor were clergy involved. The designation resulted from a whim of German officials in Belgium who labeled every case of radio agents with the general term "Kapelle" and gave each individual case a particular designation; thus, there arose in the course of time a "Schrammel-Kapelle," a "Zither-Kapelle," a "Blas-Kapelle," and "Ardennen-Kapelle," a "Kapelle Etterbeck," and one day a "Rote Kapelle" where the color referred to Bolshevism, since this "Case" had been controlled by Moscow and worked in turn for Moscow. The whole story was as follows:

Even before the outbreak of the German-Russian War in the summer of 1941, the Russians had set up a network of agents which had expanded over all of Central and Western Europe. It was intended for espionage and was to become effective in a large way only in the event of an armed conflict. When the war with Russia broke out, this radio agent net was by no means completely developed and thoroughly organized. Only individual portions were so well organized that they were fully capable of functioning.

### Spy Center in Brussels

Among others, the Russians had set up such a center for radio agents in Brussels. The head of this spy center had become a partner in a large Belgian Commercial enterprise and thus had provided the opportunity of making extensive jour-

neys again and again without attracting attention, and so of establishing contact with a great many leading personalities. In this way he could gain insight into a number of things and gather information; at first he sent this to Moscow through Russian diplomatic and commercial representatives. This route, which had previously led via Berlin, ceased to function shortly before the beginning of the war between Germany and Russia. They now resorted to the radio to send the results of their spying to Moscow.

The radio traffic as such was soon intercepted by German monitoring stations, for the first time on 26 June, i.e., a few days after the beginning of the war. However, it was not possible to solve the cryptographic system employed and to read the contents so as to gain an insight into the activity of the organization behind the radio station. Furthermore, it was a long time before the German direction finding service was able to fix the location of the station.

Not until November 1941 was it determined that the station was surely in Brussels. Now began the close range search. On 12 December the transmitter was fixed uniquely, so that steps could be taken for picking it up. On 13 December 1941 it was captured by organs of the German Counter Intelligence Service in Brussels.

This was the first transmitter of its type that had been located in Western Europe. The villa in which it had been set up and from which it had operated had been rented in the summer of 1941 by the Russian Espionage Service and was cared

for by a Belgian housekeeper. The building served not only as the location of the radio station but also as shelter for members of the agent group and as calling point for agents and informers.

#### Chief Agent Escapes

On the occasion of the raid, six persons were arrested in all, among them an operator who came in on the following day, two Russian Officers, and a Polish woman who had come from Paris and served as cipher clerk. However, this was merely the crew of the radio station; the chief and actual head of the agents was not caught.

Among the materials found were some 500 enciphered radiograms which this transmitter had forwarded; hence, there was no doubt that the encipherment and decipherment had been done in the house and that the cipher keys must be somewhere in the house. Otherwise nothing could be done for the moment with the materials found. It was only possible to ascertain that a grille system was involved which was obviously reenciphered with a so-called book key. For a book key, any book may be used which is agreed upon by the sender and recipient; the text is taken serially for encipherment, replacing each letter of the alphabet by a number after the manner of the "Caesar": the resulting series of digits is then added to or subtracted from the series of digits resulting from the basic grille. Since this "additive sequence" is practically endless and repetitions do not occur, solution was not possible without knowing the book used.

With the characteristic egoism and interest in its own affairs which marks official agencies, the Brussels counterintelligence office declined "for security reasons" any further cooperation with organs of "radio counterintelligence" after the transmitter had been picked up. The villa which had been confiscated for the moment was released after a short time and after six weeks "radio counterintelligence" received a final report from which it appeared that those arrested had stubbornly refused to make any statements except the housekeeper and that she knew nothing of consequence regarding the organization which had operated here. Attached to the report were photographic copies of the material as found and a statement that an attempt by the cipher section of OKW to de-

cipher the radiograms had not proved successful.

#### Scrap of Paper Reveals Key

Now the photographs were subjected to a careful check at the central office of "radio counterintelligence"; in doing this it was discovered that one of the scraps of paper photographed contained a so-called Caesar Key, such as is employed in Russian Systems for enciphering plain text. This scrap of paper showed several rows of the encipherment of a radiogram; this proved that encipherment had been carried on in the house. Consequently, the books used for encipherment must also be present there.

Some notes in secret ink, as well as some of the letters discovered, contained hints that the organization had branches in France and Holland.

By making a frequency count of the digit groups of the book cipher text on the scraps of paper, it was possible to ascertain that the book employed could only have been in the French language. For the moment this did not help much since only a knowledge of the entire content of the book would afford a possibility of current decipherment.

By careful questioning of the Belgium Lady who had run the house it was possible to learn little by little the titles of eight or nine books which might have been involved in the encipherment and decipherment work of the Russian agents.

Now it was a question of getting these nine books; there was only one way and that was by purchasing them on the market since the villa had meanwhile changed owners and the entire library had disappeared. Even though the titles of the books were now known, there was no guarantee that the proper edition would be found in a bookstore, i.e., that edition which corresponded with the books used in pagination, and thus in text.

Meanwhile, the cryptanalytic section of the central office of "radio counterintelligence", which had become acquainted with all cipher systems hitherto known to be used by radio agents in the east, attempted to solve this cryptographic system by analytic means. The half-destroyed

fragment of a sheet, on which an encipherment had been prepared, was the critical factor.

After about six weeks of work it was learned how the additive sequence for the encipherment was made up.

#### Character in Novel Named

Taking into account the matter of composition for transmittal by radio of agent traffic previously observed in the east, it was finally possible to resolve the additive sequence into letters; the short sentence thus obtained contained the significant name "Proctor." After the novels sought had been procured, this name was found in one of the novels. In this way the keybook was discovered and the system was broken.

Now part of the captured radiograms could be deciphered, whereby the addresses of a number of important agents were disclosed and the preliminary conditions created for penetrating a widely ramified Russian agent network which extended over the western territory and, in particular, over Germany itself. The deciphered messages proved that one had here gotten on the trail of an especially clever man who must have connections with the highest German command, since he transmitted, for example, in November 1941 the intentions of the German Command to carry out an attack on the Caucasus in the spring of 1942. Furthermore, it was possible to deduce from exact reports on the gasoline consumption of the Army and of the Air Force, as well as on existing stocks of fuel, on the stock of planes, and on losses in the east, that he must have some sort of a connection with the Air Ministry or with the Supreme Command of the Air Force. He even transmitted to Moscow the prediction made by German astronomers and weather experts of an impending exceedingly cold winter. He even gave a very clear calculation of the time when German fuel reserves would be exhausted.

#### Another Name Enters Case

This principle agent in Brussels, who was always referred to in the radiograms by the cover name "KENT," was on the road a great deal of the time. Using the deciphered messages it was possible to follow his journeys to Czechoslovakia and

throughout all of Germany. KENT received his principal information from a confidential agent designated in the messages by a cover name "CORO." It was a question of getting on the trail of this source. The following chance happening provided a possibility.

The war with Russia broke out at a time when the Russian intelligence service had not yet completed the building up of its foreign organization. Radio connections from Germany were not functioning. The call signs in the traffic schedules had not been fixed definitely by days but were to be changed from one transmission to the next; in this way the transmitters got out of step and could not get adjusted again. To this accident was due a radiogram in which the name and address of three collaborators in Berlin were sent to the Belgium group with instructions to tell them to establish radio connections with the central office in Moscow. Such a step, of itself, grossly contravened the most elemental principles of conspiracy and can be explained only from the necessities of the situation.

KENT came to Berlin to reestablish the contact, which had bogged down, of the "Coro" group with Moscow. This was the end of October or the beginning of November 1941. However, the contact remained inadequate and Coro continued to send most of his material by way of KENT.

#### Air Force Lieutenant Involved

The radiogram had mentioned three groups in Berlin. At first nothing could be done with one of the Berlin addresses; more than half of a year had gone by and the dwelling had changed hands. Only after a long search did they get on the right track, but this proved of secondary importance. There was more success with the second address. Here investigations led to a first lieutenant of the air force who was employed in the newspaper and information section of the Air Ministry, later in the attache group of this ministry. In civilian life he had been a teacher at the University of Berlin and before 1933 had taken an active part in politics; he had good relations with the Foreign Office and contacts with a large circle of acquaintances and men of similar political beliefs. He was a man of outstanding intelligence, bluffly opposed to National

Socialism, and sympathizing with the ideals of Communism and with the Soviet Union. Through his activity in the Air Ministry he came into contact with most of the higher offices of the department as well as with many other high officials and with industrial plants. This man - a certain Schulze-Boysen - was a relative of the Tirpitz family. Using masterful disguise he had become the head of a widely ramified German resistance organization which was trying to overthrow National Socialism at any cost.

In contrast to other German resistance groups, whose activities were exhausted in preparing plans or in waiting, the group headed by Schulze-Boysen was geared both within and without the country.

"Coro", or Schulze-Boysen, was now watched unostentatiously by the German Gestapo, likewise his acquaintances and his whole intellectual circle. Among other things, it was established that at definite times he met Superior Government Councilor Dr. Harnack who turned out later to be one of Coro's most important collaborators. He had appeared at all times in the messagee under the name of "Arwid," and this was actually one of his given names.

In tracing down Schulze-Boysen's circle of acquaintances and in checking all relations and connections, there developed a long sequence of surprises of which each one "had something to it."

#### Operations In Radar Industry

For instance, with the Berlin radio firm Loewe there was a head construction man in a special department; his name does not matter and we call him Z. This Z. had for a long time been a convinced communist and had formerly been in contact with Moscow. However, he had succeeded in cleverly camouflaging his attitude. He was a very clever technician. He was the head of the section which was engaged in the development of television apparatus, radar apparatus, and the like at the behest of the Air Ministry.

In, and of itself, the principle of the electric Echolot, i.e., of space scanning (radar), had long been known. Only thus far little had been done to adapt the invention for military purposes. During the war this question had become prominent.

Electric space scanning devices were proving important in fixing approaching enemy aircraft.

Solution of this problem was of great importance at the moment in Germany, for bomber warfare was just being developed and recognition of attacking planes at night and in fog had become indispensable in properly combatting them. The Loewe firm was supposed to assist in developing and building the apparatus.

For everyone who knows German conditions, it is clear that, at the very moment in which German authorities began to occupy themselves with these matters, there began a very busy air of secrecy. Instead of intrusting as many people as possible with development of this apparatus which was so important to the Air Force, and thus finally achieving a highly developed apparatus in this battle of minds, the whole project was surrounded with an utterly superfluous veil of secrecy. Cover names, etc., were issued. The circle of participants was kept as small as possible. No one was allowed to talk with anyone else concerning the question as a whole, etc. The consequence was that only a very small circle of engineers was occupied with the work. Director of this section at the Loewe plant and, therefore, practically in control of progress on the work was, as stated, that construction chief Z. In his hands rested the fate of this invention.

Z. had good fellow workmen. Whenever one of these men had made any progress on the device, Z. saw to it that this was reported to the Air Ministry; but he also saw to it that the engineer disappeared from the plant. Either he had his deferment cancelled so that the man went to the front, or he intrusted him with "more important" tasks, or he had him transferred. In his place he put a man who, he was certain, was more or less a stranger to this field of work. Thus, for almost two years he was successful in sabotaging this important work so that England and America gained a corresponding head start. The principle of the invention had long since been known over there; now they had time to go about the technical execution calmly. This led to the creation of those radar instruments by the aid of which the German submarine was soon driven from the seas.

# The War in the Ether :

## The Russian Radio Agent Service in 1942

~~(Confidential)~~

Translated from original German materials By  
Dr. Ray W. Pettengill

Frequent mention has been made of the employment of Russian radio agents, and their work has been adequately described. We shall now sum up this chapter, and show the extent which this work assumed during the Second World War.

Bolshevist Russia was the first country to tackle the principle of radiocontrolled espionage and to put it into effect on a large scale. The beginnings go back to approximately the year 1931, that is, to the time when it became clear that National Socialism was beginning to gain ground in Germany, and thus a collision with the Soviet Union entered the realm of possibility. This might have resulted sooner or later but it was unavoidable if National Socialism seized power. The utmost watchfulness was necessary. Therefore the Soviet Union began setting up a widespread shortwave radio net with the control station in Moscow and a full dozen subordinate stations distributed all over Europe. At that time the German intercept service did not succeed in gaining any insight into the content of the messages exchanged; it was assumed in Germany that this was merely a control net created by the Communist Internationale which served to guide Communist propaganda and agitation throughout the world. How mistaken they were appeared only during the course of the Second World War when the German radio defense was able to get extensive insight into the work of the Russian intelligence service.

After the outbreak of the war between Germany and the Soviet Union it turned out that the famed "Comintern Net" - which was really a net of the Russian intelligence service - constituted only a very small portion of the Russian spy net. Much greater was the net of agent radio stations which had been set up all over Europe long

before the war but had remained silent until the war began. This now appeared in an all the more dangerous form. Already in 1940 the number of Russian agent stations in Europe had increased sharply. In May 1941 there were already some 25 radio stations.

In June 1941 the radio traffic on the Russian WNA Net-as the Germans called it after the call sign of the control station in Moscow - grew to 78 radio circuits. Shortly before the outbreak of the German-Russian War the exchange of telegrams in this net increased enormously. In August 1941 the German intercept service copied not less than 600 radiograms on this net.

The aims of the Russian secret service were:

1. Seeking information in all fields connected with the armed forces and armed strength of all European countries, of the U.S.A., of Japan, and of a few other states.
2. Seeking information in all fields of industry and economics in these countries.
3. Seeking information on all political occurrences in these countries which might have any reaction on the political life of the Soviet Union.
4. Infiltration into the centers of the secret service of those countries, and gathering information regarding any measures planned against the Soviet Union.

By using its diplomatic and commercial representatives or by employing special radio agents the Soviet Union organized an

intelligence net which worked splendidly. In the various branches of this net agents of all branches of the Russian secret service had been injected: officers of the General Staff, agents of the Peoples Commissariat for Internal Affairs (NKVD), Party functionaries, diplomats, etc. The procurement of information on the military, political, and economic developments in foreign countries was carried out on a grand scale and by all possible means. The central offices set up abroad, the branch offices, and individual agents were equipped with special shortwave sets and were in direct contact with Moscow.

#### THE "ROTE DREI"

In the course of the Second World War there was a goodly number of very dangerous groups of agents. Many groups the Germans were able to render innocuous, many they could not. But I think it was the most dangerous group of all which they did not succeed in rendering harmless. This group could only be cleared up in small measure, and that much too late.

Since June 1941 the German intercept service observed three radio circuits running from Switzerland to Moscow. In Switzerland in the vicinity of Lake Geneva, were located three radio stations which stood in communication with Moscow. It was soon recognized that these were agents' stations, and that they belonged to the Russian military espionage system. Beyond that no essential information was possible, especially since the cryptographic systems employed were not broken. Month by month the Germans watched this traffic, took down the messages, and tried to break the cryptographic system. They gave this agents' net the name "Die Rote Drei." This "Rote Drei" caused many a headache to a great many people, - also in Switzerland, but the more they worried about it the less clever they became.

It was not until December 1942 after the arrest of the agent Kent ("Rote Kapelle" case) that the Germans got any clue for breaking into the net of "Rote Drei." Kent had stated that in the summer 1940 he brought a cryptographic system to Geneva, and delivered it in Rue de Lausanne. Now the Swiss Central Office of the Comintern was located in the Rue de Lausanne. The transmitter's position had been fixed as

close to the French border. Through Confidential agents in Switzerland and the German counterintelligence office in Dijon, France, an attempt was made to get at this organization, above all to get some clue which would make it possible to break into the cryptographic system so as to be able to read the tremendous volume of traffic over this network.

Not until the summer of 1944 was Germany able to read those messages which had been going out for a long time. What they now saw was enough to take many a person's breath away.

During the whole period of the eastern campaign, during the first German offensive in 1941, in the preliminary stages of the campaign of 1942, in the most critical period on the eastern front, at the time of the battles around Stalingrad and in the Caucasus, and then later in the spring, summer, and autumn of 1943, in those decisive days when the German armies in the southern and central sectors of the eastern front were being swept back, in those days when one expected that somewhere, perhaps on the Dnieper, they would be able to make a stand, check the onrushing tide of the Russian armies, and build a new firm front, precisely in those days, weeks and months the most secret information regarding the German military situation on the eastern front, regarding troop units, strength, assembly areas, intentions, etc., was passing currently through Switzerland to Moscow. These were exclusively matters which must have come from the highest level of German military command.

The sender always signed "Dora"; the sources were designated as "Werther," "Sissy," "Teddy," "Fernand," "Taylor," "Lucie," "Pacbo," "Maud," "Eduard," "Alfred," "Jim," "Salter," etc. The man who directed the work by radio from Moscow signed "Direktor."

By direction finding it had been established by the Germans that two of the transmitters were in Geneva, the third in Lausanne. Now the work of the German agents in Switzerland began.

They soon found out the points at which the transmitters were located and the organization they served. In Geneva, at Number 113 Rue de Lausanne, sat as chief of the organization a certain Rado who was officially director of the Geo-Presse in Geneva.

Alexander Rado was a private scholar and a citizen of Hungary. He had lived in Berlin until March 1933 and had then gone first to Hungary, and from there in 1934 to Paris where he was active on behalf of the Soviet Union in cartographic work. He was a fanatic adherent of the Communist idea. In 1926 he had gone from Berlin to Moscow for nine months, and then returned to Berlin. He was a member of the KPD and of the Association for the Study of the Soviet Planned Economy. After 30 January 1933 he was again active for the KPD and had placed his dwelling at the disposal of their central office.

His wife had been secretary of the Communist women's movement and was the sister of the well-known Communist, Gustel Jansen; for a time she had worked at the Soviet embassy in Berlin under Joffe; later she spent some time in the Soviet Union.

It is certain that Rado was already active as an agent for the Soviet Union in 1939. In Paris he must have been in contact with Gilbert. When Rado came to Switzerland is uncertain; probably it was early in 1940, possibly even earlier. In Geneva he had two transmitters at his direct disposal, one of them in Rue de Soleure Number 5.

The Lausanne transmitter was in the house at Number 2 Chemin Longeraï. Occupant of the house was A.A. Foote who appeared under the cover name John. He did the cipher work himself, sent the reports, and also had an intelligence organization of his own which worked independently of Rado. The Swiss authorities knew nothing about this.

In the course of time the Germans were able to clear up many things regarding "Rote Drei." One knew who the "Direktor" was, who Rado was; they knew all the operators. In the end they were able to read all the messages. But, for all that, the principal matter remained concealed. Who were those informers whose connections reached into the Fuehrer's Headquarters, into the OKW, into the Air Ministry, into all industrial plants, etc.? Who were all these people who knew how to secure the most important information with such masterful skill? Who above all were the final sources from which they drew their information?

The Germans tried by all means to get behind this great secret. Hundreds of people were watched. In December 1943 in the grounds of the Fuehrer's Headquarters, of OKH, of the Ministry for Foreign Affairs, and other offices special detachments of Nahfeldsuchtrupps (troops charged with policing the area close to the line) were introduced who came from all directions and all distances. It was all in vain. Not a bit of this secret was ever revealed. It was and remained the most fateful secret of the Second World War.

Later, when "Rote Drei" had long since ceased to operate, when all traces had been lost, in the summer of 1944 when the shades of the "Rote Drei" were no longer spooking in the east on the Volga and the Don, but were close to the borders of the Reich in the east and in the west, at that time when men of the German military command could no longer reconcile with their conscience the strategic nonsense of a prolongation of the war, at that time when on 20 July 1944 that clumsily organized attempt was made to dispose of the man who had brought all this misfortune on Germany and all Europe --- at that time, the ghost of the dead "Rote Drei" rose once more from the grave. Once more a convulsive search for traitors swept over all Germany. Nahfeldtruppes watched Hitler's Headquarters for weeks. But again no trace was found of any suspicious radio connection. It could not be found, for it had never existed. The information for the "Rote Drei" had gone to Rado by completely different, simpler ways.

(Editor's note: While the nature of the indicated "simpler ways" of conveying this information from Hitler's headquarters is not related in other portions of the manuscript, which can be revealed, it is hinted that the material was brought out directly by certain personnel and was not transmitted by radio.)

#### PONY EXPRESS

It's older than you think. Marco Polo relates that Genghis Khan, ruler of Chinese Tartary, had a courier service similar to the pony express nearly a thousand years ago. Relay stations were provided about every twenty five miles, and the couriers, by changing mounts at each station, could deliver messages as far as 300 miles away in a single day.

# **Receiver Tuning for Manual Nets**

~~(Confidential)~~

SFC Henry D Pruden

In line with the training program employed by Operational Training, Morse Branch, The Army Security Agency Training Center, Fort Devens, Massachusetts, it has been found that proficiency in copying manual speed Morse stations may be better obtained if nets using two or more stations are used in the training program. The problem encountered was in finding a method of giving the students actual receiver tuning in connection with the copying of manual nets, using procedures other than International Point-to-Point. As the type nets desired for manual copy could not be heard at this station because the power output of the transmitters was too low to carry this far, some method had to be devised to get nets available so that the students would have to tune their receivers prior to copying the traffic. We previously had been able to give them the type nets desired by using TG-10 keyers and inked tape but we only had an audio signal to "patch" to the students' racks. This method gave the students practice in copying manual nets but no practice whatsoever in receiver tuning; in fact, the receiver had to be turned to the "send" position so that very strong signals coming over the air would not block the output of the TG-10 keyer.

Due to the classification of the nets we desired the students to copy, we could not put transmitters on the air and have them actually tune these transmitters in while the instructors sent the traffic because other persons could also tune receivers to the working frequencies. In short, we had to put a transmitter on the air for the benefit of the students and have no "output, outside of the immediate vicinity of the Operational Training room.

My idea was to use the TG-10 keyer audio output to key the RF output of the frequency meter and then "patch" this keyed RF signal to the students' racks through

multi-couplers, with no receiving antenna attached. The "make-break" circuit of the TG-10 keyer was not sharp enough to key the frequency meter properly, but by the insertion of a sensitive relay (255A Relay) in the "B" plus circuit of the frequency meter power supply and the audio output of the TG-10 keyer, a sharp "make - break" could be obtained and this RF output "piped" to the students' racks through the multi-coupler with no antenna attached, therefore, giving no RF output except in the Operational Training room. This method worked perfectly and by inserting a switch across the relay the frequency meter could be used to measure frequencies normally when desired.

Using this arrangement, students are given an approximate frequency range to search for nets. The instructor sets the frequency meter to a desired frequency, turns on the TG-10 keyer with the type net desired (inked tape that has been previously made up by the instructor is used in the TG-10 keyer, which method of preparation will be described in detail later), and turns on the relay that is keyed by the audio output of the TG-10 keyer. The instructor then takes the receiving antenna out of the multi-couplers and substitutes the RF output of the frequency meter. The students' racks are then "patched" into these multi-couplers and when the students tune their receivers to the correct frequency, they are able to copy the nets.

By putting the training generator output through the audio line to the students racks, the instructor is able to provide several different types of interference on the nets, thus giving the students simulated field experience.

By using a TG-10 keyer in conjunction with a modified frequency meter as explained above, the students have to tune their