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History of CBNRC
Chapter 1 - Policy and Committees
N.K. O'Neill, August 1987

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HISTORY OF CBNRC

VOLUME I

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HISTORY OF CBNRC

VOLUME I

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K.J. Hughes

AUGUST 1987

Dedicated
to
N.K. O'NEILL
Director of CBNRC
Chief of CSE
1971-1980

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FOREWORD

1. The main purpose or objective of this History, as of any other, is twofold. First, to lay out the pattern of the past as accurately as possible, in order to document for senior CSE officials, and for others as required, the institution and development of the Canadian National Cryptologic Agency, and to explain the changes undergone by the Agency over the years. Secondly, to provide guidance for future leaders and followers of SIGINT and COMSEC, arising out of the experiences and mistakes of CBNRC. There is a need to establish a point of connexion between events of the past and plans for the future; and it is hoped that the History will help to satisfy this need. It may also provide some members of the staff with a feeling of belonging to a continuous and worthwhile effort.

2. Recognizing the requirement for some sort of documentation for the SIGINT effort in Canada, the first Director of CBNRC asked Tom Colls in 1965 to spend his last year of service before retirement in pulling together as much of the background as he could. As "Consultant to the Director", Mr. Colls is believed to have assembled some information about wartime SIGINT activities, but if so none of it is still extant. It was probably incorporated in "The Story of Signal Intelligence in Canada", produced by Jean de Chantal in draft and uncompleted form in 1966, before he left CB to help set up a National Library in Ghana. Although this document only exists in an embryonic state in the Archives, it would be worthwhile for somebody to pull it out at some point, tidy it up, and publish it as a record of Canadian wartime SIGINT activities. However, Part II, which was intended to be devoted to "The Post-War Years", never got off the ground, though what was to have been Chapter X, entitled "The Transition Period", had been begun but not apparently completed. Accordingly, this well-researched account of the wartime effort was not used for the purposes of this History, which only deals in detail with the period since September 1946.

3. In 1972 the new Director of CBNRC appointed Steve Diditch as Archivist and Historian, with Doris Leeder to help him as Assistant Archivist. Miss Leeder began consolidating and organizing such records as existed, spread as they were throughout the Branch; she called on the Directorate and the various Groups to send in files which were no longer in use, and made a brave attempt to start on the monumental task of cataloguing their contents. As far as the work of Mr. Diditch and his successors in the post (Bill Henderson, who was still Historian when he died, Jean Walker and Dick Horlin) is concerned, it has to be assumed that their time was also occupied in organizing the Archives, since no draft histories or notes by them have been discovered. After Doris Leeder left, the Historians were assisted in the archival aspects of their work by Roberte D'Aoust, Ida Moyneur and Audrey Wright.

4. Since no actual history seemed to be forthcoming, and since even the post of Historian had been forced to lapse because of the pressures of operational tasks, leaving the Directorate Assistant (D/A) to keep a "watching brief" on the continuing build-up of the Archives, the Chief CSE felt in 1979 that something further needed to be done. He asked Tom Chadsey, who had just returned from the CANSLO/L post in GCHQ, to produce a "short report" on the history of SIGINT and COMSEC in Canada, to be discussed with the Chief before he (Chadsey) was due to retire soon afterwards. This compilation by Mr. Chadsey, which can still be found in the Archives, did not turn out to provide an adequate basis for a fuller history. In 1980 the new Chief tasked the D/A with producing another outline and summary, based largely on Mr. Chadsey's work, but here again the effort to expand the existing material into a general historical account of SIGINT and COMSEC in Canada got stalled.

5. It was in 1983 that CSE Management approached the ex-Chief, Kevin O'Neill, to see if he would undertake the task of producing a Canadian cryptologic history. He in turn asked for the assistance

of Ken Hughes, then Director of T Group, to help him on the COMSEC side. Arrangements, including the agreement of Mr. Hughes to cooperate in the writing of the History, were completed by the fall of 1983, and work was in full swing by the end of the year. At first it was intended to produce a short summary type of history of the highlights of activities in CBNRC from its inception in September 1946 to its transfer to DND in April 1975, something which might be read through almost at a single sitting. However, it was soon concluded that, given the difficulty of locating and making use of accounts of specific subjects and events contained in the Archives, it would make better sense to provide a more complete historical record of all SIGINT and COMSEC items of any significance, together with some information on the administrative support side. It was found necessary to break the available material down into separate subject headings, rather than attempting a straight chronological account of all aspects of CB's work. The end result of this more complete approach to the task emerged as 28 Chapters with a Chronological Summary and an Index, the whole divided up into seven Volumes. Volume II had to be produced on a LIMITED DISTRIBUTION basis, since its three Chapters contained the most sensitive information to be placed on record. Mr. O'Neill did the SIGINT Chapters, Mr. Hughes the Communications and COMSEC Chapters, and the Administrative Chapters in Volume VI were shared between them; Volume VII contains the Chronological Summary and Index. The raw manuscripts from Mr. O'Neill and Mr. Hughes were converted into readable form by three very able clerical assistants: first Katie Robertson, then on a temporary and part-time basis Helen Brennan, with the bulk of the remaining period and material handled by Thelma Pranschke. Finally, it should be added that since Ken Hughes had to leave before the History was completed, any mistakes in spelling, grammar, style or format arising out of poor editing or proofreading have to be laid at the door of Mr. O'Neill.

6. A few words should be said about the approach to the task and its content. Mr. O'Neill and Mr. Hughes had both been in CBNRC for the whole period between its inception in 1946 and its demise in 1975, except for occasional short breaks. They could thus rely to a limited extent on their memories, which turned out to be based on almost opposite areas of activity, and were therefore in many ways complementary, though in a few cases contradictory. Since the latter cases especially made them realize how faulty memory can be, they actually relied wherever possible on the written records in the Archives, though even these were sometimes inaccurate, and more frequently non-existent; in such instances memory was used to fill in absent or incorrect observations. The files in the Archives do not yet have reference numbers. Hence the footnotes in this History do not represent the normal scholarly references to sources, but are almost all cross-references to other parts of the History which mention, discuss, or enlarge on the subject or item being footnoted. For those who do not want any further information on the individual items, the text is designed to be able to be read straight through, without reference to the footnotes. The Index is designed to enable readers to locate and draw together references to particular individuals or institutions if they so wish; however, more general subjects such as SIGINT or COMSEC are not indexed, since the references would be so numerous as to be useless. All references in the Index and footnotes are to paragraph numbers, or sometimes in the footnotes to Annex letters; for example, 2.31 and 2.G would refer to paragraph 31 and Annex G of Chapter 2 respectively. The Annexes expand on or illustrate points in the text of the Chapters. The page numbers affixed to the Chapters and some Annexes are simply matters of form, and have no significance other than to establish continuity of pagination. Names of individuals are mentioned when they appear necessary or useful to the story, but on the whole the History is presented in as impersonal a form as possible. In deference to CB's relationships with its UKUSA collaborators the term UK is used throughout, though it is recognized that the correct official name for that country in Canada is Britain.

7. Like most other things, this History took longer than originally estimated. As indicated earlier, it was started in the fall of 1983. Ken Hughes retired on 6 June 1986, and Kevin O'Neill and Thelma Pranschke had finished their part by the fall of 1986; so the work extended over about three years. A few past and present members of the staff were able to give limited assistance on request, but in general the written records supplemented by personal memories rather than interviews provided the source material. Apart from the excellent clerical help already referred to, mention must be made of the vital assistance cheerfully provided by Ida Moyneur from the Archives. A debt is also owed to Diane Desrochers, who produced the neat diagrams which are included in the Annexes. The services of Lloyd Wilcox were secured to settle questions of classification, and the problems of sorting the entries to the Index and of producing the final copies of the History were turned over to Marilyn Osborne; she in turn enlisted the aid of Roger Arsenault.

N.K. O'Neill
August 1986.

HISTORY OF CBNRC

VOLUME I

BASIC SIGINT

Chapter 1

Origins and Background

HISTORY OF CBNRC

Chapter 1 - Origins and Background

Birth of CBNRC

1.1 On 1 September 1946, the Communications Branch of the National Research Council (CBNRC) was born. The birth resulted from the post-war union of the civilian Examination Unit (XU) and the military Joint Discrimination Unit (JDU), whose wartime histories will be outlined in later paragraphs. Legitimacy was provided for this union and birth by ministerial sponsorship. Mr. St. Laurent (Acting Secretary of State for External Affairs), Mr. C.D. Howe (Minister responsible for the NRC) and Mr. Abbott (Minister of Defence) signed a proposal on 13 April 1946[1] for which approval was given over the signature of the Prime Minister, Mr. MacKenzie King. The necessary directive was issued as a Treasury Board (TB) Minute (T307012B) as well as an Order-in-Council (P.C. 54/3535), authorizing 179 classified positions to be set up in the National Research Council for the "essential" continuation of "work of great value" which had been carried on in wartime. The ministers concerned had been briefed on the details of this work, which was referred to as "cipher breaking" and "cipher making". These activities were later generalized as "Signals Intelligence (SIGINT)" and "Communications-Electronic Security (COMSEC)" respectively; the abbreviated terms SIGINT and COMSEC will be used for the activities in the rest of this History.

1.2 In 1946, the 1st of September fell on a Sunday, and Monday was of course Labour Day; so in fact it was on Tuesday 3 September that the staff of CBNRC arrived at work, all in civilian clothes for the first time, and all occupying positions on the establishment of the National Research Council. Why the NRC? The Examination Unit, as will be seen later, had been created in wartime under the aegis of

1. See Annex A

the NRC, and this was thought to be the best place for what was necessarily secret work to be carried out in peacetime. The heterogeneous nature of the backgrounds of the staff can be best illustrated by a brief account of the previous careers of the Director and some of the other original staff members. This will be followed by a general description of the XU and the JDU, as well as of the wartime interception effort.

The Director CBNRC

1.3 Lt.Col. E.M. (Ed) Drake had graduated in Electrical Engineering from the Universities of Saskatchewan and McGill. He had then worked for Northern Electric of Canada, including a stint with a related company in Tyneside, England. On the outbreak of war, as an officer in the Reserve Army, he was commissioned in the Royal Canadian Corps of Signals (RCCS). In March 1940, Lt. Drake joined the RCCS "Experimental Section" as second-in-command. This section had been set up in Rockcliffe, Ottawa, to intercept any available German (and later Italian) communications; it employed 4 shifts of 4 operators each. It was later renamed No. 1 Special Wireless Station (SWS), and moved to a new station at Leitrim just outside Ottawa, in September 1941. In 1942 No. 2 SWS at Grande Prairie, Alberta and No. 3 SWS at Victoria, B.C. were established[2]. Also in 1942, in June, Capt. Drake, who had become C.O. of No. 1 SWS, was transferred to National Defence Headquarters (NDHQ) as the officer in charge of MI2 within the Directorate of Military Intelligence (DMI). As head of MI2, Major Drake had the responsibility of controlling the activities of all three SWSs, as well as operating a Discrimination Unit (DU) to process the intercepted messages ("traffic") from the SWSs ("intercept stations"). No. 1 DU, as this unit was called, was located on Laurier Avenue with the civilian XU, and started with an establishment of 2 officers and 5 NCOs, which in 1943 was increased to 5 officers and 26 NCOs. Of the

2. See para. 5.2

other Services, the RCN had people processing Japanese traffic on the West Coast of Canada, but refused to join in a common or "Joint" Discrimination Unit, while the RCAF were only just starting on a very small scale under F/L Chester Ronning, who was only too pleased to work in conjunction with Maj. Drake's Army Discrimination Unit. Eventually, in August 1943, all three Service DUs plus a Joint Machine Unit (JMU) (to operate International Business Machine (IBM) equipment) moved into common quarters on the top floor of a school on Guigues Street, Ottawa. The RCAF effort was still tiny, and the RCN kept grumbling throughout 1944 that the Naval contribution to Japanese processing, as opposed to locating and tracking German submarines by direction-finding (D/F) means, was wasteful and of no use to them. As a result, Lt. Col. Drake's DU was by far the largest and most effective component of the group, and when the RCN disbanded its unit in early 1945, and External Affairs proposed the transfer of the Japanese part of the Examination Unit by the end of July, a Joint Discrimination Unit under Lt. Col. Drake was established on 1 August 1945, incorporating the Japanese SIGINT processing elements of the Army, the RCAF and the Examination Unit, plus the Joint Machine Unit and a communications and cipher office. As a result of the proposals referred to in paragraph 1.1, this JDU was transferred to the NRC, first in a transitional way as the Communications Research Centre (CRC) on 1 July 1946, then finally with its name changed to CBNRC and all staff transferred to NRC on 1 September 1946. This was the establishment that our History is about, and of which Lt.Col. E.M. Drake became the first Director (Director CB) as Mr. Ed Drake.

Other Original Staff Members

1.4 Lt. Col. G.E. (Geoff) Evans had been in the British Army at the UK Government Code and Cypher School (GCCS) at Bletchley, Bucks., in England. He was provided on a three-year loan by the British SIGINT authorities to assist Ed Drake in setting up the cryptanalytic and intelligence production aspects of the JDU and the new CBNRC. He arrived in mid-

1946, and was in September established as a civilian in the position of Assistant Director (A/D) CBNRC. Mrs. M.R. (Mary) Oliver became the Administrative Assistant, a position she had also filled in the Examination Unit since July 1942. LCdr. E.R. (Earl) Hope, Royal Canadian Naval Volunteer Reserve (RCNVR) had started his navy career as an intercept operator in B.C. In 1941, he came to Naval H.Q. in Ottawa, and was employed in locating German submarines; however, because of his knowledge of the Japanese language, he was in 1942 switched to Japanese work, and in July of that year was posted to the Examination Unit, where he headed the Japanese Diplomatic Section. In CBNRC, he was put in charge of work SIGINT. LCdr. C.N. (Chuck) Hellyer, RCNVR, had been recruited from the IBM Company in September 1943 to head up the new Joint Machine Unit on Guigues St., and was given an immediate commission as a Lt. RCNVR. He now continued to run the machine unit in CBNRC as a civilian. Majors N.K. (Kevin) O'Neill and J.D. (John) Manson had been working for GCCS as British liaison officers with the U.S. Army SIGINT agency in Washington when they were recruited by Mr. Drake and Mr. Evans for cryptanalytic and traffic analytic work respectively in CBNRC. Mr. O'Neill was later to take over Mr. Evans' position as head of cryptanalytic production when the latter returned to England in 1949, and Mr. Manson was to suffer a premature death in 1952. R.S. (Mac) McLaren had been seconded from the RCMP to the Examination Unit in June 1941, and never returned to the Mounties. Having worked in the XU as a cryptanalyst on German and French systems, he was placed by Lt.Col. Drake in charge of Japanese military systems in the JDU in August 1945. After the end of the war he was instrumental in keeping training in cryptanalysis going, which he continued to do until the formation of CBNRC, as well as working on He became the first Liaison Officer for CBNRC in Washington in February 1950, as Mary Oliver had done in England in February 1949[3].

3. See Annexes 11.C and D

The Examination Unit (XU)

1.5 Early in 1940 T.A. (Tommy) Stone of External Affairs had been made responsible for Canadian aspects of Economic Warfare, which involved acquiring information from the censorship organization and from any other sources of intelligence which might be available. After the fall of France in June 1940, External Affairs were receiving copies of cipher traffic passed between the Vichy Government in unoccupied France and its mission in Ottawa. However, since they had no means of breaking the Vichy codes, they used to send this traffic to the War Office in England for deciphering (presumably at GCCS Bletchley) and return. Early in 1941 the War Office indicated that it would be helpful to them and more useful to External Affairs if arrangements could be made to do the deciphering in Canada. Meanwhile, in November 1940 Capt. Drake had met in Washington with Maj. Gen. Joseph O. Mauborgne, the Chief Signal Officer of the U.S. Army, who recommended among other things the "organization of a cryptanalytic section in the RCCS". However, when Capt. Drake passed this suggestion on to higher authority, the Chiefs of Staff decided against recommending the establishment of a "Cryptographic Branch" in Canada. Not content to let the subject lapse completely, early in 1941 Capt. Drake and Lt. Herbert Little of Directorate of Naval Intelligence (DNI) took up with Tommy Stone the possibility of External Affairs sponsoring a cryptographic unit in Canada. Mr. Stone and his superior Norman Robertson were quite keen, particularly in view of the War Office suggestion about the Vichy codes, and the latter proposed NRC as a suitable and less conspicuous place for housing such a project.

1.6 Dr. C.J. Mackenzie, then acting President of NRC, was not unwilling to consider such a proposal, especially as NRC had recently received a private contribution of $200,000 for the "war effort", which came to be known as the "Banting Fund". He asked two senior mathematicians from the University of Toronto, Dr. G. de B. (Gilbert) Robinson and Dr. H.S.M. Coxeter, to go to Washington in April 1941 to investigate the possibility of assistance in setting up a

cryptographic unit in Canada. These two met with Gen. Mauborgne, who was somewhat surprised at having the subject raised with him again, since he had already got together organization charts and cryptographic training material for the Canadian Army as a result of Lt. Drake's previous visit. However, he was quite helpful and recommended that the Canadians should approach Maj. H.O. Yardley with the object of recruiting him to start up a cryptographic unit in Canada. This was done, and on 12 May 1941 an Interdepartmental Committee approved the establishment of a cryptographic unit in Ottawa, to be headed by Maj. Yardley, and to be funded and administered by NRC. This was to be called the "Examination Unit (XU)", with its policy and operations to be controlled by External Affairs.

1.7 The Examination Unit came into being on 9 June 1941, housed by the NRC in two rooms at the new aeronautical laboratories on the Montreal Road in Ottawa. Its head, Maj. Yardley, was for supposedly security reasons known by his first names, Herbert Osborn, and brought his assistant, Miss Ramsaier (later his wife), from Washington with him. Dr. Gilbert Robinson stayed on in the XU, and, as mentioned earlier, Mac McLaren was seconded from the RCMP. Other staff was recruited mostly from the University of Toronto, and by the fall the establishment was in the teens. Apart from the Vichy codes, work was done on German agent traffic, and on a small amount of

s.15(1) - DEF

s.15(1) - IA

material, the latter mostly for training purposes. Later Japanese diplomatic codes were added, and in July 1942 LCdr. Earl Hope was seconded from the RCN to help with these. It quickly emerged that Maj. Yardley, even with his alias, was anathema to both the UK and the US, largely because of a damagingly revealing book called "The Black Chamber" which he had written and published in the early thirties. For this reason, it was clear that neither country would cooperate with Canada in SIGINT work while Maj. Yardley was there, although he had been recommended by the US Gen. Mauborgne, who however had since retired. And so in December, when his 6-month contract was up, Maj. Yardley was released, to his

great and vocal displeasure. In January 1942, the British provided as replacement to head the XU, Oliver Strachey, an experienced cryptanalyst who also happened to be the brother of the noted historian Lytton Strachey. Mr. Strachey was most helpful in steering the XU through its growing pains, but after six months was succeeded in July 1942 by F.A. (Tony) Kendrick, a younger and more energetic cryptanalyst also provided by the British from GCCS.

1.8 The work of the Examination Unit was controlled by an XU committee chaired by Lester B. Pearson till June 1942, and then by Tommy Stone. Originally the required messages ("traffic") came from Department of Transport (DOT) intercept facilities, messages which were subsequently added to by traffic provided by the UK. Other sources were No. 1 Special Wireless Station (SWS) of the Canadian Army at Leitrim near Ottawa, and US Cable Censorship and British Security Coordination (BSC), both in New York, the latter of which acted as a channel for both US and UK traffic to meet XU needs. Work was confined to breaking ciphers and issuing translations, the discrimination and traffic analysis (T/A) of Japanese service messages being handled by the Army DU. In September 1942 External Affairs decided that it would be worthwhile to collate the translated messages before circulating them to recipients; so they set up within the XU a Special Intelligence Section (SIS), headed by Dr. Herbert Norman, recently repatriated from Japan, to fuse the decodes with other collateral information, and to produce intelligence summaries. The XU effort continued along the same lines till 1945. By early 1944 the staff had grown to 45, and George de T. Glazebrook had succeeded Tommy Stone, who was posted to London, as the Chairman of the XU Committee. In January 1945, the SIS was withdrawn from the XU, and in July all work on French ciphers ceased, while the Japanese cryptanalytic effort was transferred to the JDU under Ed Drake. This effectively marked the end of the Examination Unit on 1 August 1945.

The Joint Discrimination Unit (JDU)

1.9 As mentioned in paragraph 1.3, the JDU was established on 1 August 1945 under the direction of Lt.Col. Ed Drake. Before seeing how it turned into CBNRC in September 1946, it might be well to take a few steps back, and review briefly how its Service component elements did or did not coalesce to form the JDU. The RCN was the first of the Services off the mark into Canadian SIGINT activities, in 1939, though even before that, in May 1938, the Minister of National Defence had approved the establishment of a "Tri-Service Wireless Intelligence Service"; however, this latter scheme was not implemented. In July 1939 the Canadian Director of Naval Intelligence (DNI) was briefed at the Admiralty in London on the use and value of High Frequency Direction Finding (HF/DF) and the organization of an Operational Intelligence Centre (OIC). On 10 September 1939 Cdr. J.M. (Jock) de Marbois of the Naval Service Signals Division (NSSD) formed what he called the Foreign Intelligence Section (FIS) to undertake Operational SIGINT ("Y"), HF/DF and the plotting of the positions of submarines and surface vessels. At different periods the FIS was referred to as an OIC, a Wireless Telegraph Intelligence (WTI) Section, and even a Naval Discrimination Unit. In June 1943, the OIC/FIS, still responsible for "Y" work under Capt. de Marbois, was separated from the NSSD, which however continued to be responsible for providing the necessary signals personnel. In 1944 Capt. de Marbois is noted frequently complaining that since the USN had full control of the US/Canadian Pacific HF/DF and "Y" network, there was no future for a Japanese Discrimination Unit in the RCN. Hence in April 1945 he withdrew officially from the "Y" Committee which coordinated the Services' SIGINT effort, leaving DNI and the Director of the Signals Division (DSD) as the RCN representatives. In June he went further and withdrew nearly all Naval personnel from the jointly housed (since August 1943) Discrimination Units, before they turned into the JDU; and finally the Naval OIC/FIS/WTI/DU was decommissioned on 10 September 1945.

1.10 The Canadian Army started off in SIGINT with a small intercept section in November 1939, the section which Ed Drake joined in March 1940[4]. Incidentally, there had been an RN/RCN intercept, as opposed to processing, effort at Esquimalt B.C. since 1925, the traffic from which was sent via DNI to the Admiralty in England by surface bag. The Army's intercepted traffic, mostly plain language (P/L) from commercial broadcasts, was sent to the Director of Military Intelligence (DMI) and to the Naval OIC/FIS for processing until 12 June 1942, when the Army established its own Discrimination Unit under Maj. Drake to process its own traffic. This Unit started discriminating and doing traffic analysis (T/A) on Japanese military and air traffic in the same building as the XU, then, after a short spell in an office on Bank Street from March on, moved with the other DUs to Guigues Street in August 1943[5]. The RCAF came very late into the SIGINT game, Japanese air traffic being processed by the Army DU till 1943. However, by the time of the move to Guigues Street in August 1943, the small RCAF team was collaborating closely with No. 1 DU. At their peaks, the Navy OIC had about 200 people, the Army DU 85, and the RCAF Unit 15. When the JDU was established in August 1945, the RCAF members under the administrative control of the Director of Air Intelligence (DAI), G/C Stewart, were making quite a useful contribution. It has already been related in paragraph 1.3 how the JDU was formed from the Japanese section of the XU and the JMU as well as the Army and RCAF DUs; and this was essentially the grouping that formed the Communications Research Centre (CRC) on 1 July 1946. The President of NRC wished to retain the name CRC, but in spite of his objections it was decided to call the new infant the Communications Branch of NRC so as not to confuse it with what its members regarded as the really important CRC, i.e. the Communications Research Committee[6].

4. See para. 1.3
5. See para. 1.3
6. See para. 2.2

The Wartime Interception Effort

1.11 Quite a bit has already been said about Canadian Service interception, especially in the last section on the JDU. It may however be a good idea at this stage to pull together the threads showing how traffic was collected up to the formation of CBNRC and "its" intercept stations in September 1946. We mentioned above that the RCN was intercepting traffic at Esquimalt for the Admiralty since 1925. When the Army started intercepting German traffic in 1939 and Italian in 1940 from the Ottawa area (at No. 1 SWS), copies were also sent to the UK via the British Security Coordination (BSC) office in New York, which operated under William Stephenson ("Intrepid") with mostly Canadian staff, since the US was still technically neutral. In 1942, after the US entered the war, the RCN intercept effort on the West Coast of Canada was concentrating on monitoring Japanese Naval and Diplomatic traffic, all of which was forwarded to the Admiralty; while the Army stations in the West were intercepting mostly Japanese Military and Air traffic, which was sent to BSC for London and Washington. From 6-17 April 1942, a tripartite (CANUKUS) conference was held in Washington on the subject of "Radio Intelligence", which dealt mainly with the coordination and exchange of intercepted traffic. Messages intercepted in Canada, to "include as much Japanese Military as possible, were to be forwarded to Washington or London, or both, depending on the nature of the traffic identified". No traffic seems to have been identified for forwarding by the US or UK to Ottawa at this conference; however, diplomatic code and cipher messages were already being, and continued to be, sent to meet the needs of the XU. Largely as a result of this conference a "Y" Committee, chaired by DMI and reporting to the Chiefs of Staff Committee, but with External Affairs and Department of Transport participation, was set up to coordinate Canadian interception activities.

1.12 Dwarfing the limited effort of the RCN and Army were the interception facilities of the Radio Division of the Department of Transport (DOT). Set

up in peacetime to monitor illegal radio transmissions, these facilities were quickly reorganized by the outbreak of war to monitor German broadcasts, including cipher messages, and later Italian, Vichy French and Japanese commercial and diplomatic circuits. In 1939, DOT already had stations at Ottawa, which monitored German transmissions on continuous watch from 1 September 1939, Forrest, Man. (later moved to Winnipeg) and Vancouver, B.C. By the end of 1939, stations at Strathburn, Ont., Shediac, N.B. and Louisbourg, N.S. were added to their wartime interception effort, and two new DOT stations were built at Hartlen Point, N.S. and Gordon Head, B.C. The RCN was a great beneficiary from D/F as well as monitoring at these stations. As an indication of the scale of DOT interception, by the end of the war they had 250 operators manning 55 receivers[7].

7. Continued in para. 5.1

Chapter 2

SIGINT Policy & Committee Structure

Annexes:

54/3535

CHAPTER 1
ANNEX A

National Research Council

To: His Excellency, the Governor General in Council

The undersigned, Chairman of the Committee of the Privy Council on Scientific and Industrial Research, has the honour to report,

THAT early in the war, the National Research Council organized, at the request of the Department of National Defence and the Department of External Affairs, a project which, throughout the war, did work of great value not only to Canada but also to the United Kingdom and United States, and that following careful consideration by the departments directly concerned, it is agreed to be essential that this project be continued on a postwar basis, and

THAT the entire staff engaged on this work by the National Research Council were employed under war appointments which lapse on 30 June, 1946, and it is consequently necessary, in order to avoid complete disruption of this activity and loss of the services of persons who have had several years' training and experience in a very specialized field, and who would be extremely difficult to replace, that action be taken to provide a postwar establishment for this activity, and

THAT for the above purpose, the National Research Council has established one hundred and seventy-nine positions under eleven classifications, each with the normal salary range and increment provided for comparable positions on the staff of the National Research Council, as detailed in the accompanying schedule, and

THAT provision has been made in the estimates of the National Research Council for the year 1946-47 to cover the salaries of the necessary staff and activities of this Communications Research Centre.

THEREFORE the Minister recommends with the concurrence of the Secretary of State for External Affairs and the Minister of National Defence, that in accordance with the provisions of Section 10 (f) of the Research Council Act 1924, the remuneration attached to each of the positions detailed in the attached schedule be approved.

C.D. Howe

Chairman,
Committee of the Privy Council on
Scientific and Industrial Research.

I concur

Louis S. St Laurent
Secretary of State for
External Affairs

Minister of National Defence.

R.C. 419
15 April, 1946.

Chapter 2 - SIGINT Policy and Committee Structure

Early Development of the Communications Research Committee (CRC)

2.1 The wartime SIGINT activities of the Examination Unit had been controlled by an XU Committee[1] and those of the Service and the Department of Transport (DOT) intercept stations, as well as of the Discrimination Units (DUs), by an Interdepartmental "Y" Committee reporting to the Chiefs of Staff[2]. In 1945 both these Committees ceased to exist. In May it was proposed by the Director of Military Intelligence (DMI) that the SIGINT control functions of the "Y" Committee be taken over by the Joint Intelligence Committee (JIC) of the Department of National Defence, expanded to include the Department of External Affairs and the RCMP; this proposal was approved by the Chiefs of Staff on 25 Jun[3]. However, the decision was received with feelings of shock and outrage by the Department of External Affairs, who from then on bent their best efforts to ensure that policy control of SIGINT matters did not get into the hands of the military. They proposed that the control of all SIGINT should be vested in a separate committee, chaired by a member of External Affairs, but the Chiefs of Staff would not agree at that stage. External Affairs finally gave in, with the proviso that, because of the war situation, plans for the control of the Joint Discrimination Unit (JDU) could only be short term anyway. When the Examination Unit came to an end on 1 August[4] the XU Committee died with it, thus reducing even further the control of External Affairs over SIGINT matters.

2.2 In paragraph 1.10 we saw that the JDU, which succeeded the XU as the Canadian SIGINT processing centre in August 1945, became the Communications

1. See para. 1.8
2. See para. 1.11
3. Minutes of 327th Meeting of COSC
4. See para. 1.8

Research Centre[5] on 1 July 1946. At discussions between the Department of External Affairs and NRC in May 1946 it had been agreed: "For the time being at least the Unit to be known as the Communications Research Centre should be placed under the NRC and provision ... made by the Council for the necessary establishment; that the Centre should be directed by a Committee made up of one representative from the Directors of Signals, one representative from the Directors of Intelligence, one representative of the NRC and two representatives from the Department of External Affairs (one of whom would be Chairman). It is intended that this Committee should direct the activities of the Centre, subject only to reference in major matters of policy to the Chiefs of Staff, the President of the NRC and the Under-Secretary of State for External Affairs". The last named was to be chairman of this senior group, and to decide what were major matters of policy. This indicates how strong a hold the Department of External Affairs was determined to exercise over SIGINT matters. As a result of all the above manoeuvres a new Committee, the Communications Research Committee (CRC), was set up in June 1946, to control all SIGINT activities, including policy control of CBNRC and Canadian intercept stations, at which time the JIC backed out of having anything to do with Service intercept or other SIGINT operations[6]. The initial composition and Terms of Reference (TOR) of CRC will be dealt with in paragraph 2.4, and its final composition and TOR in paragraph 2.11 and Annex A.

2.3 Although the CRC as the national SIGINT policy committee was only established in June 1946, there had been quite a few national SIGINT policy decisions taken before this time; a few of the more important ones will be mentioned here. As early as August 1944 the Chiefs of Staff Committee approved "in principle" that three Army and three Navy intercept stations should continue to be maintained in

5. Referred to from now on as CBNRC
6. Minutes of 148th Meeting of JIC, dated 21 June 1946

peacetime; and throughout 1944 the XU Committee was stressing the need to continue a SIGINT processing effort in peacetime. In August 1945 the JIC (with its new representation from External Affairs) recommended that the JDU, with a "crypt section", be continued after the war, either as a civilian (NRC) or Service organization; and in September the Chiefs of Staff Committee, in discussions with four senior External Affairs officers, agreed to continue SIGINT activities in peacetime, even though the JDU was scheduled to lapse on 30 June 1946. Perhaps stimulated by the Commonwealth SIGINT Conference of 22 February - 8 March 1946, which will be dealt with more fully in Chapter 11, the Canadian Chiefs of Staff Committee on 28 March 1946[7] once more approved the continuation of Service intercept stations in peacetime, and the very next day the senior interdepartmental SIGINT group proposed to the Government the establishment of a Communications Research Centre, for "Y" policy, discrimination and traffic analysis, cryptanalysis, code and cipher making, and cipher security". This was the proposal which finally resulted in the ministerial approval detailed in paragraph 1.1.

2.4 The CRC held its inaugural meeting on 20 June 1946, though for the first couple of months it went under the name of the Communications Research Centre Committee (CRCC). Its first Chairman was George Glazebrook of External Affairs; its other members consisted of the three Service Directors of Intelligence (DNI, DMI and DAI) and Directors of Signals (DNComm (Naval Communications), DSigs Army and DComm RCAF), another External Affairs officer, and a representative from NRC Administration. The Secretary was Mrs. Oliver, who had come from the XU to the JDU, and thence to be Administrative Assistant to the Director CBNRC[8]. Messrs. Drake and Evans were to be "in attendance" for CBNRC. The functions of the Committee were outlined in rather vague terms by the Chairman as comprising all aspects of the control of

7. Minutes of 346th Meeting of COSC
8. See para. 1.4

SIGINT interception and processing, while any COMSEC operations seemed to be tacitly assumed to come under the general responsibility of running CBNRC as a "cryptologic organization", though such a term was not in use at that time. Any matters of "higher policy" were to be referred to a senior group consisting of the Chiefs of Staff, the Under-Secretary of State for External Affairs (USSEA), and the President of NRC. The latter group was not formalized as a Senior Committee (SC) chaired by the USSEA until November 1948, and did not produce any formal Minutes till September 1949.

2.5 Looking back on those days, it seems almost incredible that a supposedly "policy" committee would become involved in the amount of detail that the CRC in fact did. Right from the start it handled such mundane matters as the appointment of every single individual to CBNRC, the provision of suitable security guards, procedures for SIGINT clearances, and local as well as international communications and courier facilities. All that was left to the officers of the agency was to get on with the detailed work, to present reports on their activities, and to forward any proposals or suggestions, however minor, to the Committee. Nevertheless, most papers touching on even major matters of policy were in fact initiated and drafted by senior CBNRC officers, rather than by the staffs of members of the CRC. For example, the paper CRC/14, saying that while the Services have "administrative control" of intercept stations, CBNRC has "assignment control", was presented to the CRC by CBNRC on 20 August 1946, and approved without opposition, though later this agreement frequently caused trouble in practice, especially where stations combined intercept and direction-finding (D/F) facilities. Also, on 11 July the CRC approved a paper saying that the Intelligence Section of CBNRC was to "provide" Signals Intelligence, but the Directors of Intelligence were to "evaluate" it. While this precautionary view was almost certainly brought forward at the request of the Ds of I, again it was the staff of CBNRC who prepared the paper; one main reason being that there was no CRC staff as such, and the Secretary was, and continued to be, provided by

CBNRC. One other practice of those days which is worth remarking is that it was the CRC, not CBNRC, which dealt with collaborating SIGINT agencies. For example, on 25 July 1946 the CRC decided that it would ask the **London SIGINT Centre** (LSIC) for its Weekly Political, Military and Commercial SIGINT surveys, and would also ask the Army Security Agency (ASA) in Washington for its periodic Diplomatic Summary. This was at a time when the Canadian SIGINT authorities were in touch with the **London SIGINT Board** (LSIB), and to a lesser extent with the US COMINT Board (USCIB). The tendency for the SIGINT "policy" authority, rather than the SIGINT agency, to deal with collaborating Centres continued even when the CRC's authority was taken over by the Director of Communications Security (DCS) in 1953. Liaison with collaborating Centres is dealt with more fully in Chapter 11, while the take-over of the DCS comes in paragraph 2.13 below.

2.6 When the CRC did deal with policy rather than routine matters, the record shows that it often made very practical proposals, but was seldom able to follow them up in order to ensure that they resulted in practical action. For example, on 25 September 1946 G.G. (Bill) Crean as Chairman CRC recommended in a memo to the Chiefs of Staff Committee two measures: a) That telecommunications should be provided between intercept stations and CBNRC, and b) That four of the proposed intercept sites (Whitehorse, Vancouver, Ottawa and Coverdale) should double as HF/DF stations. The telecommunications were eventually provided, as spelled out in Chapter 14, but the HF/DF proposal never got off the ground, probably due to the opposition of the RCN, who still regarded HF/DF as their exclusive prerogative, as it had effectively been in wartime. Again, in December 1946, at the instigation of the CRC a letter was sent to the Minister of Defence, signed by L.B. (Mike) Pearson (USSEA) and the four Chiefs of Staff (3 Services plus Chairman Defence Research Board (DRB)); the letter in essence pressed for authority to provide and man the 100 intercept positions to which Canada had been

committed at the Commonwealth Conference[9], giving details of the construction, equipment and manpower requirements. In spite of constantly repeated follow-ups, the record of the provision and manning of the intercept stations in the 40s and 50s proved to be a very sorry story, as will appear in Chapter 5, especially paragraph 5.3 and Annex 5.A. One early practical proposal which was perhaps not as sensible as the others, but which was accepted without demur, was that cipher security policy should be controlled by the CRC[10]. It later became clear that COMSEC policy was quite distinct from the intelligence orientation of the CRC; subsequent developments in the COMSEC policy area will be dealt with in the COMSEC part of this History.

2.7 Part of the problem in SIGINT, as indeed is the case in many other areas, was the difficulty, often amounting to inability, of distinguishing between policy and operational or routine matters. The very newness of the concept of offensive intelligence activities in peacetime in Canada meant that many projects or expenditures which in other older or more sophisticated societies would be considered as part of normal or run-of-the-mill operations were scrutinized, debated, and often turned down as if they were on the same level of repugnance as atomic, biological or chemical weapons. Also, in an area where effectively nothing had previously been provided in peacetime, even modest expenditures for SIGINT had to stand the test of competition with other more immediately obvious candidates for military, political or economic assistance. Added to all this was the fact that with the end of hostilities the Services, even as they promised to man up to 100 intercept positions for the national SIGINT effort, were losing their uniformed manpower through demobilization, and were finding it increasingly difficult to get authority to recruit new military or civilian manpower.

9. See para. 11.22
10. Minutes of 12th Meeting of CRC, dated 5 December 1946

Other Committees

2.8 By early 1947 it had become clear that members of the CRC were not in a position to reach conclusions on or even to discuss technical aspects of any planned interception program. Therefore at a CRC meeting in March it was proposed to set up a Technical Steering Group (TSG) to look into questions concerning intercept equipment. The Service Directors of Signals suggested that they should discuss this requirement at their Joint Communications Committee (JCC) and report back to the CRC; and at the April meeting of the latter committee it was decided that the TSG should be established, consisting of technical representatives of the three Directors of Signals and CBNRC. The Chairmanship was to be rotated yearly, the first TSG Chairman being Cdr. Foster of the RCN; the CBNRC representative was John Manson, the head of the Communications Section[11].

2.9 In November 1948 the Senior Committee (SC) mentioned at the end of paragraph 2.4 held its first meeting. Apart from its Chairman, the Under-Secretary of External Affairs (USSEA), its membership in the beginning consisted of the three Service Chiefs of Staff and the Chairman of the Defence Research Board (DRB), the President of NRC, and the Secretary to the Cabinet. Its Secretary was the Chairman of the CRC, a position which from 1946 to 1957 alternated between Mr. Glazebrook and Mr. Crean, both of External Affairs. At one point, as a temporary measure, Mr. Glazebrook moved into National Defence to be the first full Director of the Joint Intelligence Bureau (JIB), but in September 1949 handed JIB over to Ivor Bowen and returned to External Affairs, taking over the Chairmanship of the CRC from Bill Crean. These latest changes were promulgated in the first published minutes of a Senior Committee meeting, held on 13 September. At this same meeting the SIGINT Estimates for the Fiscal Year (FY) 1950/51 were approved, subject to some further investigation into the amount of money being

11. See para. 3.3

poured into the construction of the RCN intercept station at Churchill Manitoba. Incidentally, it should be understood that at this stage "SIGINT Estimates" meant the costs of establishing and equipping intercept stations which were covered in DRB Vote 700, later renamed Vote 712; NRC paid for the salaries of the CBNRC staff, and the individual Services financed the staffing of intercept stations and the training of the operators. Also at this Second Meeting of the SC, a proposal for a Research and Development (R&D) unit for CBNRC was discussed; although this proposal had been agreed in principle the previous April, in practice it never got off the ground due to the inability to find any suitable scientists to run such a unit. At the suggestion of the Chief of the General Staff (CGS), it was agreed that in future the Deputy Minister of the Department of National Defence (DM/DND) should be included in the membership of the SC; he was after all involved in the approval of DND expenditures on SIGINT. Lastly, the SC members asked for a review of total SIGINT costs to be prepared for their consideration at the next meeting.

2.10 The Third Meeting of the SC was held a month later, on 17 October. Presumably the review of SIGINT costs was not yet ready, because this subject was not discussed at this session. However, the Committee did propose that it should meet about every two months to discuss appropriate matters referred to it by the Chairman CRC. It also proposed that the Director CBNRC should be a full member of the CRC rather than "normally in attendance". At its December 1949 meeting the SC decided to establish an Advisory Committee with the assistance of the President NRC to look into ways and means of setting up and monitoring an R&D unit in CBNRC; a project which as indicated in the previous paragraph never got off the ground. The Chairman DRB (Dr. Solandt) also raised for the first time the question of a requirement for computers to handle some of the cryptologic work undertaken by CBNRC; CRC was requested to look into this requirement. In addition, a draft paper on "Emergency Expansion of COMINT" for wartime (CRC/117) received some preliminary consideration. This paper,

later to be coupled conceptually with another paper on "Y" (Tactical SIGINT), received on and off consideration by senior committees for a considerable period of time. In fact, the Emergency Expansion paper was approved in principle by the SC in November 1952, and paper CSB/87 on Tactical SIGINT was approved in April 1960; however, no results flowed from these approvals, presumably because there was no war to require their implementation[12].

2.11 To return to the lower level committees, in 1950 the CRC decided to reverse its decision of December 1946, and proposed to turn over consideration of COMSEC policy matters as soon as feasible to a Cipher Policy Committee (CPC), whose later establishment and development is discussed in paragraphs 16.5 and following. It also drafted a new "Composition and Terms of Reference" for itself for approval by the SC: External Affairs was only to have one representative, an officer from the RCMP was to be added, and NRC was to attend only as required for administrative matters. The request of the Director of Scientific Intelligence (DSI) that Director JIB could attend relevant meetings was agreed, subject to the "approval of the Chairman". It should be noted that the members of the CRC also voted by a majority that the Director CBNRC should be "normally in attendance" rather than a full member, and unanimously recommended that the Secretary should be provided by the Cabinet Secretariat instead of by CBNRC, and that this officer should also serve as Secretary to the Senior Committee; however, at its meeting in October 1950 the SC turned down both these proposals. The final Composition and Terms of Reference of the CRC as promulgated in December 1950, and its relationships with other bodies, will be found in Annex A. The terms of reference still included cipher policy (Item 7), until such time as a separate COMSEC Committee was in operation. The RCMP started their regular attendance as members of the CRC in November 1950, and the Director JIB was eventually added to the Committee as a full member in 1953, at the time

12. But see para. 12.13

when the CRC became only an advisory committee to the DCS.

The Director of Communications Security (DCS)

2.12 Several factors led up to the creation in 1953 of a single executive rather than the CR Committee as the SIGINT policy authority. For one thing, the individual Service members of the CRC were beginning to feel their oats in 1950, which tended to make effective and speedy joint action difficult to achieve. For example, at a CRC meeting in November 1950 the DMI said that since the Army did not seem to be getting as much SIGINT end-product as most other customers, they might have to reduce the number of **their** intercept positions; such a stand obviously ran counter to the hitherto accepted concept of SIGINT interception and processing as a nationally run effort. Also, individual members of the Senior Committee were being briefed along differing lines by their CRC representatives, which hindered effective decision-making at that level. Even at lower levels, the same lack of coordinated approach was evident. The TSG[13] was supposed to coordinate the planning of intercept equipment, SIGINT communications and even training of station personnel as part of its main function of ensuring the technical efficiency of stations; yet written into their terms of reference was "The members of the TSG are individually responsible to their own Directors". And if the Chairman CRC requested action on "urgent cases", the individual TSG members were told that they were "responsible for securing the approval of their Directors before taking the action requested". An extreme example of unilateral and divisive action was when the RCAF set up their own "operational" COMINT unit in CBNRC in August 1952, coupled with claiming authority to control "tactical" positions at Whitehorse ,

13. See para. 2.8

2.13 So it was that in February 1953 the Senior Committee accepted the recommendation of Dr. Solandt that a single executive authority should be appointed to handle all SIGINT policy matters on their behalf, and that the CRC should become simply an advisory body to this authority. The individual appointed to this executive position was in fact the Chairman of the CRC, who was thereupon given the rather unfortunate title of Director of Communications Security (DCS), a title which thereafter caused considerable confusion as to what his main function was. When the Senior Committee next met in October, it had renamed itself the Communications Security Board (CSB) without any alteration to its rather general terms of reference, and George Glazebrook, the first DCS, gave it a favourable report on the first few months' functioning of his new position. As it turned out, this was by way of being his valedictory account of his SIGINT policy career, since a month later the position of DCS was taken over by Bill Crean, who remained in the job till May 1958, when he turned it over to Hamilton Southam, another officer from External Affairs.

2.14 Naturally, the appointment of a single executive authority for SIGINT made quite a difference to the functions of the CRC and the rest of the committee structure. The Terms of Reference of the CRC shrank from the grandeur spelt out in Annex A to the more humble: "To act as an advisory body on general policy questions brought before it by the Director of Communications Security, such questions to be mainly those of interest both to the producer and user agencies of COMINT." Also in 1953 a new committee was established, called the "Communications Operations Policy Committee (COPC)", to deal with the provision and manning of intercept facilities. It too had the DCS as its Chairman, through whom it reported to the CSB. However, it had a little more authority and clout than the CRC, since it was dealing exclusively with matters of interception, a service provided and funded by DND. At its First Meeting on 24 June 1953 the COPC delineated its own membership and terms of reference, and those of its working body, the "Communications Security Technical

Group (CSTG)", which took over the functions of the TSG. Under the Chairmanship of the DCS, the COPC consisted of the Directors of Supplementary Radio Activities RCN (DSRA), Army Signals, RCAF Telecommunications Operations, and CBNRC. Its secretary was the Chairman of the CSTG. Its terms of reference included a) The policy and technical aspects of interception, b) The preparation of financial estimates for interception, and c) Assisting the DCS on interception matters on behalf of the CSB. The CSTG was to be a working body reporting directly to the COPC rather than through its individual Directors, as had been the case with the TSG. Like the latter, its chairman was to rotate annually between its Service members, with the same Service providing the secretary. CBNRC was a full member, and representatives from External Affairs and the Defence Research Telecommunications Establishment (DRTE) were to attend as required. Its terms of reference were rather fuller than those of the COPC, and included the following subjects:

a) Specifications, procurement, stockpiling etc. of intercept equipment;

b) Planning and provision of SIGINT communications;

c) Liaison with the US and UK on intercept matters;

d) Studying the results of intercept assignments;

e) Manpower and training of operators;

f) Drafting of financial estimates for consideration by COPC and CSB.

At this same First Meeting the COPC made the optimistic commitment to meet on the second Wednesday of each month, plus any special meetings at the call of the Chairman. Naturally such a schedule could not be maintained. However, the COPC did meet 29 times, dealing conscientiously with complex questions con-

cerning collection, up till the end of 1959, when its functions were reintegrated with those of the CRC. Incidentally, in January 1955 the CBNRC representative rather than a rotating Service member became the Chairman CSTG, and therefore the Secretary of the COPC.

The Communications Security Board (CSB)

2.15 The CSB at its First Meeting in October 1953 had a general discussion on the ideal size for a Canadian SIGINT organization based on the SC review mentioned at the end of paragraph 2.9. No firm conclusions were reached. However, a minor bombshell was dropped by Dr. Steacie, the President of NRC, who said that the costs for CB had grown so large that they could not be included in NRC Estimates after FY 1954/55; he added that in the meantime he was reducing the establishment of CBNRC from 469 to 420. The last restriction was not all that serious, since in October 1953 the actual strength of CBNRC was only 355; its Estimates for FY 1954/55 were just under two million dollars. Up till this time the SC had **approved** the annual Estimates for intercept equipment (DRB Vote 700), but only **noted** the Estimates for CB, since these had been funded by NRC. From now on some new method of financing CBNRC would have to be found. This problem was addressed by the CSB at its meeting in August 1954, which was attended for the first time by the ADM/Finance, who was also Secretary of the Treasury Board. (From this time on a representative of the Treasury Board (TB) always attended CSB meetings as a full member). The solution reached was that NRC would contribute a fixed amount of $500k annually towards CB's costs, the remainder to be divided between DND and External Affairs on a 4/5 to 1/5 ratio, DND's fourfold share being arrived at on the basis of the three Services plus DRB. Also at this August 1954 meeting, CSB/39, formalizing the policy structure set out in para. 2.14, was approved[14].

14. See Annex B

2.16 From the point of view of SIGINT policy committees, 1955 to 1959 were fairly quiet years. Jules Léger (USSEA) was Chairman of the CSB for most of that time, being succeeded by Norman Robertson in November 1958. The driving force for National Defence was the Deputy Minister, Frank Miller, who was later to re-emerge as the Chairman of the Chiefs of Staff, an Air Marshal, and Vice-Chairman of the Intelligence Policy Committee (IPC) in 1960. Within DND, the personnel costs for intercept stations were still paid for by the individual Services and the equipment by DRB Vote 700, so the Deputy Minister naturally had a powerful coordinating role. Also, after Dr. Solandt left in 1956, the Chairman DRB played an ever diminishing part in SIGINT policy, largely because the incumbents were men with far less active interest in SIGINT than Solandt. At the May 1956 meeting of the CSB, the Commissioner of the RCMP, who had been co-opted as a full member, attended for the first time. This was the meeting at which Gen. Ralph J. Canine, who had become the first Director of the US National Security Agency (NSA) in 1952, gave CSB members a pep talk on the value of SIGINT and the importance of Canada's contribution. Only a few subjects of major significance were discussed at CSB during its final period. In 1956 the DCS was asked to look into the possibility of a "unified organization" for SIGINT, embracing collection and production, which could be a civilian or Service agency. This idea was kicked around in a half-hearted way for quite a while, until in 1958 Mr. Southam, who had succeeded Mr. Crean as DCS, produced a long paper on civilianizing the intercept service under the direction of a civilian head. The Chiefs of Staff commissioned Col. Paul Smith of Army Signals to write a paper rebutting this concept, and the scheme died a natural but not particularly peaceful death soon afterwards[15].

2.17 At this time also pressure was being applied to the policy authorities to increase the establishment of CBNRC in order to cope with its increased

15. See paras. 5.30 to 5.34

workload. In September 1956 a paper (CRC/200) was put before the CSB asking for an extra 95 personnel for CBNRC. This request was pushed forward again in October 1957, when the CSB members were informed of the results of the Tripartite Arctic Conference in June[16], where CBNRC had been assigned the main responsibility for SIGINT production concerning the Soviet Arctic. While agreeing in principle to the need for the extra staff, the CSB were unable to approve the increase "for now", in view of the difficult financial situation. Even the offer by the RCMP to contribute a fixed annual amount of $100k towards CB's costs did not immediately unlock the purse strings. Eventually in May 1958 the extra 95 positions were approved, bringing the agreed establishment for CBNRC by the end of 1958 to about 600, a figure which was not to be exceeded for the rest of the period of this History.

2.18 Some other changes and events were naturally occurring in the dying days of the CSB, but none of them earth-shaking. As mentioned earlier, Norman Robertson succeeded Jules Léger as Chairman in November 1958, and John Starnes succeeded Mr. Southam as DCS in February 1959. In 1958, the Secretary of the Cabinet, R.B. Bryce, asked whether it was not advisable to avow openly that Canada did SIGINT, and that CBNRC was the agency where it was done. This question had a habit of cropping up from time to time, two of its protagonists being Chairmen of the Intelligence Policy Committee (IPC) and the Interdepartmental Committee on Security and Intelligence (ICSI) in 1970 and 1972, A.E. (Ed) Ritchie and Gordon Robertson. However, in all cases counsels of caution eventually prevailed, and by the time CBNRC moved to DND in April 1975, it was still publicly admitted to be only what its new name suggested, the Communications Security Establishment (CSE).

16. See para. 11.82

Handling of "Policy"

2.19 Before turning to the major change from the CSB to the IPC in April 1960, I would like to deal with two related subjects which cannot conveniently be addressed within a chronological framework. The first is the tendency, touched on in para. 2.5, for "policy" matters to be handled only by the Chairman CRC or later the DCS, even where "policy" embraced fairly routine matters. The underlying cause of this phenomenon was the attitude, consistently held over the period of this History, that CBNRC staff were only "nuts and bolts" people, and that any SIGINT subject of importance had to be handled by "policy" departments, particularly External Affairs. Indeed on one occasion an officer from External Affairs expressed this view openly, and was rather disconcerted when he was told that no fewer than five former CBNRC employees were now heads of Canadian missions abroad. But of course this only illustrates the unfortunate point that some bright people with ambition found the career structure in CBNRC too restricting, especially in view of the NRC administrative policies referred to in the next paragraph. Nevertheless, an organization that can employ and train people who later become, for example, an Assistant Secretary to the Cabinet, an Associate Deputy Minister of Transport, or manage to hold down various other senior executive positions, cannot be entirely confined to "nuts and bolts" tasks. One other incident may help to show why this downplaying of CBNRC "policy" capabilities lasted so long. The suggestion was made that straightforward SIGINT proposals might be made by CBNRC directly to the CSB rather than having to be passed up through the DCS. The DCS himself had no objection to this. However, the Director CBNRC felt that he would rather refer subjects that seemed to have any "policy" implication through an External Affairs officer. So there the matter rested for many years. A final example of the kind of irritation caused by the petty downgrading of CBNRC's role comes from October 1955. An Aircraft Production Conference was being held in Ottawa, sponsored by JIB and Director of Air Intelligence (DAI) who had invited NSA and UK Government

Communications Headquarters (GCHQ) representatives among the US and UK delegates. As far as CBNRC was concerned, they said someone could be sent as an "observer" to any meetings which were considered relevant. CB protested this no doubt unintentional slight, especially as they were contributing useful SIGINT on the deployment of new Soviet aircraft, and the mistake was rectified; but the episode illustrated once again the lack of understanding and support of the CBNRC role by Canadian government departments.

2.20 On matters of administrative rather than operational "policy" the Director CBNRC was prepared to take a more active role; but always naturally subject to "Administrative Policy" as laid down by NRC. Now NRC, while making a first class contribution in a wide range of scientific endeavours, did not have much of a reputation as professional administrators; also they were handicapped by knowing nothing about SIGINT or COMSEC, and therefore about their requirements. Accordingly, administrative policy on matters such as hiring, classification, pay and promotion tended to be rigid, and somewhat inappropriate for CBNRC. The Director CB tried to stretch points where he could, but the framework was on the whole too confining. For one thing, NRC had an excessive concern and reverence for university degrees, almost to the point of obsession. Most of the original staff of CBNRC were high school graduates, and this made it very difficult for them to reach a reasonably decent status and salary. At one promotion meeting it was proposed to the NRC representatives that after at least five years' high class work on SIGINT problems, staff could be regarded as having reached the status of an "Hon. B.A." (Honorary Bachelor of Analysis). But NRC would not buy anything like this, fearing that it would dilute their professional standards, which depended heavily on Ph.D. degrees. On another occasion, after a tour of Canadian universities, the CB recruiter advised against hiring a certain individual on the basis that he was slow of wit and unresponsive to stimuli. However, since the man's record showed he had an M.A. in French, the NRC representative pressured the CB Selection Committee into hiring him.

2.21 Comparison with scientists and technicians on NRC staff in areas of physics, chemistry, and even electrical engineering tended to make things difficult for CB. NRC waited till their scientists had many years of experience and had produced quantities of scientific papers or books before they would promote them to senior positions. On the other hand many of CB's potential leaders were still fairly young in the early days of the organization. As a result, NRC would not go along with deserved promotions for successful SIGINT experts or rising executives in CB on the ground that: a) some of them did not even have degrees, b) they had not published any papers recognized by the scientific community, and c) they were so young that they would have to remain in their promoted grades for an excessive and frustrating period. Of course, what was really frustrating to the individuals was that they were not classified or paid at a level warranted by the complexity and value of their work. As regards technicians, in CB they were often working on problems and projects verging on the area of the professional engineer (largely because of the comparative lack of the latter), whereas in the rest of NRC the technicians assisted the profusion of professionals with more menial tasks. Accordingly, there were constant difficulties in getting appropriate positional and financial recognition for CBNRC technicians.

The Intelligence Policy Committee (IPC)

2.22 Returning to the committee structure for controlling SIGINT policy, the CSB held its last meeting in April 1960. The Government had decided that all aspects of intelligence, including SIGINT, plus any matters of COMSEC policy, should come under the direction and control of a senior interdepartmental committee along the lines of the CSB. Up till this time the JIC had reported to the Chiefs of Staff Committee, which caused considerable unhappiness to External Affairs, although they provided the Chairman JIC; and COMSEC had not been specifically included in the original terms of reference of the CSB (Annex B). However, by 1959 COMSEC had been included firmly in

the CSB fold, reporting through the Communications-Electronic Security Policy Committee (CSPC), of which the DCS was Chairman. The first page of CSB/56 of 2 November 1959 is attached as Annex C, together with a chart showing CSB control over SIGINT and COMSEC, and further details about the COMSEC committee structure in 1955 will be found in paragraph 16.11 and Annex 16.E.

2.23 The composition and terms of reference of the new Intelligence Policy Committee (IPC) were approved by the Prime Minister on 28 April 1960. They and those of the authorities immediately subordinate to the IPC were issued as IPC/1-60[17]. As will be seen, one major change was that the Chairman of the Chiefs of Staff, who for some reason, probably pride, had not been a member of the CSB, became Vice-Chairman of the IPC to the USSEA as Chairman, thus leaving External Affairs in the driving seat for the time being. Perhaps to make up for this, the Secretary now came from the Cabinet Defence Committee rather than External Affairs, though it should be noted that the DCS (who was also Chairman of the JIC) would normally attend, though not in fact a member of the IPC. The incumbents of the positions just mentioned were as follows: Chairman - Norman Robertson; Vice-Chairman - A/M Frank Miller; Secretary - Ross Martin; DCS - John Starnes. The First Meeting was held on 16 June 1960 in the East Block as opposed to CBNRC, where the CSB had been in the habit of meeting. The Committee started off with a burst of business-like efficiency, which it was unfortunately unable to maintain for long. Apart from agreeing with the intelligence structure promulgated in IPC/1-60 (Annex D) it approved a Canadian Intelligence Program which had been presented in IPC/2-60, and noted a very thorough review of "SIGINT and COMSEC in Canada", prepared in CBNRC, which had been forwarded through the DCS as IPC/3-60. There always tended to be problems in making the SIGINT objectives and priorities be seen to conform with the apparent

17. See Annex D for Intelligence and SIGINT Components

aims of an overall Canadian Intelligence Program, but in the first flush of resurrected enthusiasm blessings were bestowed all round on the intelligence, SIGINT and COMSEC programs. These blessings were backed up in more concrete terms at the October Meeting of the IPC, when the Department of Finance representative said he had studied the CBNRC Estimates for 1961/62 in advance of the meeting, and they seemed to him to be quite in order. The IPC then had really no alternative but to approve the SIGINT and COMSEC expenditures as presented.

2.24 While this state of affairs might seem to be just what would be desired for a national cryptologic program, in fact these measures of intelligence coordination were leading to the slow but perceptible formation of a cloud somewhat larger than a financial expert's hand. For one thing, the Directors of Intelligence, who might have been regarded as members of the SIGINT board of directors (CRC) as well as customers, now realized that they were in addition shareholders or providers of funds for an activity which, when considered at the IPC, was in competition with their own intelligence programs. And even though the DCS, as Executive Director, was usually in support of the SIGINT program, from now on the intelligence community was increasingly concerned at how large a percentage of the intelligence dollar was devoted to SIGINT. On many occasions pleas were made by them, and passed upwards through their members on the IPC, to increase the amount of funds available for what they regarded as the "front end" (supplying finished intelligence to the Government), if necessary at the expense of SIGINT, when the IPC was trying to hold to a fixed overall intelligence budget. The other associated danger arose from the friendly act of the Department of Finance representative at the October IPC. "What", the other members of the IPC began to ask themselves, "is the point of our looking at the CBNRC estimates, if the Treasury Board staff has already decided that they are acceptable?" They felt that if the operational requirement had been justified by the DCS, and if Finance/Treasury Board approved the figures as to administrative suitability, they would be wasting their time studying and

rubber stamping the Estimates, but on the other hand would have little or no reason to object to or alter them. The snag of course was that no DCS had enough understanding of SIGINT and COMSEC to justify the operational requirement, so the position gradually developed that as long as CBNRC had persuaded a Treasury Board Program Officer that its Estimates were necessary to meet the requirements levied on it by its customers, the SIGINT and COMSEC budgets were approved by the IPC without any further consideration. Needless to say, this did nothing to help the other members of the intelligence community to get extra resources for their own purposes. On the other hand, they were not prepared consciously to reduce their requirements for SIGINT in the hope that this might lead to increasing their share of the pie. In this they were probably wise, since until much later any real costed intelligence program only existed as pie in the sky.

2.25 From now on "policy" matters considered by the IPC were nearly always connected with finances, even if the specific annual budget for CBNRC and the intercept equipment program received almost automatic approval. The problem was that even though there was a fixed contribution to the CB budget by NRC of $500k per annum, while the contribution of the RCMP had gone up from $125k to $225k in 1964, far the greatest amount for SIGINT expenditures was levied on DND. And though the Treasury Board insisted on the theoretical position that the DND contribution to CBNRC was "without prejudice to their own programs", in practice the main Defence Program was from time to time frozen or reduced, while the Treasury Board and the IPC went on merrily increasing the SIGINT program. While the DND share of SIGINT may only have been a drop in the total defence budget, the injustice of this situation continually rankled with senior military men, especially with strong-minded ones like A/M Miller. To give some idea of the amounts involved, by 1970 the funds required for CBNRC were $6.850M, and for station equipment (DRB Vote 712) $1.026M. At that time the Department of External Affairs was undergoing a financial squeeze, while the RCMP had had some sort of windfall. Accordingly, apart from

the fixed contribution of $500k by NRC, External Affairs contributed $1.042M, the RCMP $1.284M, and DND $4.024M to the CBNRC budget. When the $1.026M for station equipment was added in, the DND contribution to the interdepartmental (IPC) SIGINT and COMSEC programs was $5.050M. They themselves had had a study done in 1968, including the costs of running and manning the intercept stations. Their reviewers had figured the total cost of SIGINT in Canada to be about $19M, of which they were shocked to find that DND was paying about $17M. As a result of their dissatisfaction with the system their share of $5.050 of the 1970 interdepartmental program became a fixed contribution in subsequent years. This meant that a new way of sharing the steadily increasing costs had to be found. The solution reached was that whatever was left after the fixed contributions of the NRC and DND would be shared by the RCMP and External Affairs on a 4:3 ratio, again "without prejudice to their own programs", whatever that meant. Needless to say, these various sharings out of SIGINT expenses had little or nothing to do with the services which the departments received as customers. They were simply designed as a means to conceal as well as possible the cost of SIGINT; it must be added that this pious aim was if anything harmed rather than helped by this clumsy system, since the risk of disclosure was multiplied by shares of the SIGINT costs appearing in a number of openly discussed departmental budgets. To round out the financial activities of the IPC, at its November 1962 meeting it had formally agreed on the proposal of the DM/DND to leave the approval of the CBNRC annual Estimates to Treasury Board staff rather than attempting to deal with them itself. This was the same meeting at which it agreed that CBNRC should now recruit up to its authorized staff establishment of 600.

Senior SIGINT Personalities

2.26 Perhaps a short survey of some of the main personality changes in the SIGINT policy hierarchy during this period would be in order now. Secretaries of the IPC came at first from the Cabinet Defence Committee. D.B. Dewar succeeded Ross Martin

in 1961, and Frank Milligan succeeded Mr. Dewar in 1963. Then in December 1963 Don Wall, who rose from being Secretary of the Security Panel to becoming Assistant Secretary to the Cabinet for Security and Intelligence (S&I), was appointed as Secretary of the IPC, a position he held until the formation of the Interdepartmental Committee on Security and Intelligence (ICSI) in 1972, part of an organizational structure which he was largely instrumental in creating, and which we will discuss later. Meanwhile John Starnes had been DCS from February 1959 until 1962, when he became an Assistant Under-Secretary of External Affairs, and was succeeded in August of that year by J.J. (Jim) McCardle, who remained in the post till December 1968, when he was succeeded by E.R. (Ted) Rettie. Mr. Rettie lasted out till September 1971, to be relieved by A.F. (Bert) Hart, who continued as Chairman of the Intelligence Advisory Committee (IAC) when the post of DCS was disestablished in 1972. Moving up the hierarchical ladder, Marcel Cadieux succeeded Norman Robertson as Chairman IPC in November 1964, followed by Ed Ritchie in December 1970, who was still Chairman in February 1972, when the IPC gave way to the ICSI under the Chairmanship of the Secretary to the Cabinet. It is hardly necessary to add that all the DCS's and Chairmen of the IPC mentioned above came from External Affairs. The Secretary to the Cabinet who became Chairman of the ICSI in 1972 was Gordon Robertson, who had been a member of the IPC since October 1963. It might be of interest to add that the members of the Cabinet Committee on Security and Intelligence (CCSI) at this period are listed as: Mr. Trudeau (PM), Mr. Sharpe (External Affairs), Mr. McIlraith (Sol. Gen.), Mr. Cadieux (DND), Mr. Turner (Justice), Mr. Pelletier (Secretary of State) and Mr. Drury (TB).

The Isbister Report

2.27 In paragraph 2.23 it was hinted that the IPC was not able to maintain its early enthusiasm and efficiency. Perhaps this is best illustrated by the fact that it did not hold a single meeting from November 1964 till November 1969, leaving SIGINT policy in the hands of the DCS during that period.

As a result no significant SIGINT advances occurred for five years, since the DCS was not in a position to initiate any important policy action[18]. When the IPC did eventually meet in November 1969, Gordon Robertson suggested there was a need to formulate new Objectives and Priorities for the Intelligence Program, since the present program did not seem to be meeting governmental requirements adequately. This proposal gave rise to a search for an "outside examiner" to study and comment on the whole intelligence program, including SIGINT. The person selected by the IPC to conduct such a review was Dr. Claude Isbister, who during 1970 produced a report favourable to the continuation of a substantial program, and specifically singling out SIGINT as the major contributor to such a program, but suggesting that more attention should be paid to security intelligence as opposed to foreign intelligence[19]. This recommendation was naturally underlined by the FLQ crisis in Quebec in November 1970, and between the two of them they ultimately led to the confused consolidation of foreign and security intelligence in the reorganization of February 1972, which we will be dealing with shortly. A Good Thing from SIGINT's point of view in the Isbister Report was the recommendation that the "management" of the SIGINT program should be in the hands of the Director CBNRC rather than an outside official from External Affairs. He also recommended that "total intelligence expenditures be maintained at their existing level" for at least a year while the Government developed more of a capacity to appraise the whole field of intelligence on behalf of the "Security of Canada".

NDHQ Reorganization

2.28 Before proceeding to the reorganization of the intelligence and security structure in February 1972,

18. See para. 2.32
19. Isbister Report, Section iii, para. 11C, and Recommendation 2

it may be as well to mention a couple of changes which, although not having a great effect on the SIGINT program, were of considerable significance in themselves. In 1965, with the unification of the three armed services in Canadian Forces Headquarters (CFHQ), the military representation on the CRC and other relevant committees was naturally reduced. CFHQ was represented on the CRC by the Directors General of Intelligence (DGI) and Communications-Electronics Systems (DGCES), though the latter usually sent the Director of Communications Requirements and Support (DCRS) in his place. By 1966, the Directorate of Supplementary Radio Activities (DSRA), which since 1950 had represented RCN communications on the CRC[20], had formed the nucleus of a new inter-service Directorate with the inappropriate name of the Directorate of Intelligence Operations (DIO) within the DGI establishment. DIO represented the CFHQ intercept service on the CRC till 29 June 1970, when it was dissolved and incorporated into the inter-service Command called the Canadian Forces Supplementary Radio System (CFSRS), which had taken over from the individual Service intercept efforts, and which now included headquarters staff as well as the station operators; CFSRS continues in the same form to this day. Meanwhile the DGI had added Security to his responsibilities as Director General of Intelligence and Security (DGIS), and in 1969 became a Deputy Chief as Deputy Chief of Intelligence and Security (DCIS). Thus at its last meeting in June 1971, the CRC had for its CFHQ members DCIS, DCRS (see above) and CFSRS. In line with the inertia revealed at the beginning of paragraph 2.27, the CRC only had one meeting per year between 1965 and 1972, mostly to discuss the annual program forecast of CBNRC. The other change in the intelligence organization was that the Director JIB, who with the 1965 unification of CFHQ had become deputy to the DGI, in 1968 moved with his Directorate from National Defence to External Affairs, where the JIB resurfaced as the Special Research Bureau (SRB), with more or less the same responsibilities, and still a member of the CRC.

20. See Annex A

The Interdepartmental Committee on Security and Intelligence (ICSI)

2.29 During 1970 and 1971 the IPC were considering the recommendations of the Isbister Report, and even appointed Charles Ritchie of External Affairs as Special Advisor with a small but select working group to do a further Review of the intelligence program using Dr. Isbister's conclusions as a starting point. Meanwhile, the expenditures on intelligence were frozen at their existing level, as Isbister had suggested. In February 1972 the Cabinet approved a proposed new organization effectively amalgamating the IPC with the Security Panel as the Interdepartmental Committee on Security and Intelligence (ICSI), with two main subordinate Advisory Committees for Security and Intelligence respectively (Security Advisory Committee (SAC) and IAC)[21]. It will be seen that the main changes in membership include the substitution of the Secretary to the Cabinet instead of External Affairs as Chairman of the ICSI, and the provision of Vice-Chairmen from National Defence and the RCMP for the IAC and the SAC respectively. With the abolition of the position of DCS the oversight of the SIGINT program was assumed to be with the IAC, though not specifically so stated, and the Director CBNRC was a full member of this committee; on the other hand item (c) of the Terms of Reference of the SAC assigned the responsibility for COMSEC to that committee, though neither the Director CB nor any other COMSEC or even communications specialist was made a member. As a result a specifically COMSEC committee chaired by the Director CBNRC had to be hastily crafted and appended to the SAC, as illustrated in the Chart attached to Annex E. The Secretary of ICSI was henceforth the Assistant Secretary to the Cabinet for S&I, in which position Walter Luyendyk had just succeeded Don Wall.

21. See Annex E

2.30 The first task of the ICSI was to prepare a comprehensive paper on the Canadian Intelligence Program for the Cabinet Committee on Security and Intelligence (CCSI). This was based on the report of Charles Ritchie and his working group, and was presented to the CCSI on 16 May. The only signficant result was to maintain the intelligence program at its current level for yet another year, pending further consultations and consideration. In 1973 the ICSI began re-examining the most appropriate locus for the administration and ministerial responsibility for the work done by CBNRC, and also the most suitable cover story for it. By December of that year they had reached the decision to go beyond the previous "communications research" story, and to say that the Branch was engaged in COMSEC, but that the details of its work were sensitive and could not be made public. By July 1974 a paper on "Policy Guidance and Ministerial Responsibility for CBNRC" had been prepared, egged on by a CBC television program on intelligence in January 1974 which suggested that CBNRC was engaged in collecting signals intelligence mainly for use by the US Central Intelligence Agency (CIA) in Washington. NRC for some time had not wanted to have anything to do with CB, and the publicity and questions in the House of Commons provoked by this television program turned out to be the last straw. The ICSI paper proposed National Defence as the locus for the administration and for providing ministerial responsibility for the agency, which on 1 April 1975 became the Communications Security Establishment (CSE) of the Department of National Defence (DND). The Order-in-Council effecting this transfer is appended as Annex F.

2.31 As far as the policy control of the CSE programs (SIGINT and COMSEC) was concerned, responsibility was to remain with the Interdepartmental Committee (ICSI) rather than the administering department (DND), thus retaining the kind of relationship for administration only that had existed between NRC and CB. The ICSI in September suggested that the IAC and SAC should play a more active role in the scrutiny of the SIGINT and COMSEC budgets before they were passed to the ICSI for further

consideration, but in practice this was not much more workable than it had been under the CRC or DCS. The Deputy Minister of National Defence who had played a major role in effecting the transfer from NRC to DND was Sylvain Cloutier, who was succeeded as the administrative overlord of the fledgling CSE in July 1975 by C.R. ("Buzz") Nixon. The operational control of SIGINT in Canada as it existed under the new set-up is best described in IAC SIGINT Memorandum No. 1, dated 24 August 1977[22]. The one point which was still not clear under the new more precise formulation of the control system was what exactly the word "policy" entailed in the SIGINT connexion.

Control of SIGINT Policy

2.32 It is often asked whether the formulation of SIGINT "policy" would be better handled by an outside generalist than a committed professional. As we have seen, this was in fact the situation in Canada at least up to 1972, during which time it was felt that an External Affairs officer, as Chairman CRC till 1953 and as DCS thereafter, was in the best position to handle SIGINT policy. Nevertheless, the short answer to the question posed is "No". The initiation, formulation and presentation of SIGINT policy should be the responsibility of the full-time professional who is in charge of the national cryptologic activity. It may be as well to bolster this bald statement with a few facts and examples. The prime fact is that SIGINT is really an extremely complicated subject for anyone to grasp hold of. This is frequently held to be overstated, on the grounds that other economic and scientific activities engaged in by governments are also extremely complicated, and yet the policies controlling them are normally handled by generalists as part of their careers. But SIGINT policy not only embraces economic and scientific elements, but includes unique, complex, and expensive aspects ranging from the collection of elusive signals, through the processing by computer of cryptic messages, to the

22. See Annex G

provision of relevant intelligence to those in government who need it most. Cryptologic expertise has to deal with such esoteric subjects as preventing access to and concealing the content of one's own governmental communications (COMSEC), and its counterpart getting access to and revealing the content of foreign communications (SIGINT). It is unlikely that an outside generalist, in a comparatively short segment of his governmental career, would be able to master sufficient technical knowledge to make his presence in the SIGINT policy chain worthwhile.

2.33 It has been pointed out that in the US, the Director of NSA is chosen from serving officers of Lieutenant General rank, selected in rotation from the three Services. This is true; but not necessarily therefore desirable. In point of fact, continuity of SIGINT policy has to be provided by the civilian professional Deputy Director. The most significant, long-serving and long-suffering of these, Dr. Louis Tordella, frequently complained that so much of his time was taken up in training a series of comparatively short-term Directors (average term under three years), that he had to spend nights and weekends trying to keep up with SIGINT policy. This is not to say that NSA was not fortunate in having some extremely able officers as Directors; but it might not always have been so. On balance, the British system of choosing the Director GCHQ from within the organization has proved more effective, provided that he adds to his professionalism close relationships with those senior officials in Whitehall who are in a position to promote or curtail the cryptologic program. In this case, why has the US SIGINT effort been generally regarded as more important and successful than the British? The answer lies not in the nature of the respective policy authorities, but in the greater readiness of the American Administration and Congress to back their national cryptologic organization with money and other necessary resources.

2.34 Returning to the Canadian scene, were SIGINT policy matters handled better while they had to be channeled through the CR Committee or the DCS? Though the degree of good or evil in the earlier period depended somewhat on the amount of activism shown by the External Affairs incumbent, it has to be said that on the whole SIGINT policy has been healthier since the change in 1972. Even those DCSs who were prepared to play a predominantly passive role were led by careerist caution to act as an insulator, or more commonly a circuit-breaker, in the flow of SIGINT proposals from CBNRC to those higher authorities who were in a position to expedite funding or other action. As indicated in paragraph 2.19 the then DCS was prepared to move out of this blocking role, although the opportunity was not followed up. However, any DCS who decided actively to carry the ball on his own could do far more harm than good. Two examples will suffice. At the end of paragraph 2.16 the DCS's 1958 paper on civilianizing the intercept service was mentioned. It was not the fact that his concept was simply not feasible that mattered, but that he presented his paper to the CSB over the opposition of all three Services[23]. As a result, this initiative exacerbated severely and for a long time to come the already existing tension between the military who provided the intercept service and the "civilians" (including CBNRC) who were understood to be responsible for not only the processing operation but also for general SIGINT policy. In the second example, in 1971 the DCS, without any discussion with CBNRC, assured his Under-Secretary, and through him his Minister, that the clause in the current draft bill on Protection of Privacy which forbade the interception of "private" communications in and out of Canada would not have any bad effects on Canadian intelligence. This official opinion was to wipe out for the remainder of CB's existence traffic useful in such studies as

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23. See para. 5.30
24. See para. 4.25

2.35 To sum up, then. It is important that the initiation, formulation and presentation of SIGINT policy should be left in the hands of the head of the national cryptologic agency. And this head of the agency should be a full-time professional selected from the staff of the agency and advised by experts on the various SIGINT aspects, mainly from within the agency. As for COMSEC, it can be seen from the very fact that it is treated in separate Chapters of this History that it can be regarded as a slightly different though inter-connected subject. In this case, advice to the agency head or his COMSEC deputy may come not only from within the agency, but also from outside organizations including the Departments of National Defence and Communications. Given that the agency head is the fountainhead of cryptologic policy, the tricky question of where the higher authority to whom he is accountable for policy, as opposed to administration, is located will vary from time to time, as it has in the past, in accordance with current arrangements for the handling of governmental business. Only never again let there be interposed a useless fifth wheel to impede the process between the agency head who proposes policy and those higher authorities who are in a position to approve and to provide the relevant resources.

Résumé

2.36 This Chapter has dealt in general with SIGINT policy matters affecting CBNRC, but more particularly with the structures and to some extent the individuals involved. Other important aspects of SIGINT and COMSEC policy will be included under their subject headings in different Chapters. For example, the vital question of relationships with collaborating Centres will be discussed in Chapter 11, the reasons behind the Branch's specific SIGINT tasks in Chapter 4, and decisions and actions about the collection of traffic at intercept stations and by other means in Chapters 5 and 6 respectively. COMSEC policy and its structure will be handled as a separate subject in Chapter 16.

Chapter 2/Annex A

Extract from

CRC/139

16 November 1950

COMMUNICATIONS RESEARCH COMMITTEE

Terms of Reference

(1) To advise the Senior Committee as required on Communications Intelligence policy, including any financial implications involved.

(2) To direct the tasks of the Canadian Strategic Intercept Organization.

(3) To give general direction to the operation of the Communications Branch.

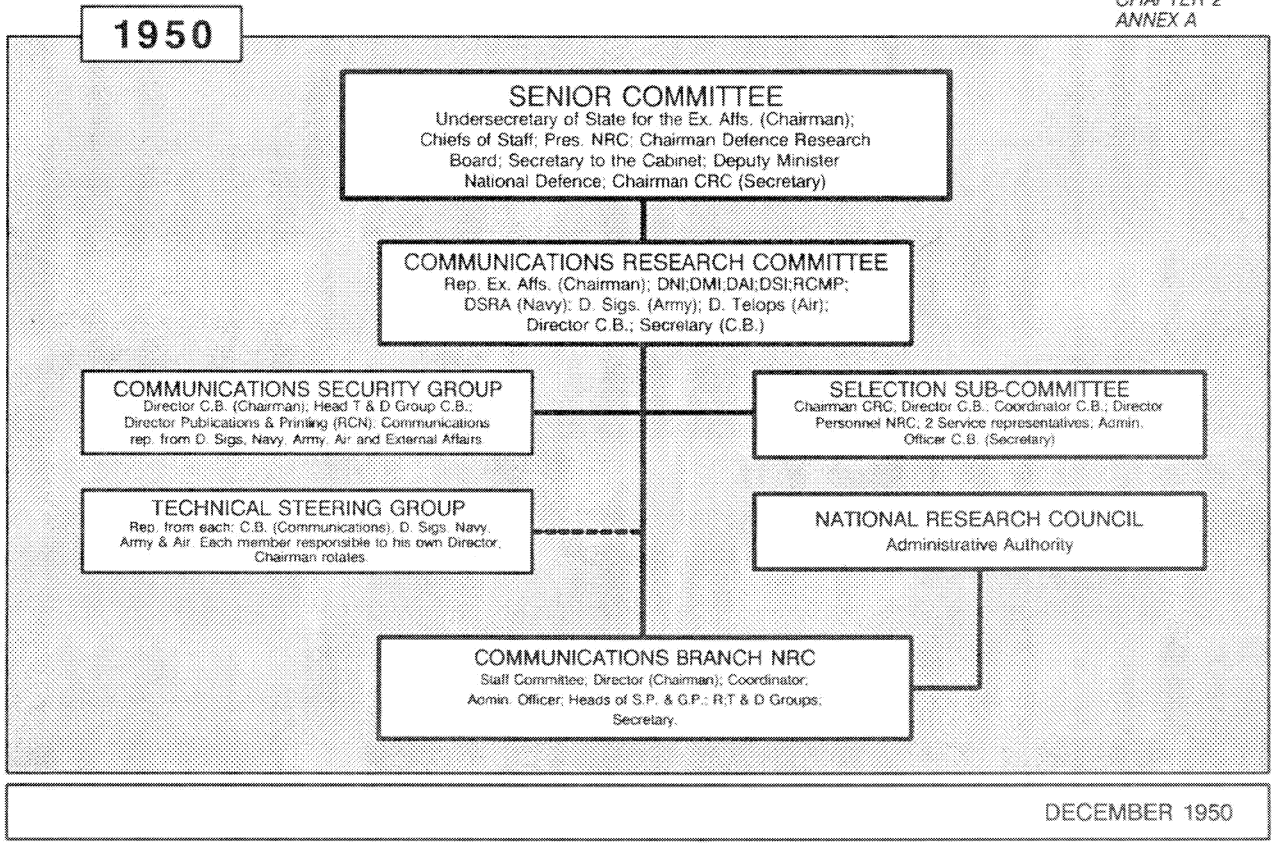
(4) To make recommendations on personnel establishments and appointments for the Communications Branch.

(5) To control security policy in respect of Communications Intelligence, including the indoctrination of personnel.

(6) To be responsible for appropriate external liaison and coordination.

(7) To advise on cipher security policy as required.

(see next page for Structure)



Chapter 2/Annex B

CSB/39

4 August 1954

TERMS OF REFERENCE OF THE COMMUNICATIONS SECURITY BOARD, DIRECTOR OF COMMUNICATIONS SECURITY, AND SUBSIDIARY COMMITTEES

1. Communications Security Board

Under-Secretary of State for External Affairs (Chairman)
Secretary to Cabinet
Chief of the Naval Staff
Chief of the General Staff
Chief of the Air Staff
Deputy Minister, Department of National Defence
Chairman, Defence Research Board
President, National Research Council
Assistant Deputy Minister of Finance (Secretary to Treasury Board)
Director of Communications Security (Secretary)
Assistant Secretary (External Affairs)

Terms of Reference:

(a) To maintain general policy control over all aspects of the collection, processing and dissemination of Communications intelligence and electronics intelligence (Elint - the product of non-communications transmissions).

(b) To exercise such control through the Director of Communications Security.

2. Director of Communications Security

(a) The Director of Communications Security shall be responsible to the Communications Security Board for the initiation and execution of all policy matters within the terms of reference of the Board.

(b) The Director shall be responsible to C.S.B. for the budgetary control of the Communications Branch, N.R.C., and for all intercept stations, irrespective of the vote in which such expenditures may be carried.

(c) The Director shall be responsible to C.S.B. for the conduct of relations with L.S.I.B., and U.S.C.I.B. and any other Comint authority with which Canada may enter into relations.

(d) The Director shall be Secretary to C.S.B.

(e) The Director shall be Chairman of the Communications Research Committee and the Communications Operations Policy Committee. He shall be a member of the Personnel Selection Committee for the Communications Branch, N.R.C.

(f) The Director shall have authority to convene such advisory bodies and working groups within the Comint organization as may be deemed necessary from time to time.

3. Communications Research Committee

Director of Communications
Security (Chairman)
Director of Naval Intelligence
Director of Military Intelligence
Director of Air Intelligence
Director of Scientific Intelligence
Director, Joint Intelligence Bureau
Director, Communications Branch, N.R.C.
Director of S.R.A. (Navy)
Director of Signals (Army)
Director of Telecommunications
Operations (RCAF)
Representative of Royal Canadian
Mounted Police
Representative of National
Research Council (Administration)
in attendance as required
Secretary from Communications Branch

Terms of Reference:

To act as an advisory body on general policy questions brought before it by the Director of Communications Security, such questions to be mainly those of interest both to the producer and user agencies of Comint.

4. Communications Operations Policy Committee

Director of Communications
Security (Chairman)
Director of S.R.A. (Navy)
Director of Signals (Army)
Director of Telecommunications
Operations (RCAF)
Director, Communications Branch, N.R.C.
Chairman of the Communications
Security Technical Group (Secretary)

Terms of Reference:

(a) To be responsible for drawing up policy on the technical aspects of interception and on the provision and manning of intercept facilities which come under the jurisdiction of the Communications Security Board.

(b) To be responsible for the preparation of financial estimates in support of these policies.

(c) To assist the Director of Communications Security in preparing such reports as may be required by the Communications Security Board.

Chapter 2/Annex C

CSB/56 (Revised)

2 November 1959

THE CANADIAN SIGINT AND COMSEC STRUCTURE

The Communications Security Board is the responsible authority in Canada for Signals Intelligence (SIGINT) and Communications-Electronic Security (COMSEC). Execution of this responsibility is divided between two distinct chains of command as illustrated in the attached diagram. The composition and terms of reference of the Board are given below; its subordinate structures are listed in order of seniority within the two areas of responsibility.

COMMUNICATIONS SECURITY BOARD (CSB)

Chairman:

The Under-Secretary of State for External Affairs

Members:

Secretary to the Cabinet
Chief of the Naval Staff
Chief of the General Staff
Chief of the Air Staff
The Deputy Minister of the Department of National Defence
The Chairman of the Defence Research Board
The President of the National Research Council
The Commissioner, Royal Canadian Mounted Police
The Assistant Secretary to the Treasury Board

Secretary:

The Director of Communications Security

TERMS OF REFERENCE

The Communications Security Board shall:

(a) maintain general policy control over all aspects of collection, processing and dissemination of SIGINT;

(b) exercise such control through the Director of Communications Security (DCS);

(c) maintain general policy control over all aspects of Communications-Electronic Security;

(d) exercise such control through the Communications-Electronic Security Policy Committee (CSPC).

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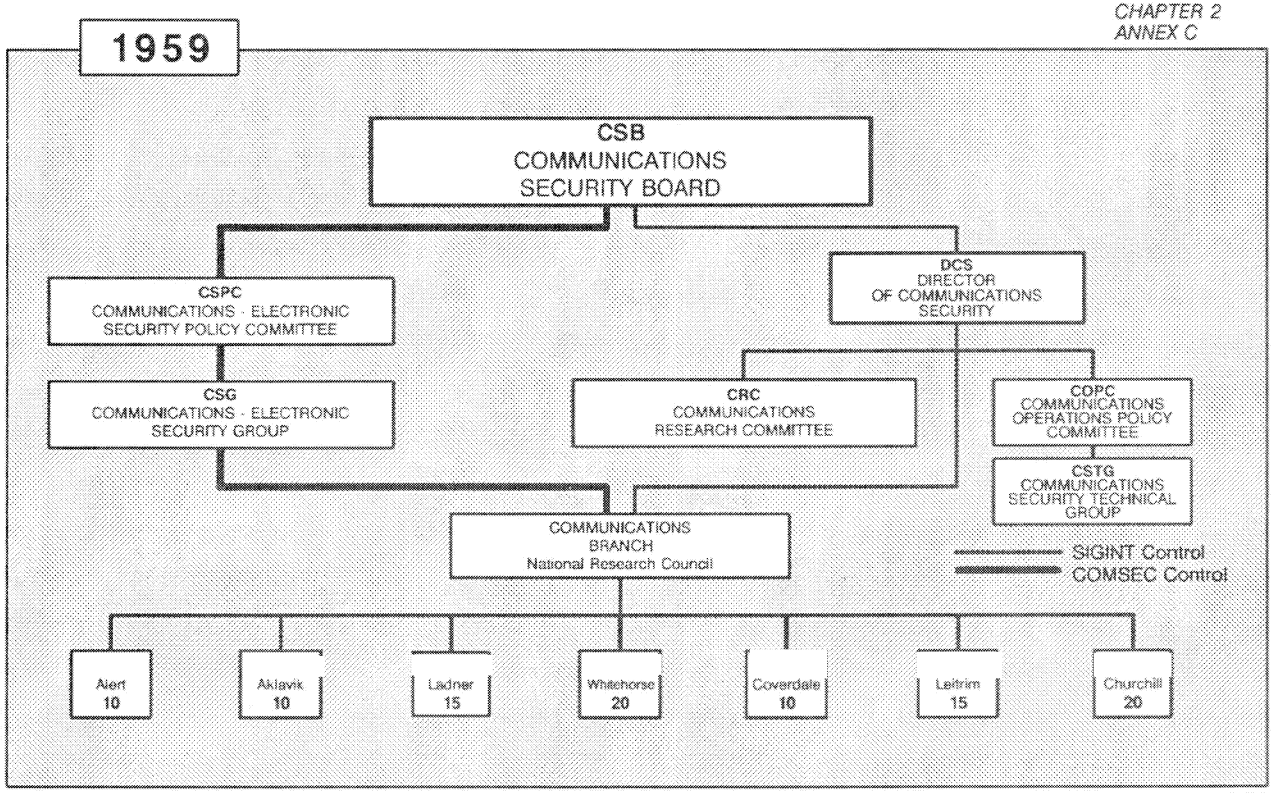

Att. to CSB/56.(Numbers of planned positions of intercept stations included.) 2 NOVEMBER 1959

Chapter 2/Annex D

IPC/1-60

28 April 1960

CANADIAN INTELLIGENCE ORGANIZATION

The Intelligence Policy Committee is responsible for coordinating and maintaining general policy direction of all intelligence matters including signals intelligence and communications-electronic security. The composition and terms of reference of the Intelligence Policy Committee, the Joint Intelligence Committee, the Director of Communications Security and the Communications-Electronic Security Policy Committee are given below:

INTELLIGENCE POLICY COMMITTEE (IPC)

Chairman:
The Under-Secretary of State for External Affairs

Vice-Chairman:
The Chairman, Chiefs of Staff

Members:
Secretary to the Cabinet
Chief of the Naval Staff
Chief of the General Staff
Chief of the Air Staff
Deputy Minister of the Department of National Defence
Chairman of the Defence Research Board
President of the National Research Council
The Commissioner, Royal Canadian Mounted Police
Deputy Minister of the Department of Finance
The Chairman of the Joint Intelligence Committee and Director of Communications Security will normally attend.

Secretary:
Secretary to the Cabinet Defence Committee

Supporting Secretarial Staff:
Provided by the Canadian Joint Staff (CJS), NDHQ, and by the Communications Branch, National Research Council, as required.

TERMS OF REFERENCE

Subject to such directions as it may receive from time to time from Ministers, the Intelligence Policy Committee shall:

(a) maintain general control and policy direction over all aspects of the work of the Joint Intelligence Committee, determine what general intelligence objectives and priorities should be set to the JIC, recommend what financial and manpower priorities and resources it should be given in order to carry out its task and assess its performance in carrying out these tasks;

(b) maintain general policy control over all aspects of collection, processing and dissemination of SIGINT and exercise such control through the Director of Communications Security (DCS);

(c) maintain general policy control over all aspects of communications-electronic security and exercise such control through the Communications-Electronic Security Policy Committee (CSPC).

DIRECTOR OF COMMUNICATIONS SECURITY (DCS)

TERMS OF REFERENCE

The Director of Communications Security shall:

(a) be responsible to the IPC for the initiation and execution of all policy matters within the IPC's terms of reference with regard to SIGINT;

(b) be responsible to the IPC for the presentation and justification of the estimates and expenditures for CBNRC and for DRB vote 712 (Primary 89) for SIGINT equipment and for the control of expenditures within this vote;

(c) be responsible to the IPC for conduct of SIGINT relations with the London Signals Intelligence Board (LSIB) and the United States Intelligence Board (USIB) and any other SIGINT authority with which Canada may enter into relations;

(d) have authority to convene such advisory bodies and working groups within SIGINT organizations as may be deemed necessary from time to time;

(e) be Chairman of the Communications Research Committee and be Chairman or designate the Chairman of any other advisory group which will be established under the authority granted in (d);

(f) be a member of the Personnel Selection Committee for CBNRC.

JOINT INTELLIGENCE COMMITTEE (JIC)

Chairman:

A representative of the Department of External Affairs

Members:

Director of Naval Intelligence
Director of Military Intelligence
Director of Air Intelligence
Director of Scientific Intelligence
Director of Joint Intelligence Bureau
A representative of the Royal Canadian Mounted Police
Director of Communications Branch, National Research Council
Representatives of other Departments and Agencies of Government (on a continuing or occasional basis) as required.

Secretary and Supporting Staff:

Provided by CJS, National Defence Headquarters

TERMS OF REFERENCE

(a) To assemble, evaluate and present jointly such intelligence as may be required by the Cabinet Defence Committee, individual Ministers or the Chiefs of Staff, or as the Joint Intelligence Committee may deem necessary. To meet the special requirements of the Chiefs of Staff, tasks concerned with military matters will be assigned by the Chiefs of Staff and reports thereon submitted directly to them;

(b) To advise the IPC on all matters of intelligence on which it is charged with responsibility by the IPC and for this purpose to keep under review the implementation of intelligence priorities, objectives and methods of work, other than those covered by

SIGINT, at home and abroad to ensure efficiency, economy and rapid adaptation to changing requirements;

(c) To provide the general policy direction of the Joint Intelligence Bureau;

(d) To determine the maintenance and method of liaison with appropriate intelligence agencies in the United Kingdom, the United States and other Commonwealth as may be appropriate;

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(e) To convene such advisory bodies and working groups which may include (on a continuing or occasional basis) representation from such other Departments and agencies not permanently represented on JIC as may be appropriate to the tasks assigned to the subordinate working group.

Chapter 2/Annex E

February 1972

MEMBERSHIP AND TERMS OF REFERENCE OF THE INTERDEPARTMENTAL COMMITTEE ON SECURITY AND INTELLIGENCE

Chairman:
The Secretary to the Cabinet (or his designate)

Permanent Members:
The Under-Secretary of State for External Affairs
The Deputy Minister of National Defence
The Deputy Minister of Justice
The Deputy Solicitor General
The Deputy Minister of Manpower and Immigration
The Secretary of the Treasury Board
The Chief of the Defence Staff
The Commissioner of the Royal Canadian Mounted Police
The Assistant Secretary to the Cabinet - (S&I) - Secretary

Associate Members:
The Deputy Minister of Supply (S)
The Chairman of the Public Service Commission (S)
The Deputy Minister of Communications (I)
The President of the National Research Council (I)
The Chairman of the Defence Research Board (I)
(The Chairman of the Security Advisory Committee and the Intelligence Advisory Committee and Directors of other agencies principally concerned will attend as technical advisors, as required.)

Terms of Reference:

Under the general direction of the Cabinet Committee on Security and Intelligence and the Cabinet, to keep under review Canadian security and intelligence organization and activities and to furnish general policy guidance to the Security Advisory Committee and the Intelligence Advisory Committee, with a view to ensuring that Ministers are provided with the information and advice they require to make decisions affecting the preservation and enhancement of the security and integrity of Canada, both domestically and in her relationships with other nations.

Chapter 2/Annex E

MEMBERSHIP AND TERMS OF REFERENCE

OF THE

SECURITY ADVISORY COMMITTEE

Chairman:
The Head of the Security Planning and Research Group, Department of the Solicitor General

Members:
Director-General Security Service, (Vice-Chairman)
Royal Canadian Mounted Police
Assistant Deputy Attorney General
Head of Security and Intelligence Liaison Division,
Department of External Affairs
Deputy Chief Intelligence and Security,
Department of National Defence
Director-General, Staffing Branch,
Public Service Commission
Director of Security Services,
Department of Supply and Services
Special Assistant to Assistant Deputy Minister
Immigration, Department of Manpower and Immigration
Assistant Secretary to the Cabinet (Security and Intelligence)
Secretary - Privy Council Office
(Security and Intelligence Secretariat)
(Additional representatives of department and agencies as required.)

Terms of Reference:

Under the guidance and direction of the interdepartmental Committee on Security and Intelligence, to:

(a) provide periodic reports to the Interdepartmental Committee, and to the Cabinet Committee on Security and Intelligence if required, of joint assessments of the internal security situation in Canada;

(b) consider and provide coordinated advice to the Interdepartmental Committee upon proposals for security policies and procedures put forward by any of the departments and agencies represented thereon and on any matters referred to it by the Interdepartmental Committee;

(c) formulate, for the approval of the Interdepartmental Committee, general regulations and procedures for the protection of classified material in all departments and agencies of government, including security of communications;

(d) provide assistance and advice to all departments and agencies on the application of such general regulations and procedures, including the review of individual cases or incidents prior to their referral to the Security Review Board;

(e) provide, as necessary, a link between the investigative and operational security service and government departmental agencies;

(f) provide advice and guidance for the resolution of conflicts between the interests of security and departmental and other interests.

Chapter 2/Annex E

MEMBERSHIP AND TERMS OF REFERENCE

OF THE

INTELLIGENCE ADVISORY COMMITTEE

Chairman:

An appropriate representative of the Department of External Affairs.

Members:

Deputy Chief Intelligence and Security,
(Vice-Chairman)
Department of National Defence
Director-General Security Service,
Royal Canadian Mounted Police
Head, Security Planning and Research Group,
Department of the Solicitor General
Assistant Secretary to the Cabinet
(Security and Intelligence)
Director, Communications Branch,
National Research Council
Director, Special Research Bureau,
Department of External Affairs
Secretary - Privy Council Office
(Security and Intelligence Secretariat)

(Additional representatives of the Departments of External Affairs and National Defence and representatives of other departments and agencies of government, notably the Departments of Finance, Industry, Trade and Commerce, Manpower and Immigration, as required.)

Terms of Reference:

Under the guidance and direction of the Interdepartmental Committee on Security and Intelligence,

(a) to provide coordinated advice to departments and agencies concerned with the collection and assessment of external intelligence on the government's intelligence requirements in order to assist in the formulation and implementation of government policies in the areas of national sovereignty and external threats to Canada's security, immigration, foreign affairs and defence and international economic relations;

(b) to coordinate, for approval of the interdepartmental Committee on Security and Intelligence, programmes, plans and budgets for the collection, collation, analysis and distribution of intelligence within the stipulated requirements;

(c) to advise the Interdepartmental Committee on Security and Intelligence on the setting of priorities and the allocation of resources for the provision of required intelligence;

(d) to assemble, evaluate and present jointly such intelligence as may be required by Cabinet Committees, individual Ministers, the Chief of the Defence Staff, the Interdepartmental Committee on Security and Intelligence or the Security Advisory Committee, or as the Intelligence Advisory Committee may, on its own initiate, propose;

(e) to assume all those responsibilities of an intergovernmental character presently being carried out by the Joint Intelligence Committee.

s.15(1) - DEF

CHAPTER 2
ANNEX E

1972

INTERDEPARTMENTAL COMMITTEE ON SECURITY AND INTELLIGENCE

CHAIRMAN: Secretary to the Cabinet *Mr. R.G. Robertson*

PERMANENT MEMBERS:
Under Secretary of State for External Affairs
Deputy Minister of National Defence
Deputy Minister of Justice
Deputy Solicitor General
Secretary of the Treasury Board
Chief of the Defence Staff
Commissioner of the Royal Canadian Mounted Police

ASSOCIATE MEMBERS:
Deputy Minister of Supply
Chairman of the Public Service Commission
Deputy Minister of Communications
President of the National Research Council
Chairman of the Defence Research Board

SECRETARY: Assistant Secretary of the Cabinet (Secretary and Intelligence)

ADVISERS: Chairman of the Security Advisory Committee
Chairman of the Intelligence Advisory Committee
Directors of other agencies principally concerned

INTELLIGENCE ADVISORY COMMITTEE

CHAIRMAN: XA Rep *Mr A.F. Hart*

VICE-CHAIRMAN: DGIS

MEMBERS: DGSS, RCMP
Head, SPARG, Dept. of Sol. Gen.
Asst. Secty to Cab. (S&I)
Dir. CBNRC
Dir. SRB
Other Depts. as required

SECRETARY: PCO (S&I Secretariat)

SECURITY ADVISORY COMMITTEE

CHAIRMAN: Head, SPARG, Dept. of Sol.Gen.
Col. R.F. Bourne

VICE-CHAIRMAN: DGSS, RCMP

MEMBERS: Asst. Dep. Att. Gen.
Dir. Gen., XA
DOE
Dir. Gen., Staffing Br. PSC
Dir. of Sec. Services, DSS
Sr. Advr. to Asst. DM Immigration
Dept. of MEA
Asst. Secty to Cab. (S&I)
Other Depts. as required

SECRETARY: PCO (S&I Secretariat)

COMMUNICATIONS BRANCH
NATIONAL RESEARCH COUNCIL

COMMUNICATIONS RESEARCH TECHNICAL GROUP

CHAIRMAN: C/T, CBNRC *Mr. R.S. Grant*

MEMBERS: Reps. of CFSRS
CBNRC
XA
RCMP
DSS
Other Depts. as required

SECRETARY: Provided by CBNRC

COMMUNICATIONS - ELECTRONIC SECURITY COMMITTEE

CHAIRMAN: Dir. CBNRC *Mr. N.K. O'Neill*

MEMBERS: DND
XA
RCMP
PCO, S&I Secretariat
DOC
DSS
Other Depts. as required

SECRETARY: Provided by CBNRC

Alert	*Massel*	*Inuvik*	*Gander*	*Leitrim*
20	10	20	10	40

FEBRUARY 1972

Registration
SI/75-9 12 February, 1975

Enregistrement
TR/75-9 12 février 1975

PUBLIC SERVICE REARRANGEMENT AND TRANSFER OF DUTIES ACT

LOI SUR LES REMANIEMENTS ET TRANSFERTS DANS LA FONCTION PUBLIQUE

Transfer the Communications Branch of the National Research Council to the Department of National Defence

Transfert de la Direction des télécommunications du Conseil national de recherches au ministère de la Défense nationale

P.C. 1975-95 16 January, 1975

C.P. 1975-95 16 janvier 1975

His Excellency the Governor General in Council, on the recommendation of the Prime Minister, pursuant to the Public Service Rearrangement and Transfer of Duties Act, is pleased hereby to transfer from the National Research Council to the Department of National Defence the control and supervision of that portion of the public service in the National Research Council known as the Communications Branch, effective April 1, 1975.

Sur avis conforme du Premier ministre et en vertu de la Loi sur les remaniements et transferts dans la fonction publique, il plaît à Son Excellence le Gouverneur général en conseil de transférer par les présentes, du Conseil national de recherches au ministère de la Défense nationale, à compter du 1er avril 1975, le contrôle et la direction de la partie de la fonction publique désignée sous le nom de Direction des télécommunications qui est actuellement rattachée au Conseil national de recherches.

QUEEN'S PRINTER FOR CANADA, OTTAWA, 1975 IMPRIMEUR DE LA REINE POUR LE CANADA, OTTAWA, 1975

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Chapter 2/Annex G

24 August 1977

INTELLIGENCE ADVISORY COMMITTEE
SIGINT MEMORANDUM NO. 1 (IAC/S #1)

CONTROL OF SIGNAL INTELLIGENCE (SIGINT) IN CANADA

I. Policy Control of SIGINT in Canada

1. The control of Canadian SIGINT is vested in the Interdepartmental Committee on Security and Intelligence (ICSI), under the general direction of the Cabinet Committee on Security and Intelligence. The ICSI maintains general policy control over all aspects of the collection, processing and dissemination of SIGINT and exercises this control through the Intelligence Advisory Committee (IAC) for national SIGINT, and the Canadian Forces for tactical COMINT and ELINT.

2. The IAC is responsible to the ICSI for the execution of all policy matters with regard to national SIGINT, for the conduct of SIGINT relations with the London Signal Intelligence Board (LSIB) and the United States National Foreign Intelligence Board (NFIB), and for supervision of the security policy governing SIGINT. The IAC also co-ordinates the Canadian SIGINT program with other national intelligence activities and formulates guidance, requirements and priorities for the provision of SIGINT product.

II. Definitions

Communications Intelligence (COMINT)

3. Technical and Intelligence information derived from COMINT activities performed on foreign communications by other than the intended recipients.

4. COMINT activities are those activities which produce COMINT by the collection and processing of foreign communications passed by radio, wire and other electromagnetic means: by the study of foreign communications systems; and by the processing of foreign encrypted communications, however transmitted.

5. Foreign Communications

In this context, foreign communications are all communications except:

(i) Those of the Governments of Canada and the Collaborating Countries (i.e. U.S., Britain, Australia and New Zealand).

(ii) Those exchanged among private organizations and nationals, acting in a private capacity, of Canada and the Collaborating Countries.

6. COMINT and COMINT activities do not include:

(i) Collection and processing of unencrypted written communications, except written plaintext versions of communications which have been encrypted or are intended for subsequent encryption.

(ii) Collection and processing of press, propaganda and other public broadcasts, except for encrypted or "hidden meaning" passages in such broadcasts.

(iii) Censorship.

Electronics Intelligence (ELINT)

7. Technical and intelligence information derived from the collection and analysis of foreign non-communications electromagnetic emissions (e.g. radar, navigational aids and jamming signals).

Telemetry Intelligence (TELINT)

8. Technical and intelligence information derived from the collection and analysis of foreign instrumentation signals.

Signal Intelligence (SIGINT)

9. All processes involved in, and information and technical material derived from, the interception and study of foreign communications and non-communications electromagnetic emissions. The term embraces COMINT, ELINT and TELINT.

III. The National SIGINT Centre

10. The Communications Security Establishment (CSE) of the Department of National Defence has been established as the Canadian National SIGINT Centre, and has been given the responsibility for providing SIGINT to meet the needs of the Federal Government. Current user requirements are provided bilaterally or through the IAC.

11. Under the policy control of the ICSI, acting through the IAC, the Chief CSE is responsible for:

(a) The planning and direction of Canadian SIGINT collection and processing, within the manpower and equipment resources allocated to the national SIGINT centre and national interception sites.

(b) The conduct of SIGINT arrangements with collaborating SIGINT centres. Intelligence product and technical material produced by the Canadian SIGINT organization is exchanged with these centres in accordance with arrangements developed by the CSE.

12. When adequate resources are not available in CSE or at national interception sites, the Chief CSE may make arrangements for selected SIGINT functions to be carried out by other Canadian organizations. In such cases, he will retain general responsibility to the IAC for these functions, including protection of the SIGINT source and liaison with collaborating SIGINT centres. Analysis of TELINT is currently assigned to DGIS under existing arrangements.

IV. Tactical SIGINT

13. The collection, processing and dissemination of Canadian Forces tactical COMINT and ELINT for operational purposes is the responsibility of the Deputy Chief of Defence Staff. Units engaged in this activity will not normally produce SIGINT which requires a classification higher than SECRET. A SIGINT product which does require special controls will be governed by the Canadian SIGINT Security Instructions (CSSI).

Relevant raw material or intelligence produced by such activity will be made available to CSE who will provide assistance to the extent that resources permit.

V. Liaison with Collaborating Countries

14. An important factor in Canadian SIGINT is its interrelationship with the SIGINT centres of the U.S., Britain, Australia and New Zealand. Intelligence and technical information are freely exchanged among them, and while each national SIGINT centre allocates some of its collection and processing resources in accordance with "Division of Effort" arrangements, each draws on the common pool of SIGINT product to meet the requirements of its national intelligence authorities.

15. Liaison with the U.S. and British SIGINT centres is conducted through CSE "Canadian Senior Liaison Officers" (CANSLO). These liaison officers are accredited also to the SIGINT policy authorities in the U.S. (NFIB) and Britain (LSIB) and are responsible for SIGINT liaison between the IAC and these authorities. Visits to SIGINT organizations of the U.S., Britain, Australia or New Zealand to discuss SIGINT matters are authorized and coordinated through the Chief CSE. The appropriate CANSLO will certify, as required, the COMINT indoctrination status of Canadians visiting the U.S. or Britain. The U.S. and Britain maintain liaison officers in the CSE (SUSLO and BRLO respectively) to perform corresponding functions in Canada.

VI. Security

16. Security procedures for the conduct of SIGINT functions and the safeguarding of SIGINT products are detailed in CSSI's issued by the CSE under the authority of the IAC.

Chapter 3

Organization and Establishment

Annexes:

Chapter 3 (cont'd)

Annexes:

Chapter 3 - Organization and Establishment

Introduction

3.1 Chapter 1 recorded the creation of CBNRC on 1 September 1946 with an initial establishment of 179 people, and it also gave brief descriptions of some of the senior members of the original staff. This Chapter will follow on by describing the organizational structure of the Branch as it developed, and will note increases in the establishment as they occurred from time to time. The decision that the staff should be entirely civilian had been pressed by NRC and External Affairs since mid-1945, partly on the basis that military salaries were too high to be absorbed by NRC; though traces of doubt on the part of External Affairs (perhaps at the instance of National Defence) are still indicated in November 1945, when Mr. Glazebrook asked Tommy Stone in the Washington Embassy to sound out Sir Edward Travis and Brig. Tiltman of the UK Government Code and Cypher School (GCCS)[1] on the question of whether the new Canadian organization should be civilian, military, or mixed. In the end even National Defence were quite happy that the staff of the processing agency should be entirely civilian, since demobilization measures were making it increasingly difficult for them to find Service personnel to man their rather optimistic commitment of 100 intercept positions[2].

Initial Establishment

3.2 The original breakdown of the 179 person establishment approved by Cabinet Ministers in August 1946 is attached as Annex A. Apart from the Director, the staff members mentioned in paragraph 1.4 started at the bottom of their classifications: LCol. Evans as Assistant Technical Director, LCdr. Hope and Mr. Hellyer as Associate Research Officer (RO) Grade 2, and Mr. O'Neill and Mr. Manson as

1. Then in Washington, following up the BRUSA Agreement
2. See para. 5.2

Assoc. RO Grade 1. The rest of the staff were all classified as Junior ROs or below. Since annual increments in the classifications mentioned only lasted for two years (or 5 in the case of JROs), and promotions were rare in accordance with NRC policy[3], upward motion for CBNRC officers was painfully slow. The number of people actually available at the start as opposed to the establishment figure was very small and only grew gradually. Mr. Drake's original recommendations of August 1946 were approved by NRC and formed the starting team of 62 civilians. One year appointments were given to 12 ex-Service people (all NCOs) and 7 civilians (including several ex-WRCNS (Women's Royal Canadian Naval Service) who had been released from the Navy earlier). Three year appointments, which were curiously called "permanent", were given to 20 ex-Service people and 23 civilians. To illustrate the modest speed of growth from the original staff of 62 towards the approved establishment of 179, some figures in 1947 were: March - 73, May - 80, and October - 95. A breakdown of this last figure may be of interest in anticipation of Chapter 4 on tasks.

SIGINT		- 7
		- 8
s.15(1) - DEF		- 12
	Russian	- 14
s.15(1) - IA	Reporting	- 13
	TOTAL -	54
COMSEC		- 5
SUPPORT	Communications	- 20
	IBM	- 7
	Training	- 3
	Administration	- 6
	TOTAL -	36

Initial Organization

3.3 In turning from the initial establishment and staff to the initial organization, we should first

3. See para. 2.21

look back at the closing days of the Joint Discrimination Unit (JDU) and the brief existence of the Communications Research Centre which emerged as CBNRC in September. In May 1946 the JDU under Lt. Col. Drake was organized as follows:

A.	Production Group	- Mr. Evans
	1.	- Mr. McLaren
	2.	- Lt. Cdr. Hope
	3. Machine	- Lt. Cdr. Hellyer
	4. Research and Training	- (To be named later)
B.	Intelligence Section	- Capt. Diditch
C.	Communications Section	- Lt. Parsons
	1. Station Control and Traffic Analysis	- (T/A)
	2. Cipher Office	
	3. Teletype Office	

By July this original structure had developed into the Communications Research Centre with only small changes, which in turn formed the basis of the proposed fledgling CBNRC organization[4]. This is summarized below with NRC classifications and dates of arrival of newcomers: Director - Mr. Drake. Assistant Technical Director - Mr. Evans.

Production		- Mr. Evans (ATD)
1.		- Mr. McLaren (JRO)
		- Mr. Colls (JRO)
		- Mr. DuVernet (JRO)
2.		- Mr. Hope (Assoc RO 2)
3.		- Mr. Roussin (JRO)
4.	Research and Training	- Mr. O'Neill (Assoc.RO 1) Arrived September
5.	Machine	- Mr. Hellyer (Assoc.RO 2)

4. See Annex N

s.15(1) - DEF
s.15(1) - IA

Intelligence	- Dr. Penlington (Assoc.RO 1) Arrived October
Communications	- Mr. Manson (Assoc.RO 1) Arrived August
1. Station Control and T/A	- Mr. Manson
2. Cipher and Teletype	- Mr. I. Hughes (TO)
Administration	- Mrs. Oliver (JRO)

Several changes should be noted between these two organizations. In the Communications Section, Lt. Parsons decided not to stay on in CBNRC, and was replaced by Mr. Manson on his arrival in August. On the other hand, Capt. S.J. (Steve) Diditch did stay on in the Intelligence Section, where he was to remain later for a long time as its head under its new title of Reporting Group. However, External Affairs were convinced that they needed a scholarly academic as head of the Intelligence Section, and recruited a Ph. D. from Toronto University to move in over Steve Diditch, whose degree from the University of Saskatchewan was apparently not considered good enough for the job. They may have been influenced in this approach by the precedent that the Special Intelligence Section (SIS) in the Examination Unit (XU) had been headed by Dr. Norman, a distinguished Oriental Scholar[5]. Dr. Penlington arrived in October, but was rather a disappointment, among other reasons because he moved on to what he considered greener academic pastures within a year, to be succeeded by Mr. Diditch, but only in an "acting" capacity at first, while External Affairs searched unsuccessfully for an academic replacement. The Section was split into two parts, headed by T.G.S. (Tom) Colls, who over many years was to move into several senior positions, and under Mr. DuVernet, who was destined not to rise far before he resigned in April 1961. was

5. See para. 1.8

a new Section handling the task under Marcel Roussin, and Mr. O'Neill arrived in September to start up the tiny (two-man) Research and Training Section.

Early Developments

3.4 From now on any major changes in organization will be illustrated by charts in Annexes rather than in the text for neatness' sake. Meanwhile, significant changes in establishment, staff, or personalities will be noted as they arise. The first thing to note in a general sense is the start of the COMSEC organization, though this will be dealt with more fully in Chapter 17. S/L Trowbridge RCAF was approached by Mr. Drake in November 1946, and arrived in CBNRC as Mr. W. J. (Bill) Trowbridge in January 1947; in the meantime Ed De Grey had been recruited as head of what was at first called the Make Section in December. Two superior technicians were hired soon after in April to complete the nucleus of what was to become a solid Canadian COMSEC effort[6]. Also in early 1947 the SIGINT side of the house had to be reorganized to take account of the acquisition of a Russian task, the background to which will be spelt out in Chapter 4. The new organization as it appeared in mid-1947, together with the names of the main personalities and the establishment/staff figures, is illustrated in Annex B. From this it will be seen that the Section and the Research Section no longer exist; their resources, including the Section Heads, were amalgamated to form the nucleus of the Russian Section, which expanded rapidly from that time on. Mr. Colls was head of the newly established Section and Mr. DuVernet's Section vanished, as had the traffic that it was working on. Finally, the Intelligence Section changed its name to the Reporting Section. L.V. (Vince) Chambers, who was to end his career as Director General of Administration (DGAdmin) in CSE, arrived in May 1947 to start work as a cryptanalyst. As mentioned above, Steve Diditch became Acting Head of the

6. See para. 17.8

Reporting Section on the departure of Dr. Penlington in September, a position which he held until the arrival of Peter Dwyer in April 1950 initiated another brief period of a newcomer holding the reporting reins. Poor Mr. Diditch's early record of being always the bridesmaid, never the bride, was again rubbed in when Mr. O'Neill was made Acting Head of R Group on the departure of Mr. Dwyer to better things in March 1952. However, this arrangement was quickly abandoned as being pointless, enabling Steve at last to come into his own. Incidentally, the functions of the Reporting Section, which didn't become a Group till October 1949, were described in August 1947 as:

a) To gather SIGINT product from CBNRC, and also from the US and the UK;

b) To digest and collate the material, and to issue summary reports based on it.

One can again trace in this the precedent from the XU of the SIS function as expressed in paragraph 1.8. Two slightly dangerous situations arose from these reporting functions of CBNRC. First, Canadian intelligence directorates objected from time to time that CBNRC was usurping their "evaluation" role as agreed in the CRC paper referred to in paragraph 2.5.

3.5 The next major change in the organization of CBNRC came in October 1949, and is illustrated in Annex C, together with the current establishment, staff strength, and financial estimates. Late in 1947, the policy authorities had increased the establishment of CBNRC by 48, mostly for COMSEC tasks, resulting in a new total of 227 and a stronger Make Section, which in March 1948 had changed its

name to Test and Design (T&D), and in October 1949 became a Group (T), together with Communications (C), SIGINT Production (P), and Reporting (R). This might be a good point at which to summarize later changes in the establishment figures in general terms. In March 1951 the Senior Committee approved a paper SC/12 entitled "Expansion of CB" authorizing an increase of 222 to cope with a large-scale extension of CB's SIGINT responsibilities, bringing the approved establishment to 449. By 1952 this had grown to 469 by additions for various COMSEC tasks, and in 1957 a further 26 positions, also for COMSEC, had been authorized by the Communications Security Board (CSB), bringing the total CBNRC establishment in October 1957 to 495. At that time the CSB had before it a paper entitled "Review of CBNRC Tasks and Establishment", originally presented in September 1956, asking for an extra 95 people to cope with the increasing load of SIGINT tasks under agreed Canadian responsibilities. As indicated in paragraph 2.17, while the Board agreed to the request "in principle" at this time, the financial situation in the government only allowed them to give final approval to the increase in May 1958, bringing the total establishment to 590, which was further increased by 10 during that year for minor COMSEC and support tasks. Thus by the end of 1958 the establishment of CBNRC was set at an even 600, a figure which did not change significantly thereafter. Even during the drastic governmental austerity drive in 1962, an exception was made for CBNRC, whose total remained untouched. During the years 1969-71 practical and financial difficulties placed a limitation on the actual manning ceiling to 583 and then 563, but by 1975, when CBNRC became CSE, the manning figure, which had come to be represented as Person Years (PYs) had crept back up to 600.

3.6 Examples of staff recruited from universities in the late forties included J.A. (Joe) Gibson and E.J. (Ed) MacDonald, both to end up as Group Directors, the former also having done a stint as Coordinator of Administration (Coord/A); incidentally both served as Liaison Officers to GCHQ during their long careers in CB. Others recruited at the same time

were T.J. (Jaff) Wilkins, who after a distinguished career in CBNRC left to join the Pay Research Bureau in 1966, and eventually ended up as Associate Deputy Minister of Transport; and Peter Johnston, who also left to join External Affairs, where in due course he became Ambassador in several foreign countries. These names are given as examples of bright and upwardly mobile young men, some of whom remained to climb up the CBNRC ladder, while others were impelled by their ambition and consciousness of their own potential to seek other careers where the opportunities for rising to the top were greater. However, it is only fair to add that almost without exception those who moved on to higher things looked back with respect and affection to the time they spent in CBNRC, and kept in close and friendly touch with associates in their old Alma Mater.

The 1950 Reorganization

3.7 Another major organizational change was promulgated in June 1950. This change is best illustrated by a functional chart dated 15 November 1950, which is reproduced as Annex D. Basically what happened was that the Traffic Analytic (T/A) and Crypt functions were brought together in SIGINT Processing Groups, SP for Russian and GP for other countries, and that the other functions of the previous C Group, with C2 switched from T/A to Search and Development, were added to the SP responsibilities in SP and C Group under Mr. Manson. The functions of R Group and T&D remained virtually unchanged, with the important exception that R4 was responsible for producing Russian by processing unenciphered since linguistic rather than T/A or cryptanalytic skill was what was required here. As mentioned earlier[7], a Research and Development Group, though approved by the CSB, never got off the ground, though it still existed as a paper plan in November 1950. Mr. O'Neill was appointed to a new position as Coordinator of Production (Coord/P), with terms of reference that

7. See paras. 2.9 and 2.10

seemed to include all aspects of CB's cryptologic tasks, though in practice COMSEC matters continued to be handled between T&D Group and the Director. Mr. Wilkins ran a Research and Training Section within the Coordinator's office, and Mary Oliver remained as Administrative Section Head. The other Group Heads were Mr. Colls in GP, Mr. Dwyer in R (replacing the unfortunate Mr. Diditch again), and Mr. Trowbridge in T&D (expanded from the previous T). At this stage, out of 200 staff on strength, 40 worked on the COMSEC side, with the rest on SIGINT tasks, with the exception of the small Administrative Section. By this time there were CB Liaison Officers (LOs) in both the other collaborating Centres, Mac McLaren in Washington and John Jury in London. The Machine Section with 11 people was still being run by Chuck Hellyer.

3.8 When John Manson died in the summer of 1952, Tom Colls moved up to take over SP and C; he had been replaced in GP by Mac McLaren when the latter returned from Washington in August 1951, and had become Mr. Manson's deputy then. Annex E shows the organization as it was after these changes, with the figures for people and equipment. Comparing it with Annex D, it will be noticed that the SP and C Group Head now has Assistants for Crypt and T/A, and that C.E. ("Brig") Denning, who had arrived from England in 1950 as a retired Squadron Leader RAF with considerable relevant service integrated with the RCAF, was now put in charge of the C part of SP and C, on its way to becoming a separate Collection Group. Jaff Wilkins and John Lewis had succeeded Mac McLaren and John Jury as Liaison Officers. Mr. Diditch was now at long last R Group Head, after a brief stint as Deputy R to Mr. O'Neill, and the reporting function was newly divided into Naval, Military, Air, Sections, R1, 2, 3, and 4 corresponding to and with SP 1, 2, 3, and 4[8]. The staff figure of 286 in Annex E can be broken down approximately as follows: SP and C - 88, GP-20, R-63, M-13, T&D-70, with the remaining 32 divided between tasks like executive, administrative, liaison, and research and training.

8. See para. 10.2

The Coordinators

3.9 By mid-1953 the administrative load had become heavier than was normal for any Branch in NRC, and more like that encountered in the regular Divisions. Partly for this reason Mr. Drake recommended that CB should become a Division, and its Groups should become Branches, but NRC turned down the suggestion. This was in conformity with their position in September 1950, expressed at policy committee meetings, that senior CB officers were already being paid at a higher rate than "comparable NRC officers". However, recognizing the heavy administrative load, they sent over an NRC officer to become Coordinator of Administration (Coord/A). This officer, R. (Rod) MacAskill, who had been working in Dr. F.T. (Fred) Rosser's Administrative Branch in the NRC main building, was brought in over the heads of the sections dealing with Admin. Services (Mrs. Oliver), IBM Machine (Mr. Hellyer) and Research and Training (Mr. Orobko). However, his terms of reference were couched in much broader terms: "to have charge of all matters relating to administration and security." As if to redress the balance on the operational side, Tom Colls, who became Acting Coordinator/Production during the absence of Mr. O'Neill at the National Defence College for the 1953/54 course, was given the responsibility "to have charge of all production and operations of the Branch". This would appear to put Coord/P in charge of the operations of all the Groups as opposed to Sections in the chart shown at Annex F, but actually the earlier practice of T&D maintaining its independence of the Coordinator/Production mentioned in paragraph 3.7 soon prevailed again, largely because of the greater COMSEC experience and positive personality of Bill Trowbridge, who returned from a brief fling in industry in September 1954. Incidentally, it should also be noticed from this chart that C Group had in fact split away, amoeba-like, from SP; Mr. Denning was to head this Group until he changed his job and it changed its title in 1964.

The 1954 Reorganization

3.10 The very next year, in September 1954, another major change took place. As indicated in Chapter 4, the Russian SIGINT task had become so predominant over that on other countries as to make the SP/GP arrangement quite unbalanced. (In October 1953, out of a total strength of 355, SP and C had 169 and GP 25). Accordingly, a new breakdown of the SIGINT effort was devised, which quickly settled down into the November organization chart illustrated in Annex G. The main change was that two Major Groups were created for SIGINT production, P for Air and Naval, and Q for Military A new Support Group (O) was to provide T/A and crypt-analytic support to the Production Groups as well as mounting a small effort against Soviet bloc "clandestine" (i.e. intelligence services) communications. The main reporting function of R Group was transferred to the Production Groups (P and Q), while its support role and the task were taken over by the new L Group[9]. It should perhaps be added that besides its main effort against Soviet traffic, P Group was also responsible for the CBNRC commitment on which absorbed between 10 and 20 people at various times. It can also be seen from Annex G that the division of effort between the two Coordinators implied in Annex F has disappeared. They now form a dual pendant attached to the Director, and each have their own areas of responsibility to him.

3.11 The structure established in 1954 remained pretty stable until 1964, with the ratio between SIGINT and COMSEC (pro-rating support services) at roughly 4:1. When Mr. O'Neill was promoted to Assistant/Director (A/D) in January 1956, he retained the functions of Coordinator of Production, so no significant change in senior assignments occurred till September 1957, when the vacant position of Coord/P was filled by J.E. (Jack) Dornan, to be balanced in 1959 by the appointment of Mr. Trowbridge to

9. See para. 10.2

the new position of Coordinator/COMSEC. Mr. Dornan was succeeded as Head of P Group by Jaff Wilkins. The organization as it looked in 1962 is shown in Annex H. The Groups remain essentially the same, though the distinction between Major and Support Groups has been dropped. Administrative functions have been further divided up; Bill Mahoney arrived as the first specialized Admin. Services Officer in April 1960, and Lt. Col. (Bill) Todd was hired as Security Officer on his retirement from the Army in 1961. Mrs. Oliver was left with the considerable responsibilities of Personnel Officer, which had always been her forte. Perhaps a word should be added about the operation of Plans and Secretariat, which was acquiring ever increasing importance. Apart from running the Secretariat, "Plans" assisted the Director and Assistant/Director in the formulation of plans and in drafting policy papers for passage up through the structure; with the creation of the Intelligence Policy Committee (IPC) in 1960, the incumbent of the CBNRC Plans position also became ex officio the Assistant Secretary of that Committee, whose Secretary, as indicated in paragraph 2.23, came from the Cabinet Defence Committee, and was therefore pretty ignorant about SIGINT and COMSEC matters. All this access to cryptologic plans and policy, plus the drafting of IPC Minutes, gave considerable authority to the Plans position, as well as making it an excellent training ground for future higher roles. Peter R. Hunt, who was Plans in 1963, and A.S. (Stew) Woolner in 1971, later became respectively Chief and Deputy Chief (DC) of CSE. A listing of the incumbents of the "Plans" position, soon to be renamed "Directorate Assistant" (DA), is given in Annex M.

The 1964 Reorganization

3.12 Apart from some changes at the Section level, the next major reorganization occurred in January 1964. In the meantime, Mr. Wilkins had been Acting Coord/P while Mr. Dornan was at the National Defence College (NDC) on the 1962/63 course, and he himself followed on the 1963/64 course after Mr. Dornan's return to the job. A new Coordinator position to deal with Technical Development (Coord/T) was created

and filled by Mr. Denning. Perhaps urged by a compulsion towards literal tidiness, the Groups were rearranged into L, M, N, O, P, Q, R, S and T. This was achieved by splitting the SIGINT work on Soviet Naval and Transport targets away from P Group to form a new N Group, renaming C Group as R Group with the same functions, and dividing the COMSEC task into Engineering (S) and Production (T). The results are displayed in Annex I. It will be noticed that of the Staff elements the Senior Liaison Officers and the Directorate Assistant are now directly subordinated to the A/D, and the administrative staff officers to Coord/A; Mrs. Oliver had retired in August 1963 after a long stint in looking after the administrative affairs of CBNRC, to be succeeded as Personnel Officer by Al Jones from NRC. Coord/COMSEC had his own Liaison Officer in Washington, and Coord/P had a senior officer as his full-time assistant. Otherwise the theory was that all the Group Heads reported through the Assistant Director to the Director, though with immediate access to him whenever it was required. In practice of course Coord/COMSEC effectively ran S and T Groups, and Coord/P was the main authority over the SIGINT Production groups; in addition the influence of Coord/T on R Group and the interrelationship between the two was very close. In September 1964, on his return from the CANSLO/W (Liaison Officer with NSA) post, Mr. Chambers became O Group Head in succession to Mr. Colls, who until his retirement in the following year was appointed as "Consultant to the Director", with the task of embarking on a History of CBNRC, a voyage of which the present historian has not succeeded in finding any trace. When Mr. Wilkins came back from the NDC that summer he took over P Group again from Honor Ince, who had been Acting Group Head in his absence. He in turn resigned in April 1966 to progress to higher things, at which point Mr. Chambers switched from O to P, giving rise to further shifts among the Group Heads.

3.13 In 1967 and 1968 Mr. O'Neill was seconded away from CBNRC as Secretary to a Royal Commission on Security. During this period Mr. Dornan took on the responsibilities of Assistant Director as well as

Coord/P, and since the Director was frequently away sick at this time, his work load was particularly heavy. The organization in 1968, together with the breakdown of the SIGINT establishment and the shifts in Group Heads mentioned above, is illustrated in Annex J. Mr. MacAskill retired in May 1968, at which point Mr. Gibson was moved up to Coord/A from L Group, where he had replaced S.K. (Stu) Hepburn in 1966.

Assistant Directors and Chief Advisors

3.14 Ed Drake died in February 1971, after nearly twenty-five years as Director CBNRC, many of them plagued by a most unfortunate succession of health problems. Mr. O'Neill succeeded as Acting Director, but was not confirmed in the post till July, owing to the absence of any precedent in NRC or in the central committee structure for replacing a CB Director. Also in July Mr. Trowbridge died, to be followed by Mr. Denning in September. This meant that out of the six top positions in the Branch three had been emptied by death in a period of eight months. Naturally the first main task for Mr. O'Neill was to fill the gaps caused by these disasters. This was achieved by the following moves, completed by November, and illustrated in Annex K. The Coordinators of Production and COMSEC became Assistant Directors (A/Ds) with line responsibility for their respective functions. Coord/A and Coord/T became senior staff officers with the titles of Chief Administrative Adviser (C/A) and Chief Technical Adviser (C/T). Mr. Dornan and Mr. Gibson remained in their positions, while G.A. (Art) Browness was promoted from T Group to become AD/COMSEC and R.S. (Bob) Grant from R Group to be Chief Technical Adviser. Mr. Browness was succeeded as T Group Head by G.S. (Gord) Thomson, who had been assistant to D.C. (Don) Fairley in S Group, and Bob Grant by A.G. (Art) Dodge, who had come to CBNRC in May 1964 from a senior engineering position in Canadian Arsenals Ltd. The position of Assistant Director as such was eliminated, but this loss was compensated for by the fact that the Coordinator positions were upgraded when they became Assistant Directors and Chief Advisers. In any event, the

precise responsibilities of the single Assistant Director position had been becoming increasingly obscure, and it was felt to be desirable to place the SIGINT and COMSEC programs under the direct line authority of two Assistant Directors. Apart from the necessary changes in R and T, the functions, titles and Heads of the Groups remained very much as they had been in 1968, as shown in Annex J.

3.15 In 1972 there were a few changes of significance. Mr. Diditch, who had been Head of N Group, was asked to take on the assignment, regarded as of considerable importance by the Director, of reviving the "History of CBNRC" project which had lapsed some years before, commencing by getting some archival material together for the first time, in which task he was ably abetted by Doris Leeder, who had been Ed Drake's secretary and was now appointed Assistant Archivist. He was succeeded as Head of N Group by Joe Gibson, who had become disenchanted with his administrative role, and wanted to get back on the operational side. The Chief Administrative Adviser's job was taken over by Vince Chambers, whose position as Head of P Group was assigned to Mr. Hepburn, largely as a trial and testing move. R.J. (Ron) Ireland moved across into the Q Group Head position vacated by Mr. Hepburn, and he in turn was succeeded as L Group Head by Peter Hunt, recently returned from Washington. Stew Woolner moved from Directorate Assistant to the Washington Liaison post, and was succeeded by Alan Breakspear, who after two years in the job was lent to the Privy Council Office to be Secretary of the Intelligence Advisory Committee (IAC), whence he moved on to a job on Treasury Board staff, never to return to CBNRC or CSE. All these 1972 moves are shown as additions to Annex K.

Directorate Staffs

3.16 1973 saw the end of the P Group Head trial for Mr. Hepburn, who took a premature retirement on health grounds, having struggled bravely to cope with both his responsibilities and bad health for some years. Unfortunately he did not last too long after his retirement. He was succeeded as P Group Head by

P. (Pat) Spearey, who later, after a stint as CANSLO/W, became Director General/Production (DGP) in the CSE organization. By this time the Directorate Staff system in CBNRC had developed to a point where it provided important and challenging tasks to able officers. For example, on the administrative side Mr. Chambers had as DS/A1 J. Paul Gratton, later to become Director General/Administration (DGAdmin) in CSE, and as DS/A2 John Newey, whose specialization in job classification turned out to be most helpful in the transfer to DND in 1975. In addition to these staff officers, Mr. Chambers, in spite of the title of Chief Administrative Adviser, had line authority over positions such as Security Officer, Training Officer, Personnel Officer, Supply Officer and Building Manager, though at that time these officers were not classed as Section Heads. Similarly, Jack Dornan had Ed MacDonald as DS/P1, and there were also people in DS/C and DS/T positions on the COMSEC and Technical side. In 1973 too Mr. Diditch retired as Archivist/Historian, to be succeeded by Bill Henderson, who unfortunately died on the job, and Bill Todd retired as Security Officer, to be replaced in 1974 by Joe Borsa.

3.17 In 1974 Mr. Browness and Mr. Thomson retired, leaving big holes in the COMSEC structure. Mr. Fairley was moved up from S Group to become AD/COMSEC, and Al Joyce and Tom Chadsey took over S and T Groups respectively. Mr. Hellyer also left M Group after a career uniquely devoted to IBM machinery and spread over very many years. M Group was renamed the Computer Centre, as being rather different from the SIGINT and COMSEC Groups, and was headed by D.G. (Doug) Wilson, a long-time specialist on IBM computers, who from then on was about to widen his horizons considerably and to meet ever increasing challenges in many technical areas.

Directors General and Directors

3.18 This was the structural form which CB had reached when it was transferred from NRC to DND as the Communications Security Establishment (CSE) on 1 April 1975. It will be seen from Annex L that there

was very little change in the basic organization at the senior levels. However, it was quickly discovered that in DND Assistant Directors rated very low in the pecking order, and this posed problems of levels of representation, particularly on the administrative side. Accordingly, with a wave of a magic wand the A/Ds became Directors General (DGs), and the Group Heads in consequence received the titles of Director. Unfortunately, the inflation of titles did not involve any immediate increase in salary, though it did make things easier when the hard bargaining began a little later. Naturally, the Director could not remain a Director with four DGs under him, so recourse was had to the fairly neutral title (varying according to government department) of Chief. At this point, with the Organization and Establishment of CBNRC brought to its final flowering, it will be best to leave the ramifications of the move to DND, which were largely administrative, to Chapter 25 - "Financial Administration". For policy aspects of the move, one should refer to paragraph 2.31.

Chapter 3/Annex A

August 1946

NATIONAL RESEARCH COUNCIL
COMMUNICATIONS RESEARCH CENTRE
STAFF ESTABLISHMENT

Classification	Salary Range	Annual Increment	Positions Created
Director	$5400 - $6000	$300	1
Assistant Technical Director	$5400 - $6000	$300	1
Research Officer	$4400 - $5200	$200	5
Assoc. Research Officer Grade 2	$3840 - $4200	$180	10
Assoc. Research Officer Grade 1	$3480 - $3720	$120	20
Assistant Research Officer	$2820 - $3300	$120	24
Junior Research Officer	$2100 - $2700	$120	31
Technical Officer Grade 1	$1920 - $2400	$120	2
Senior Research Assistant	$1680 - $2040	$120	40
Senior Laboratory Assistant	$1440 - $1740	$ 60	28
Laboratory Assistant	$1140 - $1380	$ 60	17
			179

CHAPTER 3
ANNEX B

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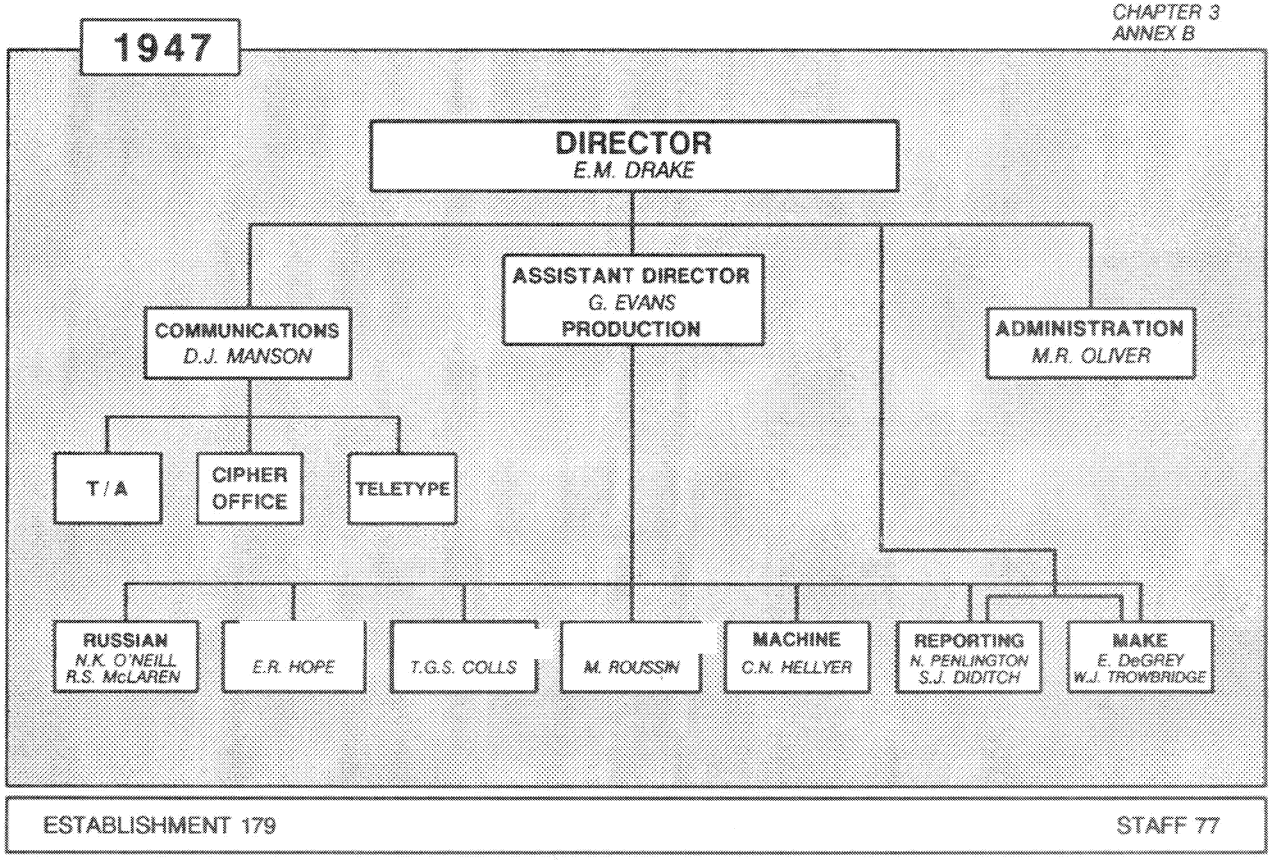

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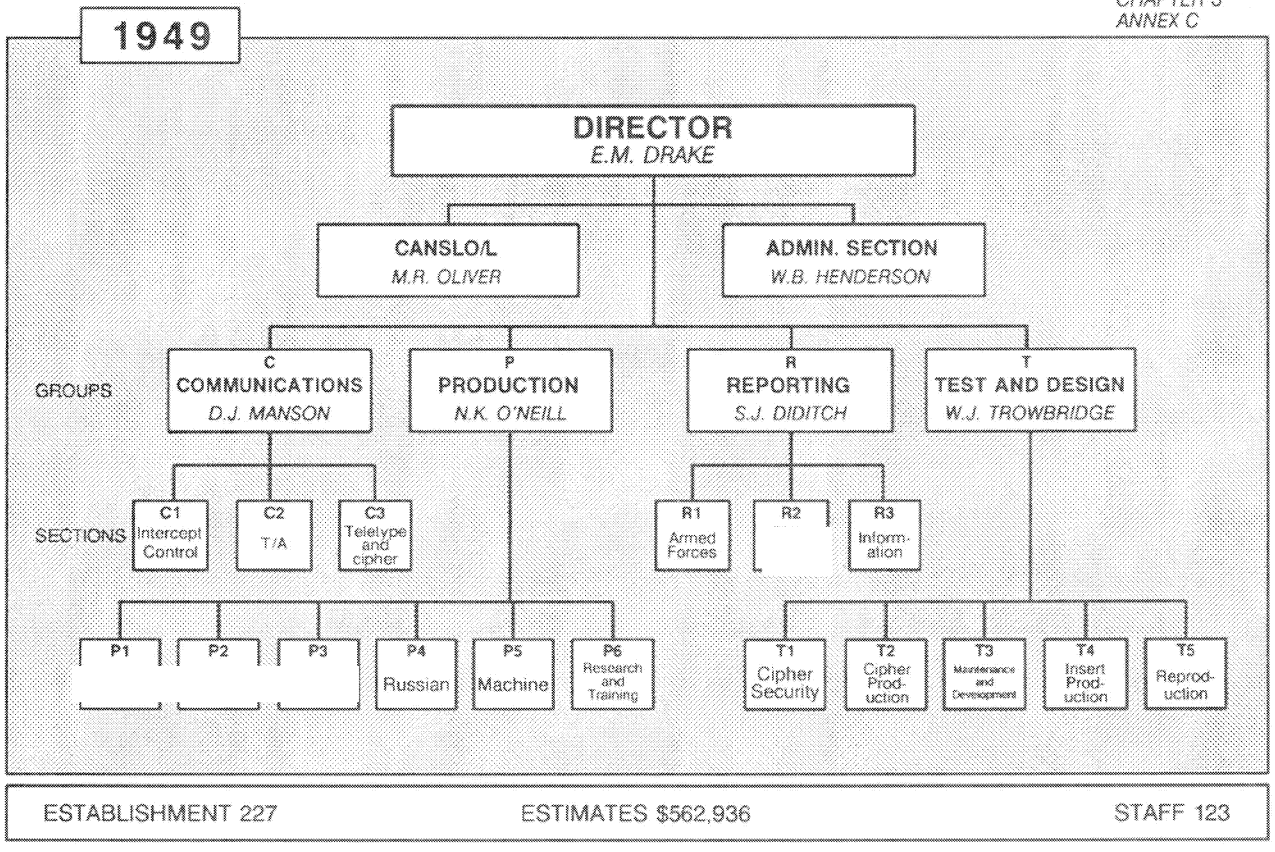

CHAPTER 3
ANNEX D

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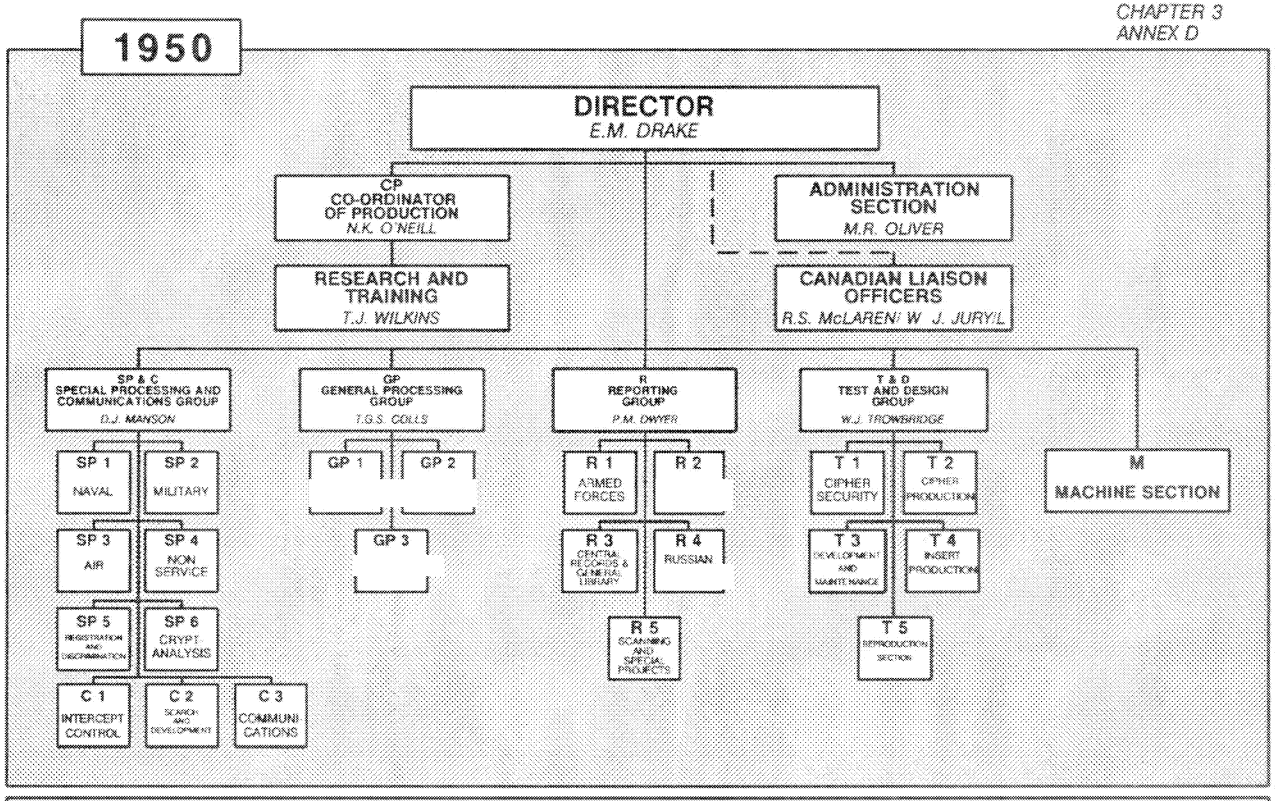

COMMUNICATIONS BRANCH NATIONAL RESEARCH COUNCIL FUNCTIONAL CHART

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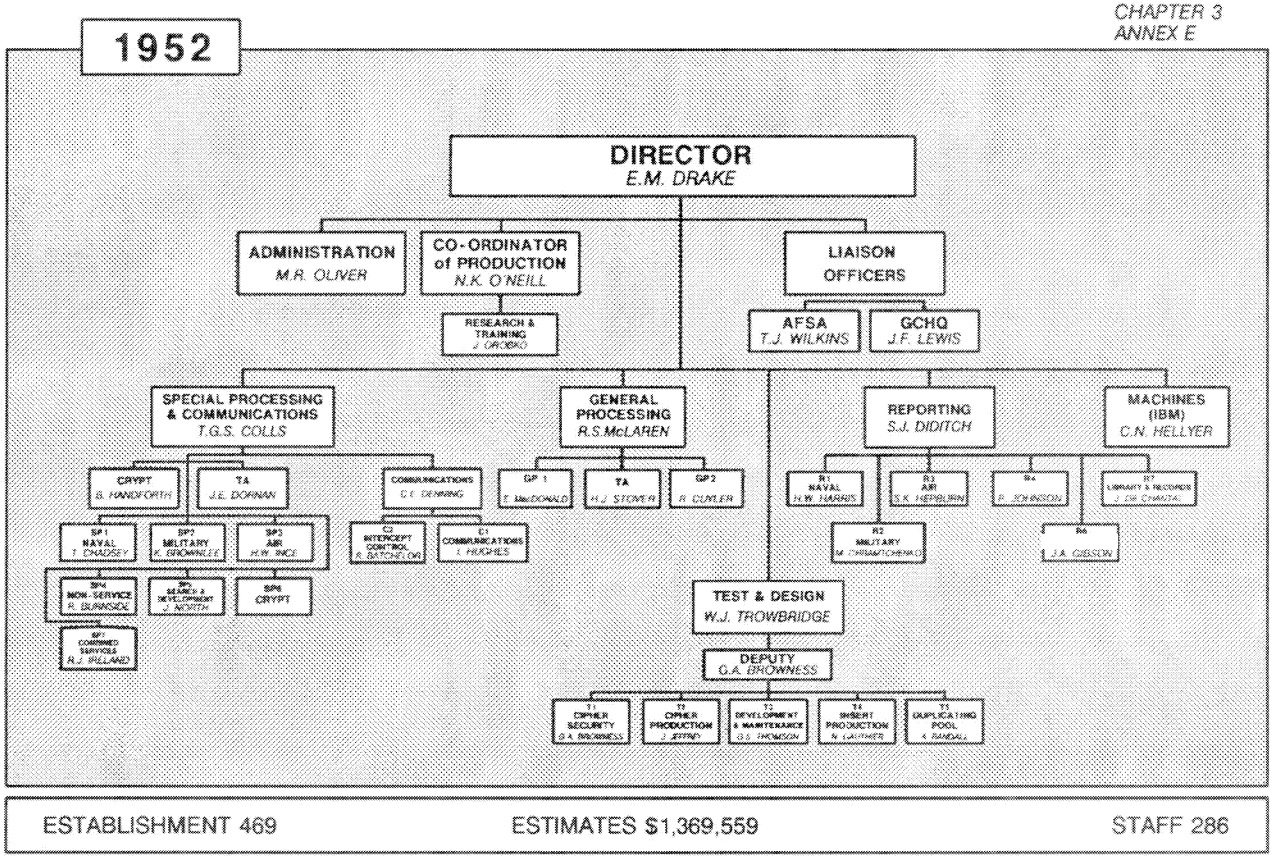
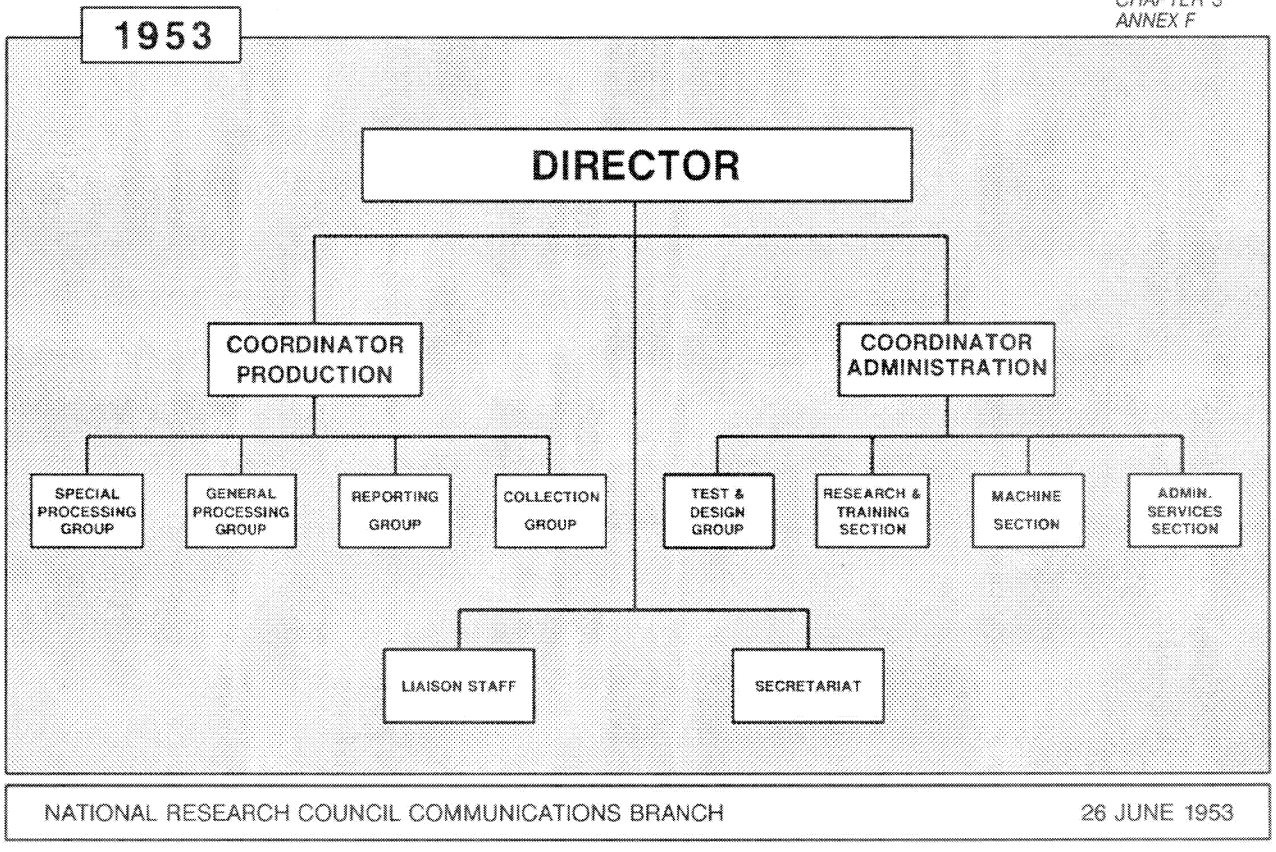
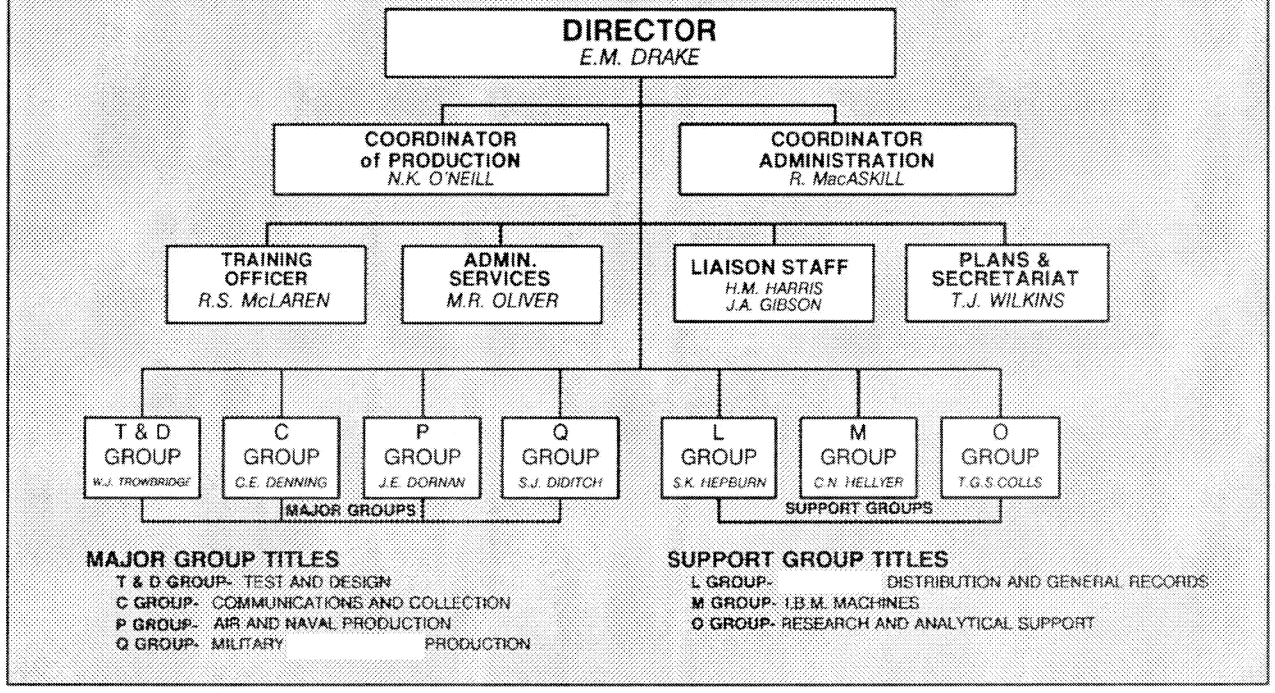


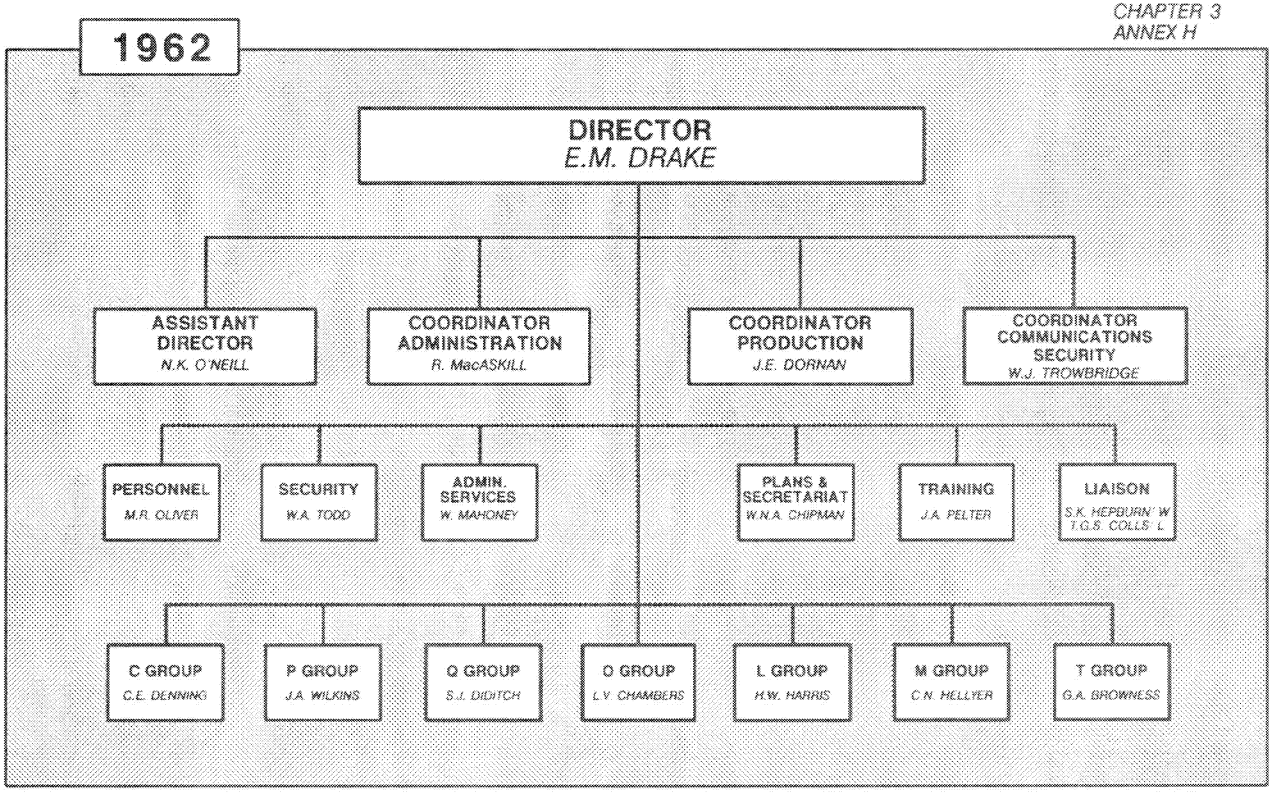
ESTABLISHMENT 469 | ESTIMATES $1,369,559 | STAFF 286



1954



COMMUNICATIONS BRANCH ORGANIZATION CHART — NOVEMBER 1, 1954



COMMUNICATIONS BRANCH NATIONAL RESEARCH COUNCIL ORGANIZATION CHART 5 FEBRUARY 1962

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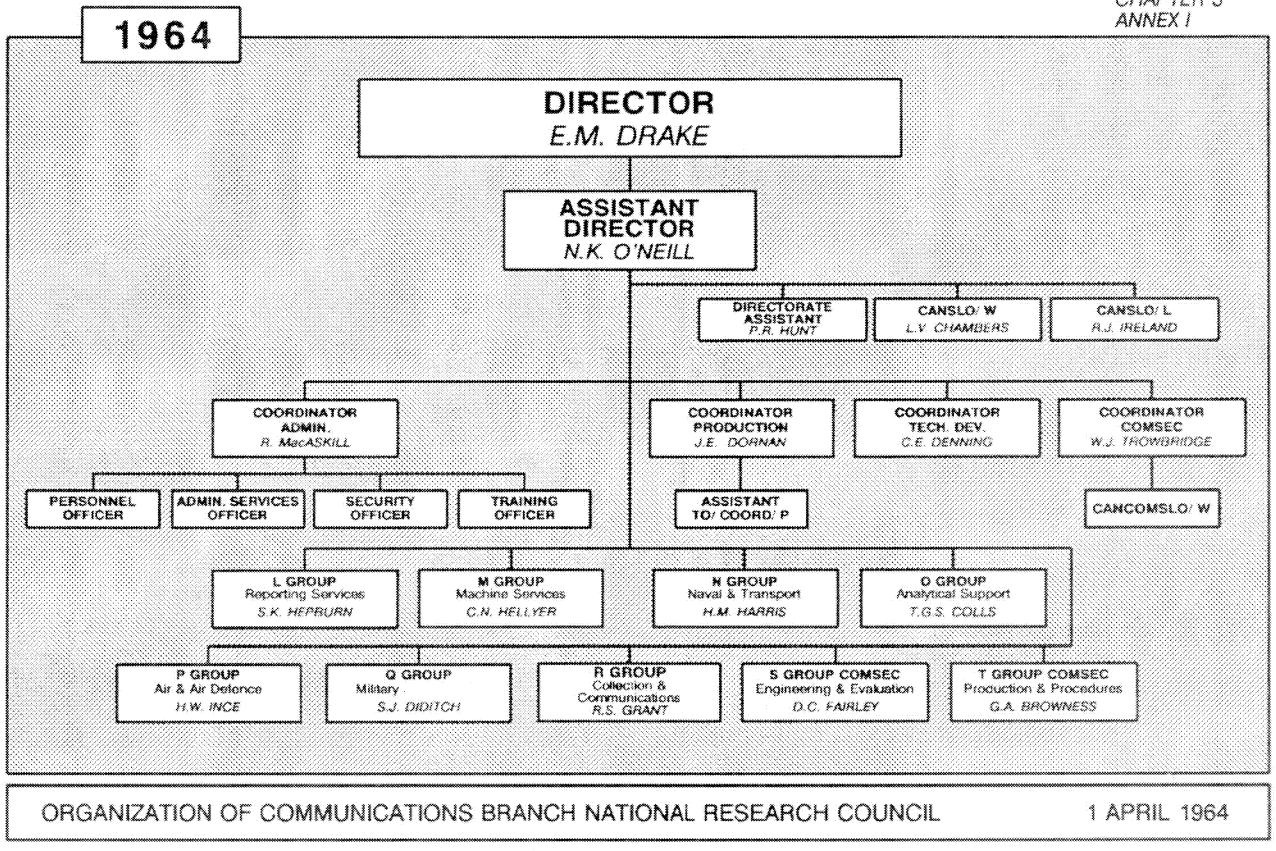
CHAPTER 3
ANNEX I



ORGANIZATION OF COMMUNICATIONS BRANCH NATIONAL RESEARCH COUNCIL 1 APRIL 1964

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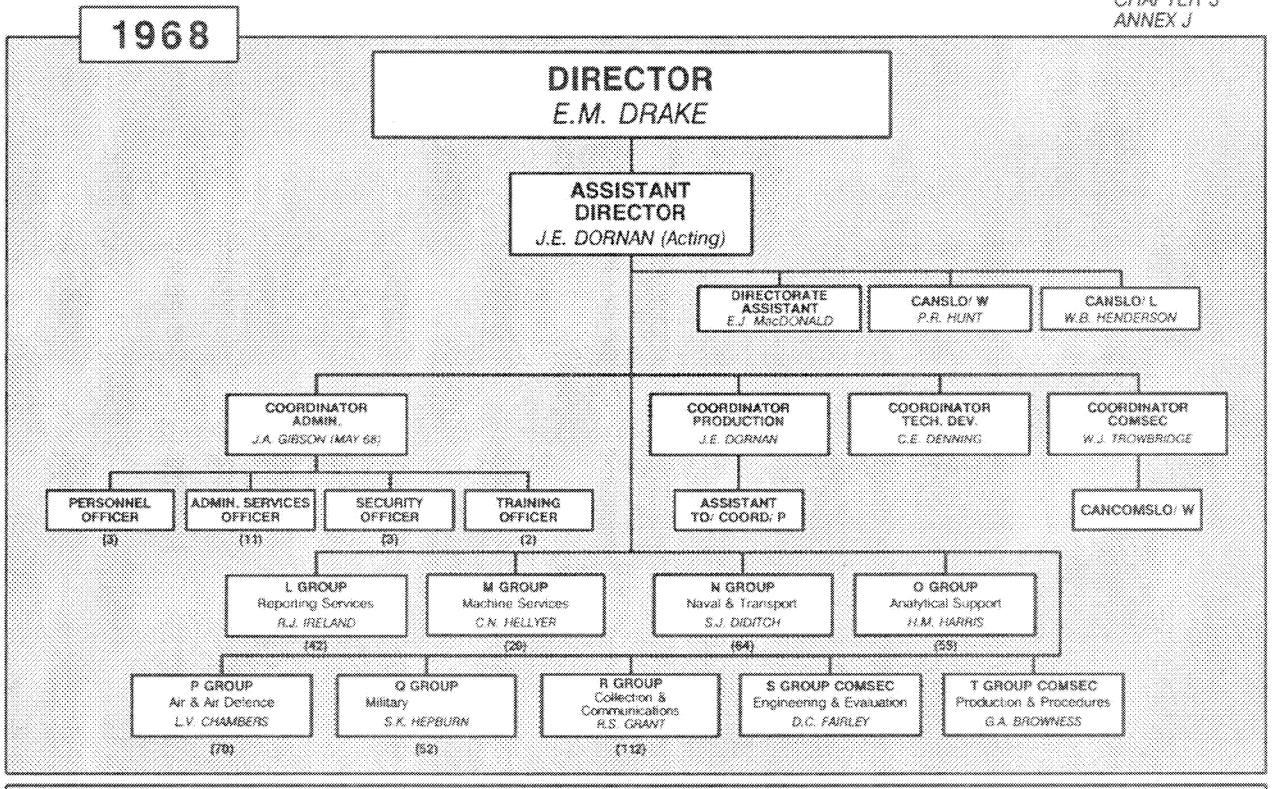

ORGANIZATION OF CBNRC
TOTAL COMINT STAFF 452. ALLOCATION OF STAFF GIVEN IN BRACKETS

7 MAY 1968

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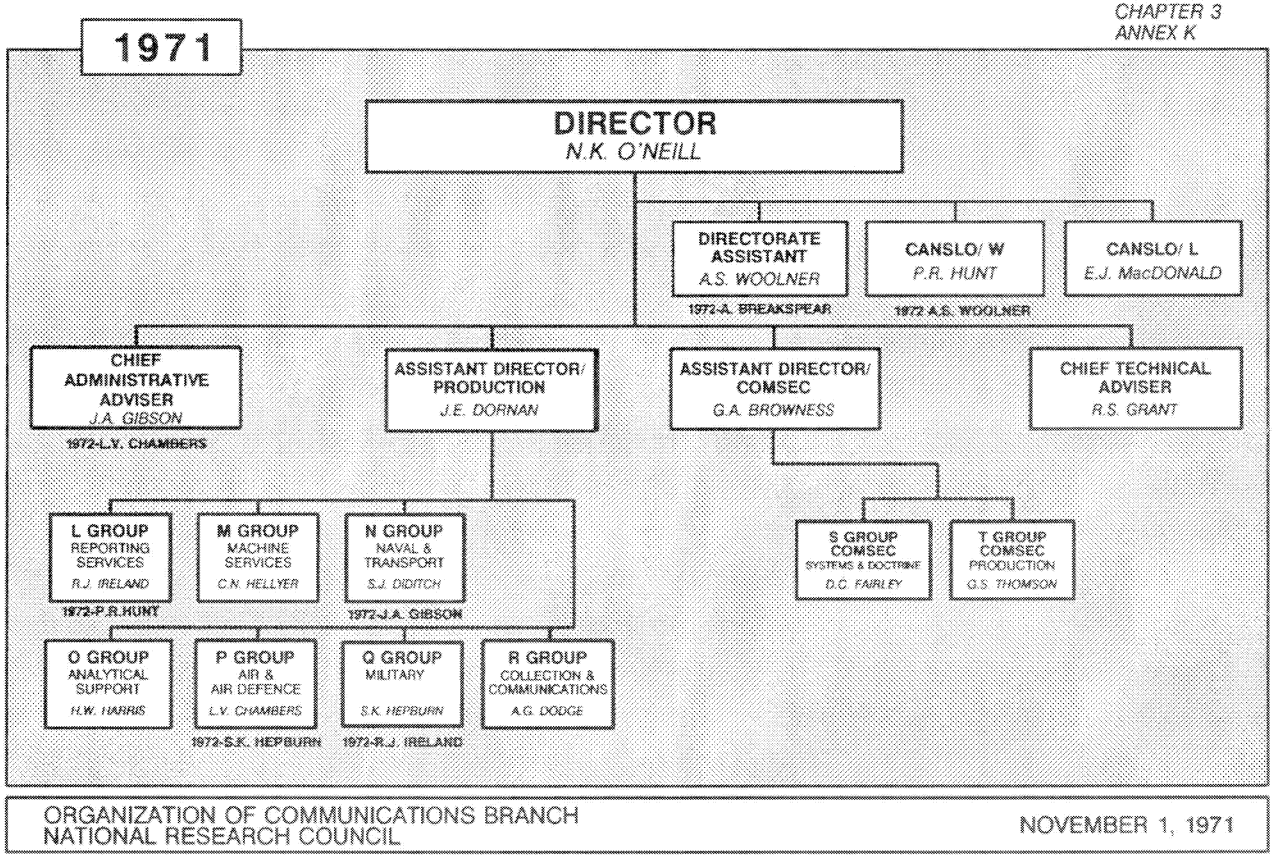

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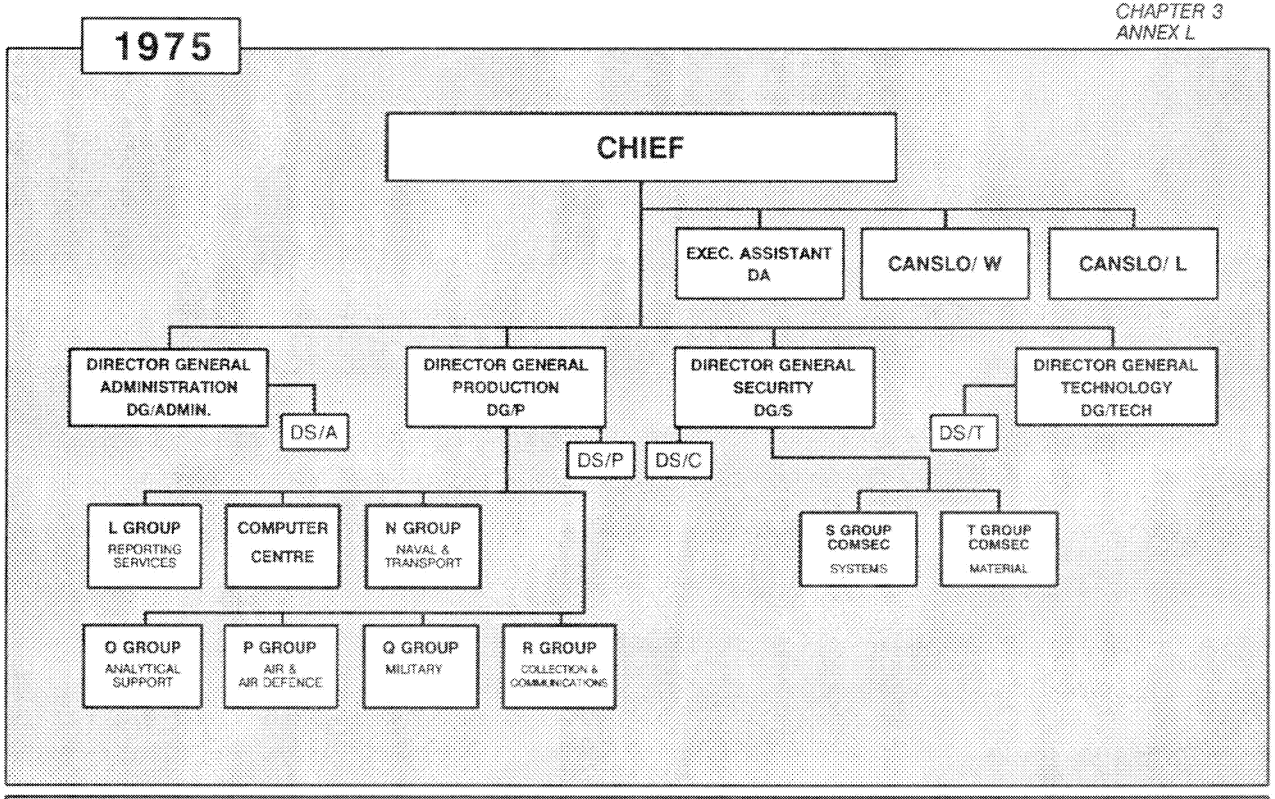

ORGANIZATION OF CSE 16 JULY, 1975

"PLANS" - DIRECTORATE ASSISTANTS

Jaff Wilkins	1954
Joe Gibson	1957
R.W.(Bob) McLaren	1959
Tony Chipman	1961
Peter Hunt	1963
Tom Chadsey	1965
Ed MacDonald	1968
Stew Woolner	1971
Alan Breakspear	1972
Marg Jenness	1974

Chapter 3/Annex N

18 July, 1946

SURVEY OF THE ORGANIZATION OF THE COMMUNICATIONS RESEARCH CENTRE

This survey is intended as a guide to members of the Committee on the scope of the CRC work at the present moment and the lines on which development is expected for the future. It should be considered only as a provisional draft, capable of extensive adjustment according to the demands which the future may make. If further desired by the Committee an appendix can be drawn up in non-technical language clarifying the functions and tasks in the cryptanalytic sections.

Directorate

The Centre is in the charge of a Director (Lt. Col. Drake). Under him comes a Deputy Director (Mr. Evans) who as Technical Adviser is responsible for the technical aspects of the work.

Main Subdivisions

The work of the Centre falls naturally into 4 main subdivisions:

(1) Communications
(2) Cryptanalysis
(3) Intelligence
(4) Administration

The Cypher-making section will make a 5th element, but is at present non-existent.

(1) Communications

The general functions of this section are clear from the title. In detail they comprise:-

(a) T/T Office and Cypher Office. The duties of these two offices are: receiving and decyphering all incoming signals: encyphering and despatching all outgoing signals: maintenance of machines: safe custody appropriate handling of all cypher material.

Present Staff:

I.W. Hughes, Technical Officer Gr. II
E.C. Freeland, Senior Laboratory Assistant
J. Doyle, Senior Laboratory Assistant
K. Hughes, Senior Laboratory Assistant
E. Donaldson, Laboratory Assistant

(b) Station Control & T/A. This involves day to day contact with the W/T stations, interchange of reports, study of all W/T data both from Canadian stations and those of U.S. and U.K.; build-up of central information section on all matters appertaining to W/T cover.

The Traffic Analysis aspects of these activities have a close bearing on cryptanalysis (T/A can often, for example, suggest from callsign evidence alone something of the content of a signal). It is desirable therefore for the T/A section to be in very close touch with the crypt sections.

Present Staff:

J. Manson, Associate Research Officer Gr.I
(to replace Lt. Parsons)
H.J. Stover, Technical Officer Gr. I
Miss Dion, Laboratory Assistant
Miss Weaver, Laboratory Assistant

Proposed total strength of Communications Sections: 23. To be divided as follows:

1 Associate Research Officer Gr. II
1 " " " Gr. I
2 Assistant Research Officers
1 Junior Research Officer
1 Technical Officer Gr. I
4 Senior Research Assistants
9 Senior Laboratory Assistants
4 Laboratory Assistants

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s.15(1) - IA

(2) Cryptanalysis

This falls at present into 5 main sections, 3 being geographical and 2 technical. The geographical ones correspond to the area of origin of the cyphers dealt with and are at present:

(a) (b) (c)

The technical sections are:

(d) Research and Training (e) Machine

(a)

Present assignments are: Services, non-machine cyphers. naval.

The present staff is divided as follows:

R.S. McLaren -- (Head of Section)
Junior Research Officer.

Head of sub-section: not filled

Research
T. Colls, Jr. Research Officer
V. Gavel, " " "
W.P. Lawson, Sr. " Ass't.
Miss Jarvi, " Lab. "
Miss Danks, " " "
M. Patteeuw, " " "
A. Randall, " " "
Production
R. Bissinger, Jr. Research Officer
L. Cullen, Sr. " Ass't.
Miss Burton, Sr. Lab. "
Miss Kidd " " "
Miss McFarlane, " " "
Miss Charlebois, Lab. Asst.
Miss Rushton, " "
(assistant) Miss White, Senior Research Assistant
Head of subsection: G. DuVernet, Junior Research Officer
Research
W. Henderson, Jr. Research Officer
R. Handforth, " " "
J. Burnside, Sr. " Ass't.
J. Orobko, " Lab. "
Production
O. Farevaag, Sr. Research Ass't.
Miss Bradford, " Lab. "
L. VanErt, " " "
Miss Collins, Lab. Ass't.

Proposed total strength of Section: 39. To be divided as follows:

1 Research Officer
2 Associate Research Officers, Gr. II
6 Associate Research Officers, Gr. I
7 Assistant Research Officers
8 Junior Research Officers
12 Senior Research Assistants
2 Senior Laboratory Assistants
1 Laboratory Assistant

(b)

Present assignments are:

traffic, and

Present staff is as follows:

Head of Section: LCdr. Hope, Assoc. Research Officer, Gr. II
Assistant: F. Clarke, Ass't. Research Officer

R. Cuyler, Jr. Research Officer
J. Walker, " " "
D. Williamson, Sr. " Ass't.
G. Downer, Sr. Lab. Ass't.
Miss Edwards, Laboratory Assistant
Miss Carling, " "

Proposed total strength of Section: 18. To be divided as follows:

1 Research Officer
1 Associate Research Officer, Gr. II
3 Associate Research Officers, Gr. I
3 Assistant Research Officers
3 Junior Research Officers
6 Senior Research Assistants
1 Senior Laboratory Assistant

(c)

Present assignments:

Present staff is as follows:

Head of Section: M. Roussin, Jr. Research Officer
S. Fraser, Senior Research Ass't.
F. Martin, Senior Lab. Ass't.
C. Fiset, " " "
J. Cumming, Laboratory Assistant

Proposed total strength of
Section: 19. To be divided as follows:

1 Associate Research Officer, Gr. II
3 Associate Research Officers, Gr. I
4 Assistant Research Officers
4 Junior Research Officers
6 Senior Research Assistants
1 Senior Laboratory Assistant

(d) Research & Training

Present tasks:
A number of longer term problems of traffic, particularly military.

Present Staff:
K. O'Neill*, Assoc. Res. Officer, Gr.I
D. Winks*, Ass't. Res. Officer
J. Love*, " " "
J. Steen, Sr. Research Ass't.

* Proposals have been made to these men who are in England. It is not certain whether they will join the staff.

Proposed total strength of Research & Training Section: 19.
To be divided as follows:

1 Research Officer
2 Associate Research Officers, Gr. II
4 Associate Research Officer, Gr. I
5 Assistant Research Officers
6 Junior Research Officers
1 Senior Research Assistant

(e) Machine Section

Present tasks:

A great variety of runs and sorts on all lines handled; decoding of certain production lines; development of machine decoding, etc.

Present staff is as follows:

Head of Section: L.Cdr. Hellyer, Assoc. Res. Officer, Gr. II
Miss Lafrance, Lab. Ass't.
Miss MacMillan, " "
Miss Snyder, " "

Proposed total strength: 10.
To be divided as follows:

1 Associate Research Officer, Gr. II
1 Senior Research Assistant
4 Senior Laboratory Assistants
4 Laboratory Assistants

(3) Intelligence

For functions and present assignments, see Memo of July 10th 1946.

Present Staff:

Head of Section: not yet filled (C.B. Fergusson? Assoc. Res. Officer, Gr. I?)
Capt. Diditch, Jr. Res. Officer
G. Parent, Sr. Lab. Ass't.
Miss Warden, Sr. Lab. Ass't.

Proposed total strength: 9
To be divided as follows:

1 Research Officer
1 Associate Research Officer, Gr. I
2 Junior Research Officers
1 Senior Research Assistant
2 Senior Laboratory Assistants
2 Laboratory Assistants

(4) Administration

The functions of this section comprise: personnel, pay, leave, recruitment, security, registry, files, etc., typist pool.

Present Staff:

Head of Section: Mrs. Oliver, Jr. Res. Off.
Miss Leeder, Sr. Lab. Ass't.

Proposed total strength: 10.
To be divided as follows:

1 Assistant Research Officer
1 Technical Officer, Gr. I
1 Senior Research Assistant
3 Senior Laboratory Assistants
4 Laboratory Assistants

Cypher Making

Section not yet in existence.

Proposed total strength: 30.
To be divided as follows:

1 Research Officer
2 Associate Research Officers, Gr. II
2 Associate Research Officers, Gr. I
2 Assistant Research Officers
7 Junior Research Officers
8 Senior Research Assistants
6 Senior Laboratory Assistants
2 Laboratory Assistants.

(Sgd.) G. Evans.

s.15(1) - DEF

Chapter 4

SIGINT Production Tasks

Annex:

Chapter 4 - SIGINT Production Tasks

SIGINT Responsibilities

4.1 The description of the SIGINT mission of CBNRC developed and changed somewhat over the whole 1946-1975 period of this History, but in general terms its SIGINT responsibilities and functions were the same throughout as those described in February 1975 for its successor agency CSE[1]. This Chapter will concentrate on item (c) of Annex A in dealing with the actual production tasks undertaken by CBNRC, and the reasons behind the periodic changes in tasking.

Initial SIGINT Tasks

4.2 Chapter 1 described the SIGINT production tasks of the Examination Unit (XU), and how it dropped everything except Japanese work when it was absorbed into the Joint Discrimination Unit (JDU) in August 1945[2]. Naturally there were still people present in the new Unit with experience in working on enciphered and traffic. In November 1945 George Glazebrook wrote a comprehensive memorandum on Canadian planning for post-war intelligence. In the SIGINT section he pointed out that the JDU was only dealing with a backlog of Japanese traffic received from the US, and suggested that future tasks for Canada should be considered and if possible decided upon before the Commonwealth Conference on SIGINT which was to take place in February 1946[3]. He proposed that the new Canadian agency should branch out into some tasks "to keep the people usefully employed and to develop experience". Decisions on tasks should be vested in the Department of External Affairs. At the Commonwealth Conference the leading Canadian figures were Mr. Glazebrook and Mr. Crean, both of External Affairs, with support from Lt.Col. Drake and Mary Oliver representing the JDU; there were no representatives from the Canadian Armed Forces.

1. See Annex A
2. See paras. 1.7 and 1.8
3. See para. 11.16 and following

4.3 The Commonwealth Conference decided that in the case of Canada the allocation of tasks would be "matters for consultation between Signal Intelligence authorities in Ottawa, Washington and London". Although this defensive tripartite formula, rather than a bilateral one as in the case of the other Commonwealth countries, proved unexpectedly cumbersome on some later occasions, at this time the acquisition of a small assortment of SIGINT tasks from the UK to start the new Canadian agency off, accompanied by the necessary traffic and technical information, went off quite smoothly. This was largely due to the fact that Geoff Evans of GCHQ, who was to be lent as the Technical Assistant to the Director CBNRC, sat in on the discussions and came to Ottawa with the tasks taken over from the UK[4].

4.4 These new SIGINT tasks, which formed the original assignment for CBNRC in September 1946, consisted of Military and Naval, Naval, and internal traffic. The basic purpose of these tasks was to provide initial training in producing intelligence from a variety of foreign communications and cipher systems. As will be noted in Chapter 8 on Cryptanalysis, ciphers, especially the Military, were quite tough to crack, but a steady and increasing stream of end-product emerged from work on other countries. Responsibility for Naval task was completely transferred from the Naval Communications Annex (NCA) Washington in September[5], and it produced some marginally useful intelligence until December, when the cover from intercept stations as spread out as and was gradually dropped. Production was doing well with the help, until November, of Mrs. Exell, on loan from GCHQ, and decodes were being signalled to GCHQ since there was some spare capacity on the teletype link. The traffic, which was based on was decoded and issued with the

4. See para. 1.4
5. See para. 11.31

aid of a converted typewriter, developed by the fertile brain of LCdr. Earl Hope, the Head of the Section, and an expert in nine or ten languages.

4.5 It had already been observed that the absence of even a potential enemy among the target countries was undesirable for a national SIGINT agency, and with the cessation intercepted traffic and the reduction in early 1947, the opportunity was taken to look for a new and more relevant task. The British in January had suggested the job of producing decrypts and translations from , and the general concept of CBNRC taking on such task (known in those days as for security cover) was agreed to at a conference in Washington[6]. Mr. O'Neill was sent down to Washington to look into the proposal in more detail, and in February came up with recommendations for

Part of the reasoning behind these choices included the desirability of maintaining detailed technical cooperation with both GCHQ, who had provided the main effort on and the two Washington agencies, US Army Security Agency (ASA) and NCA, who were working on the military and naval links respectively. His recommendations were approved by the Communications Research Committee (CRC), and work on this new task started as soon as the necessary traffic was received from the other centres. In preparation for the exploitation of Mr. Evans had begun conducting language classes, and Section had been formed out of the old Research and Sections[7], to be headed by Mr. O'Neill and to be joined by Harry Middleton, an experienced analyst from GCHQ. Work on decrypting messages was in full swing by the summer,

6. See para. 11.32
7. See para. 3.4

and in September CB progressed to translating the "breakouts" and issuing them in the series,

translations were issued in the month of October.

Other SIGINT Production

4.6 Paragraph 10.10 gives an overview of end-product reporting by CBNRC in its early days. Other aspects of production and support work were also proceeding well. Traffic analysis (T/A) techniques were being applied to Canadian intercept, and in some cases to traffic received from other Centres as well, and from October 1946 CBNRC was producing Monthly Status Reports (MSRs) on SIGINT production, formatted as agreed between the three collaborating Centres. By September 1947, Section had produced translations of an extremely satisfactory achievement to mark its first anniversary. Although task had been dropped earlier in the year, one was still producing some useful intelligence, and CB began putting out Order of Battle summaries derived from traffic, much of it passed in plain language. The Reporting Section was also processing GCHQ reports, and producing in the U/Dip series for External Affairs and other interested customers. Even with all this activity going on, Mr. Drake felt that CB was capable of taking on more, and asked Sir Edward Travis in GCHQ about doing some work on but the latter replied that this would be undesirable duplication of work being done by ASA. An example of the SIGINT collation work done by the Reporting Section is S/UQO/C11 of May 1948, entitled "Digest of SIGINT

Broadening Effort

4.7 The SIGINT effort in CBNRC suffered a serious blow in October 1948, when it was realized that all traffic had vanished. In fact the last message passed on the link was dated 23 August, with the following it to the silence of the grave on 22 September. It

was small consolation that the message forbidding traffic in this system to be passed "by radio" was intercepted and broken; there was a general suspicion, especially in the US, that the allied success had been compromised by a leak, which meant that security and the exchange of information between Centres was tightened for a while. Although the backlog of traffic was to keep Section occupied on a diminishing scale till May 1949, it was at once evident that some urgent steps would have to be taken to make up for the loss of this traffic and task. On 21 October 1948 Mr. O'Neill was in GCHQ presenting the CBNRC position on the state of production tasks and conclusions about possible remedial action. Essentially four points were put forward in note form:

a) Since was off the air, CBNRC to drop work on the problem except for mopping up;

b) CBNRC to work on its own intercept of Soviet Far East Military, Air, and perhaps Police traffic;

c) In order to do discrimination and preliminary analysis of such traffic, CB would need technical information from the UK and the US;

d) CB should also search for plain language (P/L) traffic in its own area of intercept to exploit.

GCHQ agreed with all the above, and indicated that under the circumstances they would not replace Mr. Middleton when he returned in the spring of 1949. On tasks it was agreed:

a) GCHQ would not further reduce interception of traffic without consultation;

b) GCHQ would not remove cover from commercial links in and out of

c) CBNRC would continue working systems in parallel with Australia;

d) For training purposes, GCHQ would make certain categories of traffic available. was mentioned);

e) The whole of the GCHQ Monthly Status Report did not need to be sent to CB, but When appointed, CANSLO would be expected to keep CB informed about developments elsewhere, to which he would be granted access;

f) The general principle was to be that CBNRC would try to integrate its cryptanalytic work with its own intercept, the resulting tasks to be used for training.

Further Developments

4.8 These understandings and agreements were also imparted to the US authorities, and formed the basis of the agreed SIGINT tasks to be henceforth undertaken by CBNRC. The volume and diversity of traffic from N.E. Siberia steadily increased, some lower grade Air ciphers in the Soviet Far East were broken[8], and the results of these were "fused" with P/L and T/A deductions to produce useful intelligence summaries. In 1949 was suggested as a supplementary task, but eventually rejected as unnecessary and unsuitable.

At this conference it was also agreed to concentrate our Soviet P/L and "fusion" effort on

8. See para. 8.13

N.E. Siberia, at the expense of other areas in the Soviet Far East which were duplicated by the Americans. Lastly, it was agreed to review the necessity of the effort on the problem, especially since the coverage of was dropping. Nevertheless, in April 1950 CB still had 14 people on production, as well as a significant staff in the Section processing approximately telegrams per month. At this point a tripartite meeting was held in Washington to discuss the allocation of SIGINT tasks. The results of this May meeting for CB were:

a) There was no need for CB to take on a new task had cropped up again), since there was sufficient scope in the Soviet Far East;

b) On Russian, CB should exploit its own intercept as far as possible, including P/L on ;

c) The effort should be mainly on Civil, not Service traffic;

d) - All Canadian coverage, and the processing to be dropped;

e) - To continue as is for the time being.

4.9 By September 1950 the numbers of people occupied on the various production tasks had changed significantly from those involved earlier in the year, partly because an effort had been mounted in a hurry on traffic as a result of the There were now 48 people on Russian production (36 in SP Group on cipher traffic and 12 in R on P/L), and in GP Group 5 on 5 on 5 on , and 8 on The work on Russian P/L traffic was divided between and the translation of messages was made possible by the temporary hiring of a clergyman who had been a missionary in that country.

The results of breaking low-grade ciphers, translating them and P/L messages and reporting the results were much appreciated by the users of Canadian SIGINT, especially during the The CR Committee agreed in October 1950 that task could be dropped completely, which was achieved by gradually phasing it out; and after a visit to GCHQ in early 1951, at which it was decided not to take on one of the unreadable and inscrutable tasks, the network of that country was accepted as an agreed Canadian responsibility.

Diversion of GCHQ Traffic

4.10 The predominance of Russian as the main SIGINT task for CBNRC was further increased in 1952, when GCHQ agreed that its copy, allotted under the terms of the British/US COMINT Agreement (BRUSA), of Russian P/L and low-grade cipher traffic intercepted by the US from the Soviet Far East should be transferred to CB. The diversion of this traffic was to be implemented by the US Armed Forces Security Agency (AFSA) in three phases:

The resulting volume of extra Russian traffic imposed an enormous additional load on CB's processing capabilities, but fortunately this had been foreseen and guarded against the previous year, when an increase of 222 people had been approved by the Senior Committee "to cope with a large-scale extension of CB's SIGINT responsibilities"[9]. The main Russian Service entities on which study was expanded as a result of the extra traffic were

The heaviest load of traffic was on the problems, and this was one of the reasons put forward for the institution of the RCAF "operational" COMINT unit in CBNRC[10]. SIGINT production work in

9. See para. 3.5
10. See para. 2.12 at end

CB was now about 90% on Russian P/L and "fusion" with T/A and crypt results, with the remainder being divided between and

SIGINT Output in 1952

4.11 In order to get a feel for what production resulted from these assignments, it will be useful to take some figures from a report (SC/26) presented to the Senior Committee by the CRC on 7 January 1953, covering SIGINT activities during the calendar year 1952. (By the end of that year the total staff in CB had reached 327 out of its approved establishment of 469.) Taking only the CB product issued by R Group during 1952 to Canadian customers, we get: Russian services - 198 COMINTSUMs (C), 19 Translations (T); - 91 (C), 122 (T); - 409 (T) out of 520 submitted by GP Group; - 72 (C), digested reports incorporating translations, and other product received from abroad; Russian P/L - 67 (C) and 98 (T) derived from 413,000 messages processed. This represents a pretty solid effort for such a small organization, especially when the COMSEC, analytic and other supporting efforts are taken into account. Anyway, the customers seemed satisfied. In their report to the Senior Committee they said: "While the value of COMINT can only be estimated by each of the consumer intelligence agencies according to its requirements and capacity, it is fair to say in general that COMINT is far and away the main source of intelligence available in Canada at present." What sort of information was coming out of CB's SIGINT production at this time? Some examples:

a)

b)

c)

d)

These examples indicate the kind of COMINTSUMs CB was issuing during the fifties.

Move Towards the Arctic

4.12 The shift of the main thrust of CB's production from the Soviet Far East to the Arctic continued to build up, in spite of pressure from GCHQ in the summer of 1955 for Canada to do more work on the diverted copy of its traffic from the Soviet Far East, even if it meant further expanding the SIGINT effort at CBNRC. At this time CB was still putting most of its effort on Russian in that order and largely in N.E. Siberia, as well as continuing its production on and In late 1956 the task was dropped, to be followed in November 1957 by the and the remainder of the work being done on There were two related reasons for these cuts. First, during the early part of 1957 NSA and GCHQ were both muttering about forming a Combined Party with CB to exploit the increasingly important Soviet Arctic[11]. Canada felt it could handle this assignment by itself, especially if CB obtained the 95 extra staff requested from the Communications Security Board (CSB)[12]. However, the deferral of the staff increase, combined with the agreement at the Tripartite Arctic Conference in June 1957 between NSA, GCHQ, and CBNRC assigning the main responsibility for Soviet Arctic SIGINT work to CB[13], provided another reason for drastic cut-backs elsewhere. In

11. See para. 11.81
12. See para. 2.17
13. See para. 11.82

October the committee structure was informed of the results of the Arctic Conference, and of the proposed cutbacks in CB to help it towards meeting its new Arctic responsibilities. These cuts included 16 people on the and 6 on the tasks mentioned above, as well as 8 on some supporting tasks; plus of course the staff from the task dropped the previous year. The CRC agreed to these proposed cutbacks. Accordingly, CB was left by the end of 1957 with the majority of its SIGINT production staff engaged on targets in the Soviet Arctic.

4.13 As an indication of the confidence it felt in being able to cope with the Soviet Arctic task, especially after the CSB approved the 95 extra staff,

Naturally these requirements were very similar to those so it was not as if there were three separate kinds of reports to be produced. Enough analysts were also kept on the Soviet Far Eastern Service tasks to maintain continuity and to cover interworking with Arctic activity. Of the 254 people engaged on SIGINT production in 1957 (56% of the total CB strength), 121 were on Arctic, 27 on the Soviet Far East, 37 on Crypt and T/A support, 18 on Intercept Control and equipment planning, and 21 on distribution and general records, to mention only the major components; out of the extra 95 requested, these activities were to be increased respectively by 45, 11, 17, 7 and 8. It should be added that non-SIGINT support activities, especially the greatly increasing communications load, required an extra 25 people out of the new 95, to add to their existing 83. This was achieved in part by releasing the 17 people engaged on in November 1957. It was agreed with the other Centres in November 1959 that CB's Arctic responsibilities would be defined by specific Soviet SIGINT entities rather than as "everything North of 60°N".

Technical Difficulties

4.14 Starting in 1959, a marked tightening of Soviet COMSEC measures began to show up, which from a SIGINT point of view meant that less intelligence could be produced with the same resources. For example,

. Certainly some of these systems were introduced for greater efficiency rather than security, but the end result from a SIGINT point of view was the same. Fewer reports were produced by CB with the same size of staff, whose ceiling had become fairly fixed. To help with this situation, some of the manual processing was replaced by Electronic Data Processing (EDP) machines. In 1961, CB was authorized to procure an IBM 1401 at a capital cost of $343,410; and to cope with problem, automatic processing machines (CXOF and GSA/45) were acquired from NSA over the next few years. transmissions were unreadable if used correctly, but from time to time and in varying areas both the civil and military authorities reused their keys, which enabled some "depths" to be read and some intelligence to be produced[14].

14. See para. 8.34

Intelligence Priorities

4.15 The subjects of highest priority for SIGINT production were those connected with the strategic threat to North America. That is to say, the main emphasis was laid on Soviet developments and activities in the areas of

Needless to say these were also the highest priorities for US customers, and to a lesser extent also for the UK, so any SIGINT activity from the Arctic area having a bearing on these subjects was received by all customers with great avidity. In order to keep Canadian users in the picture as to what CB was doing and why, and to learn of any special interests of theirs, the Communications Research Intelligence Group (CRIG) was set up in 1961, as recounted in paragraph 10.3. This brought the various Deputy Directors of Intelligence together with the Assistant Director (A/D) and Coordinator/Production (Coord/P) of CBNRC in periodic informal meetings to exchange ideas and establish priorities for SIGINT production in CB, taking into account foreign as well as Canadian requirements. It was often necessary to explain why coverage of the Soviet was kept up, given that Canada had no bomber force, or how Russian could provide valuable information. At this time intercept coverage at Canadian stations was divided roughly three ways: 1/3 on 1/3 on and 1/3 on and others. Coverage of in the Soviet Arctic often produced intelligence of broad value, such as

A specific example of the possibly great indirect value of the latter came when a visitor from the US said that CB's

Collection and Analytic Problems

4.16 Over the next few years the main barriers to continuing or increased SIGINT production were the measures still being introduced by the Soviets for increased efficiency and security. From an interception point of view, the Soviet trend to the use of forecast in paragraph 4.14 continued. This forced greater reliance to be placed on intercept, and serious planning to be devoted to concepts of collection from , all of which are discussed more fully in Chapter 6. Meanwhile the processing effort was concentrated on exploiting traffic, and coordinating the results from a variety of circuits to produce intelligence on, for instance, On the T/A side.

This naturally slowed up the identification and location of formations and units for a while, but was gradually overcome by patient analysis of the available traffic in collaboration with the other Centres. From a cryptanalytic point of view, things were less rosy too.

Production Highlights and Limitations

4.17 In spite of all these difficulties, useful SIGINT production continued. In 1962, the Russians

CBNRC formed a combined

15. See para. 7.7

party of analysts to follow these concentrating by arrangement with collaborating Centres on the

4.18 As indicated earlier, CBNRC had more and more to rely on collecting larger volumes of traffic from , and collating the results, to produce the same amount of information that had previously been obtained direct from This involved processing more unenciphered which in turn entailed hiring and/or training more Russian linguists. Since few Canadian universities had effective courses in the

Russian language, considerable time and effort was taken up in organizing and staffing an in-house language training program. The transcribing of Russian voice traffic, as well as the processing of and remained one of the major problems for a considerable time. As a result of all these limiting factors, the production of reports from CBNRC as opposed to the intercept stations, which did the immediate processing of exploitable Service traffic, sank to the stage where in 1964 the numbers of end-product reports were about respectively. Nevertheless, the Military Section, working almost exclusively on required 25 people to process this material, with the successful outcome indicated in the previous paragraph. Ninety percent of the traffic on the Northern Air Defence District also came from the exploitation of which was much assisted not only by processing machines referred to in paragraph 4.14, but by a Sanders display plotter purchased in 1966 and delivered in 1967[16]. The processing of other types of traffic was greatly improved by the acquisition in November 1966 of an IBM 360/30 machine, a great improvement on the old 1401, which was retained as a high-speed printer; stations were now formatting their traffic for input into our IBM 360 and the more sophisticated computers at the other Centres.

4.19 Since the type of production tasks being done in CBNRC did not change much between 1968 and 1975, the date when this History closes down, and since even the allocation of staff to the various tasks remained fairly constant, the rest of this Chapter will confine itself to singling out occasional highlights of SIGINT production, and to giving a couple of examples of the reduction in the volume of reports issued. As Soviet communications it took more

16. See para. 12.38

work and staff to produce the same results, and as the staff ceiling in CBNRC remained constant, the result was a lower volume of production from year to year. On the other hand, some of the lower level and more readily exploitable communications which revealed revealed such time sensitive activities as or were processed and reported on at intercept stations, which unlike CBNRC worked 24 hours a day and seven days a week. Thus the proportion of Canadian SIGINT reports coming from stations as opposed to CB remained high, though the increasing complexity of low level communications coupled with the decreasing number of operators available at stations made even these figures dwindle somewhat. By way of illustration, the total number of Canadian SIGINT reports issued in 1972 was 6,342 compared with 6,813 in 1971; of this 6,342, 1,628 came from CB and 4,714 from stations. By 1975, when only 67 intercept positions were manned (an Evaluation Report says 91 were manned in 1972), 4,591 reports were issued, 1,451 from CB and 3,140 from stations. However, it should be pointed out that Canadian customers got far more SIGINT than this, since Canadian production in 1972 represented only 3.8% of the number of reports produced by the whole collaborating community.

4.20 Now for some illustrations of the sort of useful subjects CBNRC was reporting on in its closing years. In 1968 highlights included original information, from on activities, and on the introduction into the Arctic and the performance characteristics of the In 1969 CB reported on in the Arctic[17], and on of special interest to the Allies. Also in 1969 a new but small departure came when responsibility was undertaken for reporting on the Not much came out of this, since these units, like elsewhere, talked rarely and

17. See para. 10.14

guardedly. A more important development came in 1970, when CB was the first to pick up and bring to the attention of the tripartite intelligence community the establishment at

Trend Towards **Subjects**

4.21

4.22 The production effort on Soviet activity (the latter a late addition)

18. See para. 11.98

was greatly helped by the acquisition of a more powerful computer, the IBM 370/145, in 1971/72. Various customers, especially the Assistant Chief of Staff Intelligence (ACOSI)/SHAPE, had expressed particularly high interest in these so work targets continued at a comparatively high level. Even the traffic was producing useful intelligence on in the Arctic and on the This traffic was intercepted at , set up in exploitable format broken and processed in O Group, and reported from the appropriate Production Section after being "fused" with any other available SIGINT.

4.23 Among the subjects being reported on by CBNRC which turned out to be of most interest to customers were some which would not necessarily have been predicted to be of great importance.

Because of the detection of

The number of customers was also increased when SIGINT highlights were sent to an

19. See Chapter 6

extra four Canadian missions abroad, raising to 25 the total number of missions so served. It has to be admitted that this service was almost entirely dependent on the generous cooperation of UK and US missions in the relevant capitals, to whom the SIGINT highlights were sent for viewing by indoctrinated Canadian diplomats, since External Affairs had very few COMINT cleared circuits to its posts abroad.

increased Canadian consumer interest, especially in External Affairs, to such a degree that for the first time a CB analyst was integrated in the Intelligence and Security Division there (ISLD), in order to interpret the large volume of SIGINT which they were receiving from all round the world.

4.24 At this time (1973) nearly 50% of CBNRC SIGINT reports were in three areas: special reports based on daily reports on and daily summaries, tailored to Canadian consumer requirements, of all the CANUKUS SIGINT received in CBNRC. However, apart from these volume items, other tasks were increased or taken on.

On Air and Air Defence subjects CBNRC took on the main responsibility for reporting on the and the sectors of the because of their interconnection with its existing Arctic tasks. And in the area of Soviet low-frequency non-communications transmissions (ELINT as opposed to COMINT) CB became the sole authority for world-wide activity in the The sheer volume of intercept being received kept the computers and human analysts at full stretch; already as far back as 1969 the magic mark of Morse and teleprinter messages per year had been broken, in addition to quantities of voice, and data transmissions. A Telemetry Analysis Group had been set up in

National Defence in 1972[20], over some objections from CBNRC, but since nearly all the raw material came from NSA, as well as the analytical expertise, and since NSA would only deal with Canada through CBNRC, this also posed an extra load on our technical staff simply to maintain continuity.

4.25 So as CBNRC headed towards becoming part of National Defence in 1975, this was the SIGINT production situation. The trend towards breaking away from purely Arctic and mostly military subjects continued. Soviet-wide had been undertaken as subjects of SIGINT study. A detailed examination of developments in Soviet was being carried out in support of the In the bulkiest SIGINT task, the Soviet , emphasis was being placed not so much on as on

CB's own automation had extended to the point where it could now be planned that the full text of all SIGINT, locally produced or received from outside, could be stored in the central computer, and retrieved as required on video displays in various sections by either title, single word or combination of word references. Thus things were still humming in most areas except in the ability to produce SIGINT on the subject which had been given a high priority by the intelligence community. Here unfortunately a strict interpretation of the new Protection of Privacy Act meant that the main source of information on this subject, that is was now regarded as taboo. Some work was beginning to be done on selected foreign but this new plant only reached its full flowering after the conversion from CBNRC to CSE, and so will have to be matter for a later history.

20. See para. 7.49

Chapter 4/Annex A

February 1975

Responsibilities and Functions of the Communications Security Establishment (CSE)

SIGINT*

(a) To prepare and develop SIGINT plans and programs to meet national intelligence objectives and requirements;

(b) to direct the SIGINT operations (including collection, processing and reporting) at all national intercept sites in accordance with current agreed user requirements, and within the manpower and equipment resources allocated to the national SIGINT effort;

(c) to conduct or otherwise arrange for the production and dissemination of national SIGINT material as required by Canadian consumers or collaborating agencies in the context of the overall intelligence program;

(d) to coordinate and conduct research and development on equipment, techniques and procedures to improve the effectiveness of the national SIGINT program;

(e) to plan, engineer and recommend equipment systems which will meet national requirements and ensure compatibility between the SIGINT collection and analysis activities of Canada and collaborating countries;

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* The term "SIGINT" as used in this paragraph does not include tactical SIGINT under the control of the Canadian Forces except where so stated.

(f) to conduct liaison with Canadian consumer departments in order to establish their intelligence requirements and priorities and with collaborating agencies in order to coordinate SIGINT activities so as to effect the fullest possible exchange of technical and intelligence information;

(g) to formulate requirements, methods, and operational procedures for Canadian SIGINT communications facilities; also to advise on SIGINT security matters;

(h) to provide technical advice and assistance for tactical SIGINT activities as requested;

(i) to undertake such additional SIGINT responsibilities as may be delegated by the ICSI.

Chapter 5

Interception at Stations

Annexes:

Chapter 5 - Interception at Stations

Introduction

5.1 The main thrust of this Chapter will be the manning and location of the intercept stations in Canada, since these were the two perennial problems facing the Canadian SIGINT collection effort. Developments in equipment and engineering for stations will be included in Chapter 12. By way of background, the wartime Service interception effort was discussed in paragraph 1.11, and the corresponding Department of Transport (DOT) facilities in paragraph 1.12. It is worth remarking that apart from the Gordon Head station, which was turned over to the RCN, none of these DOT facilities became available for use by the national SIGINT organization in peacetime. In paragraph 11.22, it is mentioned that at the Commonwealth SIGINT Conference, Lt.Col. E.M. Drake gave the Canadian intercept commitment as 100 positions, a figure which over the years acquired an almost mystical significance, and which in spite of continuing shortfalls and occasional challenges, remained as the fixed, even though slightly fuzzy, target for the period of this History.

The Original Positions

5.2 How was the target of 100 intercept positions arrived at? Back in August 1944, the Chiefs of Staff had approved the continuation in peacetime of three Army and three RCN intercept stations[1]. The Army stations referred to were Nos. 1, 2 and 3 SWS, located at Leitrim (Ottawa), Grande Prairie (Alberta) and Victoria respectively[2], and all in operation since 1942, up to about a 15 position level each by 1944. The Naval stations were at Gloucester (Ottawa), Coverdale (N.B.), and Gordon Head (B.C.), the latter the one which was taken over from DOT. In January 1946, Lt.Col. Drake presented a plan to the Joint Intelligence Committee (JIC) for the post-war intercept effort (CRC/1). It pointed out that at that time the

1. See para. 2.3
2. See para. 1.3

Army were providing 45 manned positions at their three stations, and the Navy 55 at theirs, for a total of 100. It recommended that the total of 100 should be retained, but split differently between 40 RCN positions (20 at Coverdale and 20 in the Vancouver/ Victoria area, 45 Army (15 each at Leitrim and Grande Prairie and 15 at another station in the Vancouver/ Victoria area) and 15 to be provided by the RCAF at a new site at Whitehorse. The paper suggested that the facilities at all these sites should be in position by 1 September 1946. In March, the Chiefs of Staff after some hesitation approved these recommendations, but by using a manning factor of 4.5 operators per position, only authorized a complement of 450 operating staff, to be divided between Navy, Army and Air Force on the basis of 180, 200, and 70 respectively. Lt.Col. Drake came back from the Commonwealth Conference in March with a different approach to the breakdown of Canada's 100 positions, which up till then had been considered vaguely as all being applicable to high-speed Morse transmissions. The result was a new paper (CRC/2 dated 2 May) recommending a position breakdown of 27 for hand-speed Morse, 60 for high-speed Morse, and 13 for non-Morse (teleprinter), requiring manning factors of 4.5, 6 and 10 respectively. The paper also indicated a need for D/F (direction-finding) positions at four of the stations, requiring 36 operators, and the provision of electrical communications from the stations to CBNRC. This obviously represented a considerable increase over the manpower recently approved by the Chiefs of Staff Committee (COSC), so an apprehensive Joint Communications Committee (JCC) of the three Services quickly put in a paper (CRC/3 dated 13 May) to the COSC commenting that in their view an across the board manning factor of 4.5 was sufficient, that a separate "Y" network (by which they meant D/F) was not a requirement at that time, and that each Service would look after the provision of communications from its own stations to CBNRC.

The Manning Problem

5.3 In August 1946, the recently established Communications Research Committee (CRC)[3], temporarily under the Chairmanship of R.G. Riddell, directed its attention to the problems of the provision and manning of intercept stations. At its 6th Meeting on 8 August, it decided that it was not worth going back to the COSC at that time on the need for more than 450 operating staff, but that since only 15 out of the 100 committed positions had so far been manned, regular progress reports from the Directors of Signals (DSigs) on developments were required. It should immediately be stated that the methods of calculating how many positions were "manned" were so vague and variable in these early days as to have very little real meaning when applied to intercept tasks. It took quite a while for it to be accepted that a "position" was not just a set of connected intercept equipment, but a "manned position" which was in use 24 hours a day, 7 days a week. At its next meeting on 22 August, the CRC decided that the other extra requirements in CRC/2 (i.e. the four D/F positions and communications with CBNRC) should in fact be submitted to the COSC for approval. Accordingly Mr. Crean, who had taken over as Chairman CRC, wrote to the COSC on 25 September about meeting these extra requirements. He wrote another letter on 21 October (CRC/25), pointing out that only the equivalent of 15 or 16 full-time intercept positions were being provided out of the 100 committed, and recommending that the Chiefs of Staff should place a very high priority on the requirement for intercept manpower, and that urgent steps should be taken to expedite the building of the stations planned at Whitehorse (RCAF), Churchill (RCN), and Vancouver (for Nos. 2 and 3 SWS (Special Wireless Station)). At this point the intention was to have two Army stations, at Leitrim (15 positions) and Vancouver (25 positions), and for the Navy to provide 20 positions at Coverdale and 20 divided between the new station at Churchill and Prince Rupert, the latter taking over

3. See para. 2.4

from Gordon Head, and Gloucester having been relegated to a training status. To make up the magic total of 100 positions, the RCAF had put in a submission to the Minister of Defence for a 20-position station at Whitehorse. However, in practice the partly manned positions which Mr. Crean equated to 15 or 16 full-time ones consisted of 16 Army (7 at Leitrim and 9 in the West) and 4 Navy, all at Coverdale, since Prince Rupert was unmanned and Churchill not yet built, as was also the case with the RCAF station at Whitehorse.

Control of Stations

5.4 At the 22 August 1946 meeting of the CRC it was also decided, after considerable argument, how the stations should be controlled, based on proposals in paper CRC/14 dated 20 August. The decision embraced:

a) Administrative Control by each Service. This was to include training, discipline, and the well-being and efficiency of the operators;

b) Assignment Control by CBNRC. This was to include the allocation of tasks, the provision of technical data, responding to technical queries from stations, and quality control of their product;

c) Communications from stations on Admin. matters to Service Signals Directorates, on assignments to CBNRC (copies to go to Signals "if desired");

d) The security and cover for intercept stations to be handled by the CRC.

That this result was not completely satisfactory to CBNRC is suggested in a letter to the Director GCHQ dated 9 September indicating that CB had had difficulty in achieving "operational control", but had succeeded in obtaining "assignment control". The letter went on to add that the most serious obstacle to increasing the 15 positions so far manned was the

unavailability of Service manpower. GCHQ itself was also having manning problems, and wrote a letter to CB in November apologizing for having had to drop cover on and to reduce it on both of them tasks allocated to CB, but low in priority in the UK. They explained that because of factors such as demobilization of the British armed forces, 31 UK intercept "teams" had been lost in October, and more were to be lost in November. Their category "teams" was much more meaningful than the Canadian "positions", and represented the average number of operational staff available on each shift, a standard which Canada gradually approached with the developing concept of "manned positions".

Location of Stations

5.5 Apart from manning problems, doubts about the locations proposed for Canadian stations were also raised at the CRC in October 1946. In November, Capt. G.A. Worth, Directorate of Supplementary Radio Activities (DSRA), wrote to the Chairman CRC saying that US authorities didn't agree with the sitings proposed for "several stations", and suggesting that technical representatives from the US should be invited up to consider what locations would be best. This proposal was discussed at the 12th CRC Meeting on 5 December, where it was decided to go along with the suggestion. A CANUKUS Technical Conference eventually took place in Ottawa from February 11-14. As noted in paragraph 11.47, the experts not only concluded that Whitehorse and Churchill were suitable sites, but also endorsed the Canadian Services' view that a manning factor of 4.5 was adequate, and that there was not at present any requirement for strategic D/F positions in Canada. Paragraph 2.8 recorded that the Technical Steering Group (TSG) was formed in April 1947, largely as a result of this Conference, and in May ASA (US Army Security Agency) and GCHQ were informed that it was in being, and ready to discuss intercept problems with the Joint Intercept Control Group (JICG), which coordinated the collection efforts of the US Army and Navy[4]. A good illustration of the

4. See para. 11.5

problems encountered by the Services in getting their stations off the ground is to be found in the Minutes of the 18th Meeting of the CRC held on 5 June 1947. There the RCAF said that they would not be able to start building the station at Whitehorse till 1 September; it was already 6 months behind schedule. The RCN reported that the new station at Churchill had encountered similar difficulties, but was expected to be in operation by March 1948. (In fact, it did not become fully operational till December 1950.) At the same meeting, the Army presented a paper covering the expenditure necessary to build the new station at Boundary Bay (Vancouver), which was approved by the CRC; but of course this did not mean that construction could start right away.

Intercept Requirements

5.6 One of the first tasks undertaken by the newly formed TSG was a comprehensive review of Canadian intercept requirements. Their report resulting from this review, which dealt with everything from the locations of stations and the most desirable distribution of intercept positions to the types of antennas required and the provision of personnel, appeared in September 1947 and was considered by the CRC at two Special Meetings on the 16th and 23rd of that month. Cdr. Foster, the first Chairman of the TSG, introduced the paper, and each point was subjected to long and close discussion by CRC members. The highlights, in terms of importance and potential disagreement, were whether the Services should have intercept and regular communications activities sharing the same buildings, and how the cost of stations should be presented to senior authorities. On the first point, the Army were adamant that both functions should continue to be housed together at Leitrim, and that their new station at Boundary Bay should also have a communications element. The Committee as a whole felt that it was undesirable to collocate straight Service communications with the intercept positions, but where this had to be done the "Y" officer should be in charge and security should be under his control. On the question of the cost of stations, it was noted that the estimates for

construction at Churchill seemed to be out of line compared with the costs at Whitehorse and Boundary Bay. Cdr. Foster explained that the Churchill costs covered living quarters in addition to the operational area, and that the building required a more expensive type of construction due to permafrost; he also mentioned that this contract would probably be let on a "cost plus" basis. In the end, the CRC agreed to the figures presented in the report, and instructed the TSG to prepare a statement covering the 1948/49 financial requirements, to be forwarded to Dr. Solandt as Chairman, Defence Research Board (DRB). Meanwhile they were to proceed with ordering the intercept equipment required and implementing the contracts for antennas as proposed.

5.7 The second Special Meeting of the CRC on 23 September continued discussing other recommendations in the TSG report. The TSG had said that an extra 100 operators should be added to the approved intercept establishment in order to man satisfactorily the required positions at Coverdale, Churchill and Prince Rupert (N.B.: all Naval), but the Service members of the CRC felt that the Chiefs of Staff would not readily accept such a recommendation, so it was set aside until the current establishment was more nearly filled. However, the Chairman (Mr. Crean) pointed out that owing to the shortage of personnel, one less intercept position was now manned than had been a year ago, and that it would be awkward for the CRC members if the building and equipment programs were completed before there were enough operators to occupy and man them. The Directors of Signals were asked to report on manning figures monthly, so that the CRC could review progress and decide when further measures were necessary. Another TSG proposal, for standardization of equipment, planning and methods among all stations under the general supervision of the TSG, was opposed by Service members of the CRC as being neither "necessary or desirable". The question of sharing accommodation was also discussed further, and it was agreed that the Chairman should prepare a paper indicating the general feeling that this was an undesirable practice. It is interesting to note that the RCN brought up at this time the requirement for

having "tactical" D/F, as opposed to communications, staff collocated with the intercept operators, a situation which was to be the basis for many bitter differences in the future. These Special Meetings were the origin of the requirement for the TSG to be the element to prepare the annual Station Equipment Estimates, and also brought to the fore the need for continuity and specialization in the membership of the TSG.

Station Estimates

5.8 The TSG under its new Chairman, S/L Denning (later to join CBNRC), presented its Estimate to the CRC at its meeting on 16 October, but was asked to re-submit it in greater detail so that the CRC and COSC could have a clearer idea of the itemized costs they were being asked to approve. This they did, and the first full Station Estimates (CRC/49) were approved on 6 November for forwarding to Chairman DRB. The funds requested amounted to $5,516,788, including a carry-over from 1947/48 of $2,118,552 which it was not possible to expend in that Fiscal Year (FY). The Chairman CRC was concerned that the Minister of National Defence might object to increasing DRB Vote 160 (later Vote 700, and still later 712) from the previously stipulated $3 million, and suggested that it might be possible to carry personnel costs in the respective Service Estimates. However, the Service members pointed out that it had been previously agreed that "Y" personnel would be held outside the Service manpower ceilings, and that this point should be covered in any different arrangement for handling personnel costs. The Chairman agreed to write a covering letter to Chairman DRB along those lines. Other events during 1947 included the activation of the station at Prince Rupert in July. However, when this station started sending in its traffic and logs in September, it turned out that they were of such poor quality that they were effectively unusable, and as efforts to improve its take were in vain, the station was eventually closed down in August 1948, and its few operators, who had been programmed to man seven positions, temporarily transferred to the Army station at Victoria soon

to be relocated at Boundary Bay), pending the completion of Churchill. The RCAF started intercept operations at their new station in Whitehorse in June 1948, and as will be seen from future comparative figures were better able than either of their sister Services, especially the Navy, to meet their manning targets within a reasonably short period of time.

"Dual" RCN Activities

5.9 The question of RCN stations being shared by "strategic" SIGINT and "tactical" D/F operators, touched on in paragraph 5.7 above, cropped up again at the March 1948 meeting of the CRC. Mr. Drake raised it in connexion with the fact that CB was not getting a very good service of traffic from Coverdale. The Chairman suggested that the TSG might be asked to write a paper on the situation as regards the D/F effort, but Capt. Worth said that the TSG did not have the capability or authority to discuss Naval D/F matters, and that anyway the operators were completely interchangeable between the two activities. This of course did not answer the basic question of how far the jointly funded strategic intercept effort was being robbed in the interests of Naval "tactical" D/F, which was closely bound in with USN facilities. Also at this meeting the requirement for T/A (Traffic Analysis) staffs at stations was discussed, as well as whether such staffs should be provided by intelligence or communications elements. Since there was some disagreement on these points, decisions were deferred till the next meeting, when the Services were to present their views. At the April meeting, the CRC confirmed the requirement for T/A staff at stations, but while the Army and RCAF said that this function would be provided by intelligence personnel, the Navy said that in their case it would be handled by communicators from Supplementary Radio trained in T/A work, possibly including a stint at CB. The lack of movement towards the 100 intercept position commitment was again stressed by the Chairman; the Services pointed to the slow rate of recruitment of operators, four per month being the average in the Army and one per month in the RCN. The possibility of using civilians or females was aired; Capt. Worth

said that Prince Rupert had been manned by females, and that the result had been completely unsatisfactory. The TSG was then tasked to prepare a paper on manning; this resulted in CRC/66, which was passed to the Chiefs of Staff in May. The paper pointed out that only 130 out of the approximately 600 staff that had been approved for the stations had so far been recruited, with the result that fewer than 20 of the 100 committed intercept positions were currently manned. It recommended that the Services should review the manning problem, including the possibility of using civilians, women and possibly immigrants, if not to do the actual intercept work, at least to perform communications duties, thus releasing more Service men to be posted to intercept stations. There is no sign that the Chiefs of Staff Committee (COSC) acted on this proposal, though the Army did use civilian staff at Leitrim and Boundary Bay. Anyway, the Senior Committee (SC)[5] took over the top SIGINT responsibilities in November, chaired by a civilian from External Affairs, so the COSC ceased to play any active role concerning the intercept stations, though of course the individual Chiefs, who were also members of the SC, had to take any action required to implement decisions about manning in their own Service. It should be noted that the Services at this time established essentially full-time officers to deal with their intercept problems, normally through the TSG, but in the case of the Navy separately; the first of these "Y" officers were Capt. Hamilton in the Army, S/L Denning in the RCAF, and Lt. Max Gunn USN in the Navy.

5.10 One of the first acts of the new SC was to approve the Vote 700 Estimates for FY 1949/50 at the figure of $3,029,740; the personnel costs had been taken over by the Services, leaving DRB Vote 700 to cover the costs of buildings and equipment, to be dealt with at the SC. At the February 1949 meeting of the CRC, it was reported that the Boundary Bay building was three-quarters completed, but would not be in operation till September; meanwhile interception

5. See para. 2.9

would be commenced from temporary buildings in April. At Churchill only the foundations had been laid, and then work had been suspended for the winter; it was to be restarted in May, and it was estimated that it could be rushed to completion by January 1950. On the question of personnel, all the Services were still way below strength, with the RCAF doing best; however, the recruiting position was reported to be "better". Meanwhile, the RCN had produced a couple of papers on the Emergency Expansion of Naval "Y", including Strategic and Operational, which included the concept that the stations at Coverdale and Churchill had a "dual duty" to perform. The D/F side of Operational "Y" was stated to include Direction Finding and Plotting at stations, and evaluation of the plots at Naval HQ. Their proposals were presented as CRC/93, but the Senior Committee decided that the question of Emergency Expansion should be looked at in general rather than in purely Naval terms. Accordingly, the CRC asked Mr. Drake and the Directors of Signals to get together to produce a combined plan for Emergency Expansion, which led to the long series of unfulfilled considerations of this subject and Tactical SIGINT detailed in paragraph 2.10.

Intercept Developments to 1950

5.11 In July 1949, two important papers were prepared, CRC/105 "Review of Canadian Peacetime SIGINT Effort" by Mr. Drake, and CRC/106 a "Report by the TSG on Inter-Service Postings of "Y" Operators". In the first, Mr. Drake gave some useful background, including the fact that during the war there were 706 people on the intercept staff in Canada as well as 553 overseas at the peak of the effort, which, using the current manning factor of 4.5, would mean that a total of 280 positions could have been manned at that time. He went on to give further factors in arriving at the targets and disposition of 100 high-speed positions projected in his CRC/1[6]:

6. See para. 5.2

a) The capacity of the 6 stations already approved by the Chiefs of Staff. (Note: The normal Army complement for its stations was 15 positions);

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b) Geographic considerations suggested 65 in W. Canada targetted and the USSR, and 35 in the East for transmissions;

c) Comparison with the UK and US intentions to provide a total of positions;

d) The vast number of transmitters throughout the world which might need to be covered;

e) The required manpower represented about 1% of the peacetime establishment of the Canadian Forces, which seemed about right.

The paper then refers to the approval of the 100 positions by the Chiefs of Staff in February 1946, outlines the Recommendations of the Commonwealth Conference in March and other events in the years 1946-48 which have already been discussed in this Chapter, and gives the "General Objects of Canadian SIGINT Effort". Among the latter was included: "(b) To build up an efficient intercept service utilizing 100 positions so disposed in Canada that our contribution will produce traffic which could not be intercepted elsewhere." Though this came to be incorporated in the Canadian SIGINT Canon, like other Holy Writ it remained more as an ideal than a practical goal. Returning to earth, the paper then ran through the real facts of the case, pointing out that Canadian interception was based on three factors: integration with the US effort, meeting the requirements of CB's cryptanalytic tasks, and training Canadian intercept operators "in all aspects of interception techniques --". It dealt with actual progress on a station by station basis. (Victoria/Boundary Bay) started in July 1946 with 15 operators, and by July 1949 had been "built up to 40 operators", providing 10 manned positions. (Leitrim) had 13 operators in July 1946, and now had 25 operators for 6 positions. (Coverdale) during the same time period

moved from 10 to 28 operators for 5 positions. (Prince Rupert) when it was disbanded in August 1948 had 10 operators manning 2 positions. (Whitehorse) was activated in June 1948 with 7 operators (1 position), and now had 42 operators (9 positions). This account would mean that a total of 32 positions were being manned in July 1949, presuming that the 2 positions from Prince Rupert had been relocated. However, it will be noticed that the manning factors per position used vary from a low of 4 in the Army up to 5.6 in the Navy. Also, it has to be admitted that the method of calculating manpower and "positions" at that time was extremely imprecise. The paper ended up with an estimate of "Future Capabilities", on a rather optimistic note, especially as regards the building of the three new stations at Whitehorse, Boundary Bay, and later Churchill. However, Mr. Drake did have to note the two negative elements contributing to the slowness in achieving the planned intercept program:

"(a) Lack of operating personnel, first in number and second in experience;

(b) Installation of high-grade aerials and receiving equipment not generally completed --."

5.12 The other paper produced in July 1949 by the TSG (CRC/106) tried to suggest some possible approaches to the difficult manning problem. Its basic idea involved inter-Service postings of intercept operators; this thought had already been discussed at the CRC in May, but since the RCN members were resolutely opposed, the subject was referred to the TSG to prepare a paper. After pointing out a number of possible methods of cross-posting to alleviate the absence of a southern RCAF station for Whitehorse personnel to rotate to, and taking into account the greater difficulties experienced by the Army and Navy in recruiting operators, they came up with two basic recommendations:

a) That the 100 planned positions should be redistributed along the lines Army - 35, Navy - 30, and RCAF - 35, instead of 40, 40 and 20 respectively;

b) That a separate RCAF unit manning 15 positions should be set up at Boundary Bay, a location which would then be shared jointly with the Army.

This seemingly sensible proposal was met with the unanimous condemnation of the Directors of Signals at the CRC Meeting on 15 August 1949; or as the Minutes put it more gently: "All three found they could not entirely support the recommendations. G/C Hutton made the point that although from a logical and theoretical point of view the conclusions of the paper appeared sound, they could not be implemented in practice." He added that he had received directions from "higher up" that it was quite out of the question for the RCAF to undertake any SIGINT commitments outside Whitehorse. So yet again logic took a beating from practical Service policies. Incidentally, from March to October 1949, the RCN signals side was represented on the CRC by the DN Comm., Cdr. Stirling, who knew very little about such things as manning at stations, rather than by DSRA. This did not prevent Capt. Worth attending the May CRC Meeting, and letting slip there that 20 out of the 48 available DSRA operators were employed on D/F rather than intercept duties.

5.13 This Naval revelation caused Mr. Crean as Chairman CRC to ask who was really representing and in charge of intercept operations in the RCN; he added that he understood that Capt. Worth had been making arrangements with Capt. J.N. Wenger USN about Naval tactical "Y" collaboration, which was quite inappropriate until the strategic SIGINT intercept commitment had been met. However, there was no way of stopping the RCN giving priority to its SIGINT arrangements with the USN rather than to its contributions to the combined Canadian effort, and this led to a further effort on its part to get complete control of its own stations rather than leaving aspects

of the control to CBNRC. In December 1949 the Chief of Naval Staff (CNS) said that the control of assignments at Coverdale should be handled through the RCN instead of directly from CB, but the other members of the Senior Committee said that the situation should be left as it was. The move to stunt the growth of Naval SIGINT separation was somewhat helped in March 1950, when on a visit to Ottawa Capt. Hodges RN said that in the UK the Naval "Y" and D/F facilities were controlled from GCHQ, though parts of the D/F network could be detached for tactical work if required, to be controlled by UKN 117 at Scarborough, which normally worked for GCHQ. However, the general situation of the RCN running part of its SIGINT resources for its own and USN purposes without informing the national authorities how much of its effort was so diverted remained in effect, varying in quantity from time to time, but always causing anxiety and frustration at CBNRC and to the committee structure. A move was made in October 1949 to make the TSG a sub-committee reporting to the CRC; the Army and RCAF were in favour, but Capt. Worth effectively vetoed the proposal for the time being, so that it was decided in December to leave the members of TSG still responsible to the individual Directors of Signals, not to the CRC[7]. This enabled the RCN to prevent Naval "Y" matters coming before the CRC, though they did seek that Committee's support in December in an effort to beef up recruiting.

5.14 The occasion of this RCN observation that recruiting needed beefing up was the consideration in December 1949 by the CRC, now under the Chairmanship of Mr. Glazebrook again, of a paper CRC/118 prepared by the TSG on the perennial problem of the operator manning situation. The paper estimated the current number of manned positions as: Navy 7 out of 40, Army 11 out of 40, RCAF 9 out of 20 for a total of 27 out of 100, which it felt was quite inadequate. There was also still the danger of the RCAF losing operators due to the absence of any available relevant Southern posting. It came up with several recommendations:

7. See para. 2.12

a) The RCN should not rely on volunteers alone for their intercept service;

b) A review should be undertaken of potentially useful people in other parts of the Services;

c) Lower physical standards should be accepted for intercept work than for more active duties;

d) The possibility of using Service women should be re-examined;

e) The recruiting and employment of civilians should be considered further;

f) UK operators who would like to emigrate should be recruited, either to enlist in the Canadian Services or to work as civilians.

Capt. Worth had submitted written comments essentially proposing a more intensive recruiting drive as the answer, though the other two Services were more complacent. George Glazebrook summed up the discussion and the CRC views as follows:

"a) Current policy provides that none of the commitments of Strategic "Y" will suffer from the encroachments of any plans that may be made for Tactical "Y".

b) The Army and the RCAF feel that no additional steps to achieve faster manning of the Strategic "Y" stations in their Services are necessary at this time. The RCN however feels that a drive should be made to increase recruiting of personnel to be specifically assigned to "Y" duties in the Navy."

This was not particularly useful, but nevertheless the CRC decided that a report along these lines should be submitted to the Senior Committee.

Expansion Begins

5.15 As has just been seen, the estimate of the TSG in December 1949 was that only 27 out of the 100 positions were being manned. Since March 1949 the manning figures as stated each month by the DSigs had been broken down into Supervisors, Operators, Compilation, Communications, Maintenance and Administration, of which the crucial component was the Operator strength. However, it was difficult to work out from this figure the main consideration, which was the number of tasks that could be assigned, which in turn depended on the average number of operators actually available on each shift. During 1950, the Secretary CRC managed to arrange for the DSigs to present their monthly reports to the CRC in this form, so instead of the figure of 195 operators in the August report, September showed an average number of 31.2 positions manned, including 2.5 at the recently activated Naval station at Churchill[8]. In May, Mr. Drake wrote to Mr. Glazebrook pointing out that at the CANUSA Implementation Conference in Washington in November 1949, CRC representatives were on record that they were already manning 33 positions, and forecast that 75 positions at Canadian stations would be manned by the end of 1950, and the whole hundred by the end of 1951. In the light of present circumstances, this seemed unduly optimistic. Accordingly, the Services were asked in November 1950 to update their estimates of when their stations would be fully manned. DSigs Army and DSRA put in written statements quoting completion dates of September 1951 and October 1952 respectively. The RCAF gave a more cautious oral report, saying that the current Whitehorse establishment should be completely filled by the end of 1950, but adding that a small upward revision of this establishment might be required in order to man the committed 20 positions there. From these statements the conclusion was reached that by the end of 1951, the Canadian intercept commitment would have been fulfilled to the extent of 75%. A statement to

8. See Annex A for the number of positions manned between September 1950 and February 1953

this effect was to be passed to the Senior Committee, stressing the dangers to which a shortage of operators might expose the Canadian SIGINT effort in its relationships with its collaborators.

5.16 Although even these revised estimates were not in fact reached, a considerable improvement now began to appear in the number of positions manned. From 36.3 positions in January 1951, by the end of the year the total had increased to nearly 58, of which 18 and 20 were supplied by the RCN and Army respectively, and 20 by the RCAF at Whitehorse, representing 100% of its commitment, as opposed to about 50% for the other two Services. By the end of 1952, this total had increased to 75, which, while a year later than estimated, was better than many had believed probable. Unfortunately, this boom could not be sustained; the average number of positions manned in 1953 was 70.5, and by July 1954 this figure had sunk further to 69. To round out this part of the story, even in March 1956, just before the Site Surveys at Alert and Resolute were to be undertaken, we find Mr. Drake observing that only 75 of the required 100 positions were manned, the same figure that had been attained by the end of 1952.

Strains Between CB and Services

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5.17 The allocation of "assignment control" at intercept stations to CBNRC in August 1946 was referred to in paragraph 5.4, and the comment that this agreement "frequently caused trouble in practice" was made back in paragraph 2.5. This "trouble" will now be examined a little more closely. It arose mainly from two centrifugal concepts: "Tactical Y" and "Forward Processing" at stations. The opening shot in the "Tactical" skirmish may be regarded as occurring in August 1950,

operational intelligence", the Committee agreed that "CB has the right to give the strategic positions at the station any assignments, and that these assignments must be carried out". This decision was bolstered by the fact that in response to a previous letter on the subject from the CNS, the Senior Committee had minuted that arrangements should remain as they were, with the assignment control over strategic positions at Coverdale in the hands of CB. It is probable that this decision reinforced the determination of the RCN to retain an unreported portion of their effort at stations for "tactical" tasks, mostly D/F, to be operated in conjunction with the USN.

5.18 Examples of similar moves towards independence by the Army and RCAF were touched on in paragraph 2.12. In the Army case, the point raised in November 1950 was that since CB was not assigning many tasks or producing much SIGINT on ground forces subjects, the Director of Military Intelligence (DMI) might have to recommend to the Chief of the General Staff (CGS) that the Army should provide fewer than their assigned 40 positions. Even though this linkage was loosened at the December meeting, the DMI asked whether it was equitable for the Army to have to provide 40 of the 100 positions. How about External Affairs manning some positions? This suggestion was quickly brushed aside, and it was also established that since the Army were already using a significant proportion of civilians at their two intercept stations, the drain on military manpower was correspondingly reduced. The RCAF drive to have its own tactical SIGINT effort, though only implemented in summer 1952, had its origins in the bubbling up again of the whole subject of "Tactical Y", undoubtedly under pressure from the USN and USAF, in the summer of 1951, to which we will now turn our attention.

5.19 The new impetus to reconsider the subject came in May 1951, when a paper on "Navy Plans for Tactical Y" was placed before the CRC for discussion. In the upshot, the Committee felt that these plans should "be examined in relation to the larger problem of distinguishing between strategic and tactical COMINT" and, more particularly, of "delineating the

scope of the authority of the CRC and the Services in the COMINT field". Accordingly, Mr. Drake was requested to prepare a paper on this general problem, posing "any questions which arose concerning the position of CB in relation to strategic and tactical COMINT operations". The result was the paper CRC/153, prepared by CB, and considered by the CRC at its meeting in July[9]. This paper took the position that in fact "Tactical Y" only existed in wartime. On the other hand, the RCAF pointed out that to be practised in wartime, it needed to exist beforehand in peacetime. The RCN took the view that the two efforts should be collocated, with the Navy providing "operational" intelligence through DSRA, and CB doing longer term studies for the Director of Naval Intelligence (DNI). There was some disagreement as to whether "the determination of intentions" was a strategic or a tactical task, but in the end the CRC agreed that since "Tactical Y" was "necessary in wartime", it would need to be in operation before war started. Mr. Drake accepted this position, including that control of "Tactical Y" should be with the Services, and that some Service staffs might have to be integrated with CB even in peacetime.

5.20 CRC/153 was accordingly modified along these lines, and placed before the CRC again in November 1951 as CRC/153A. By this time, the position of the RCN had hardened even further, and they refused to agree with the new version of the paper, and said that it should not be passed by CB to collaborating countries. They now took the line that the CRC had no authority over RCN planning for tactical SIGINT; the CRC would be kept informed of developments, but the RCN would deal directly with the RN and USN as required on operational "Y" plans. CRC/153A went back to be redrafted by an Ad Hoc Committee consisting of representatives of DSRA, DMI, DAI and CBNRC, and emerged in a new form as CRC/167, which was approved by the CRC at its December meeting. While "Tactical SIGINT" is treated as a separate subject in Chapter 9, it will be necessary here to deal briefly with its

9. See Annex 9.A

effect, actual or potential, on "Interception at Stations". CRC/167 realized that it was necessary to have a working definition to start from, which was stated as: "Tactical COMINT (Y) is that aspect of COMINT concerned with the rapid exploitation normally during hostilities of enemy radio transmissions which may have immediate operational significance." The paper went on to quote the agreed position "that operators will not be diverted to man tactical positions in any one Service until the commitment for manning strategic intercept positions within that Service has been fulfilled", which of course everyone knew was more honoured in the breach than in the observance by the RCN. To fudge this latter fact, a **Note** was inserted to the effect that "D/F positions and plotting staff are not considered in this paper". While acknowledging that "the responsibility for both the allocation and exploitation of strategic intercept tasks has been vested in CB", the Service members of the Ad Hoc Committee, under the Chairmanship of Capt. Worth, had forced through the modification that, even in peacetime, "it is recognized that the Service "Y" units, while taking into account the desires of CB, must have the final say in the selection of tasks for their own intercept facilities". Thus things had moved away from the original concept in CRC/153 that no such thing as Tactical COMINT existed in peacetime, and the way was paved not only for the separate Naval-controlled effort at their "joint" stations, but for the RCAF "Radio Centre" and separate "tactical" positions at Whitehorse in the second half of 1952.

5.21 Summaries of the background and current position of the Intercept Stations and the RCN D/F Nets were given to the Director of Communications Security (DCS) by Mr. Denning of CB in April 1953 and Cdr. A.R. Hewitt (who had succeeded Capt. Worth as DSRA on 1 April 1952) in November 1955 respectively. It will be worth giving the highlights of these two useful reports in note form, even though some of the points have already been covered in this Chapter. Mr. Denning informed Mr. Glazebrook in April 1953:

a) The CRC approved rhombic antennas for all stations in 1947, to cover the full range of 360° wherever possible;

b) Training for RCAF operators was carried out in the Army station at Leitrim in early 1948. The station at Whitehorse commenced operations in June 1948, at first in temporary quarters;

c) The closing of the Naval station at Prince Rupert in August 1948 was due not only to its poor results[10], but also in part due to limitation of available land for antennas and other facilities;

d) Electrical communications to Coverdale and Victoria (Army) existed in 1948[11], but were limited in their use by the lack of suitable cipher devices;

e) The Army station at Ladner (Boundary Bay) came into use in June 1949, with the staff transferred from Victoria;

f) The Naval station at Churchill started up in August 1950, though it did not become effectively operational (on a small scale) till the end of the year;

g) By 1950 there were teletype circuits, with ROCKEX crypto equipment, from CBNRC to Coverdale, Ladner and Whitehorse;

h) In the area of non-Morse intercept equipment, in 1949 there was one machine at Leitrim that could

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Quantities of non-Morse equipment steadily built up from 1951 on.

10. See para. 5.8
11. See para. 14.18
12. See para. 12.6

Mr. Denning then assessed the characteristics of the five existing stations as of the time of writing, i.e. April 1953, as follows:

Churchill: On low HF circuits, good in winter, bad in summer; but on the Northern Sea Route, which used MF as well as low HF, it was good all year round.

Coverdale: It would be "impossible to find 20 useful Russian tasks", even if the station ever reached its target of 20 positions.

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Ladner: The most efficient existing station. Good on Russian traffic.

Leitrim: Like Coverdale, poor on Russian targets, with the possible exception of Mostly employed on later renamed

Whitehorse: Good in 1950 and 1951, but deteriorating due to the loss of experienced operators and supervisors, in the absence of an RCAF southern station for rotation.

The DSRA memo to Mr. Crean in November 1955 made the following points:

a) The RCN came to an agreement with the USN in 1950 on integration and exchange of D/F resources and information. The Canadian stations in the integrated D/F networks included: in the Atlantic net, Gander (alternate net control), Gloucester, Coverdale, Frobisher Bay, and occasionally Churchill. In the Pacific net, Masset (alternate control) and occasionally Aklavik

b) In peacetime, the RCN D/F stations could be used to meet strategic as well as tactical requirements; they could also be used to obtain USN D/F support;

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c) However, in wartime, these facilities would not be available for strategic use, but only for operational intelligence in an RCN "OIC" (Operational Intelligence Centre). Therefore it was important to set up a separate Canadian D/F net for strategic SIGINT use.

13. See end of para. 2.10 on Emergency Expansion

5.23 "Forward Processing" was mentioned in paragraph 5.17 as being another contributing factor to friction between CB and the Services. At the period presently under review this was because the RCAF wanted to run their own T/A and "operational" reporting at Whitehorse,

At the August 1952 meeting of the CRC G/C Edwards, who had succeeded G/C Bean as DAI, announced that the RCAF Radio Centre would commence operations in the CB building on 1 September, and would be corresponding directly with AFSS "as required"; he added that it was planned to man 10 "tactical" positions at Whitehorse in 1953 over and above the 20 positions committed to "strategic" intercept for CB to process. Needless to say, this plan for "tactical" intercept and processing made no real sense as a peacetime concept, and the Radio Centre ended up processing traffic on the

intercepted by regular intercept positions in the US and Canada covering the Soviet Far East. An uneasy processing relationship was established, whereby the RCAF Radio Centre did first instance reporting on 3 LRAA and 10 AA activities, while CB did longer term SIGINT studies on the same units; but even this arrangement folded not too long

Anyway, this development mostly concerned processing rather than interception, and that aspect does not need to be dealt with further in this Chapter. However, reference must be made to some of the abortive developments which affected intercept stations. In January 1953, G/C Edwards asserted that at Whitehorse was operationally responsible to the "CO of the RCAF Radio Centre", so would CB please exercise assignment control through the Radio Centre to conform with RCAF rules. He even added that visits to the station by CB personnel should be requested through RCAF channels. CB responded rather weakly by pointing out that authority for CB to control assignments at the station had been delegated by D Telops

Air rather than DAI, but if the RCAF wanted to substitute the Radio Centre for D Telops that was O.K.

5.24 The question of control of processing at stations in more general terms was raised in a letter to DCS Mr. Glazebrook from CB in August 1953. This letter stressed the desirability of having T/A staffs capable of immediate reporting of significant items at intercept stations, starting with Whitehorse, but did not insist on control by CBNRC. However, in agreeing with the need, Mr. Glazebrook said that responsibility for Forward Processing at stations should rest not with the individual Services, but with DCS, representing the joint SIGINT structure: "I believe that the control of this operation should be in the central COMINT structure, and that the DCS should be regarded as directing this as other parts of the COMINT effort." Since the basic Service objection was that no civilian was permitted to give orders to Service men directly, the substitution of control by the DCS instead of CBNRC did not satisfy them. Accordingly DAI, who was carrying the ball for the Services at this point, produced a riposte on 10 September. He said that "Tactical Y" had been assigned to the Services by mutual agreement; the RCAF had established the Radio Centre in CB as well as 5 officers and 18 airmen at "No. 5 Radio Unit Whitehorse" for this tactical purpose. Basically this arrangement was according to him patterned on the NSA-AFSS relationship in the US and the GCHQ-Cheadle model in the UK. While CBNRC was able to provide "technical direction and material" to the station at Whitehorse, the T/A staffs there and at other stations would be under Service "operational control", and would have the responsibility for communicating directly with Service Commands on immediate matters. As far as the paper CRC/184 dated 4 September 1953 on "Forward Processing" was concerned[14], DAI could only accept it if the section on control were amended to read: "technical direction from Director CB and operational control from the CO of the Radio Centre."

14. See Annex B

5.25 This difference of opinion between DAI and the civilian SIGINT authorities dragged on through 1953, at the end of which Mr. Crean succeeded Mr. Glazebrook as DCS, and 1954, during which time CB was probing NSA for the accepted US position on the responsibility for controlling SIGINT information to provide "timely intelligence for strategic warning" purposes. In a rather surprising development within the RCAF itself, the Chief of Telecommunications (C/Tel) told C Plans I in June 1955 that CBNRC, not DAI, must control all SIGINT processing at Whitehorse, and that the intelligence specialists (I Specs) there must come under the OC of the station, who was always a signaller, rather than DAI. He pointed out that otherwise at Ladner and at Churchill, both of which had Soviet Air assignments, would come under the control of DAI instead of the Army and Navy respectively. Armed with this breakthrough, Mr. Crean came out with DCS Memo No. 1, dated 19 July 1955. This paper, which started by dealing with the control of SIGINT operations at stations, was soon modified to deal more generally with "Control of SIGINT Operations in Canada", and emerged in several revised forms of DCS/1 as the basic bible on SIGINT control until it was eventually superseded by the Intelligence Advisory Committee (IAC) SIGINT Memo No. 1 in 1977. The fundamental points made in the original DCS/1 on the control of SIGINT can be summarized as follows:

a) Policy control is exercised through the DCS (CSB/39 of 4 August 1954[15]);

b) "COMINT objectives and operations (including interception, technical aids and forward processing) at all Canadian intercept sites are as designated by CBNRC ...";

c) This information is to be known and understood in Service Directorates, or else "some confusion may arise owing to a misunderstanding of the control principle involved".

15. See Annex 2.B

This firm statement of policy, backed by the Communications Security Board (CSB), put an end to the separatist strivings of the Service Directorates for the time being.

5.26 A revised paper, CRC/198, was produced in October 1956 on "Forward Processing", covering such aspects as: Objective, Principles, Mission, Control, Support, etc. Item c) under Principles reads: "As Forward Processing is essentially an extension of the processing and reporting capability of the COMINT centre, the assignment and termination of Forward Processing tasks, their direction and control must be the responsibility of CBNRC." The Mission was described as producing "Spot Items and Intelligence Summaries on tasks as instructed". CB was to exercise its control through Operational Instructions (OPINS), but the OC of the station was allowed to exercise temporary control of positions to meet emergency situations. The provision of T/A and processing personnel was the responsibility of the parent Service, but CB specialists might be seconded to stations as required. Training of processing staff could be carried out in CB if necessary. Even when already processed at stations, traffic, logs and semi-processed material were all still to be forwarded to CB rapidly (by signal in the case of Spot Items) for further consolidation. DCS/1 and CRC/198 between them seemed to give CB all the control it needed, but the Services were still chafing at the thought of civilians giving orders to Service personnel. As late as September 1958, DSRA tried to clarify the "operational control" of the RCN over CAN 96 along the lines that if CB had any criticisms or rebukes for any actions at Coverdale they would have to be passed through Naval channels, while at the same time the representatives of the RCAF stated that "operational control" of was exercised through the RCAF, and that "direct control by CBNRC of Whitehorse was restricted solely to the assignment of tasks". In spite of these reassertions of Service policy, in practice the Service intercept stations responded to Operational Instructions from CB, whether on intercept or processing matters, without further challenges. It was made clear in CRC/204 in October

1958 that the CBNRC intention was "to institute forward reporting without a reduction of intercept", which of course was difficult for the Services to implement within their current station manpower ceilings.

Unification or Civilianization of Stations

5.27 It will be remembered that the TSG had late in 1949 recommended among other things the possibility of using unfit men, women, civilians and immigrants to get over the continuing shortage of intercept operators. These suggestions had been endorsed by the Senior Committee in March 1951, but had not been followed up because of the temporary boom in the manning situation in 1952, as well as the diversion of the GCHQ copy of US traffic on the Soviet Far East, which provided more raw material than CB could immediately digest. There were discussions about using amateur operators ("hams") or RCMP personnel stationed in the North to supplement the material from the undermanned intercept stations in August 1952, but the Army and RCAF were both firmly against this. In the same month, the RCN reported that by using "Wrens" at Coverdale they were able to divert some single men to Churchill on account of the shortage of married quarters there, and the Army said that their employment of civilians at Leitrim was releasing soldiers for service in the West at Ladner. Nevertheless, there was no overall look at the manning situation till August 1953, when the Communications Security Technical Group (CSTG) (a successor to the TSG) produced a fairly full paper on Intercept Manning. This paper gave as a requirement for a satisfactory intercept operator a period of gaining experience on the job of 3 years, or preferably 4, and for a supervisor a minimum of 8 years experience. It pointed out that the policies of the three Services did not allow these requirements to be met. In the case of the RCN, DSRA activities included Tactical D/F and Electronic Counter Measures (ECM) as well as Strategic intercept, to which they were only distantly related, so that even their comparatively large group of specialized "Supplementary Radio" operators did not provide an adequate stockpile of experienced

intercept operators. Army signallers were used in Canada in the N.W. Territories and Yukon communications system as well as in intercept duties, but this did not provide sufficient skills or the sort of career prospects that would retain experienced operators. The RCAF problem was that those communicators who were assigned to Whitehorse were rotated southward after 2 or 3 years, before they had gained much intercept experience, and then were liable to lose what little experience they had gained before they could be assigned to Whitehorse again. The paper proposed as possible solutions: a) Joint operation of the intercept effort by all three Services; b) All stations to be manned by one single Service; c) The whole system to be manned by civilians (at least up to the Operations Officer level). The need for something to be done was accentuated by the fact that the number of positions manned under the current system had been going down since the end of 1952, and by July 1954 was below 70 again, though the requirement for 100 manned positions was reasserted in CRC/192 in that month. To add to the pressure, the British recommended to Mr. Crean when he was visiting GCHQ in July 1955 the desirability of adding 23 extra intercept positions to what was already planned, as well as 83 extra processing staff in CBNRC.

5.28 By April 1956, Mr. Crean was reporting to the CRC that the CSB wanted him to examine the whole question of the consolidation of the intercept service. This arose when at their April meeting the members of the CSB questioned the divided control of the whole SIGINT organization, and asked the DCS to examine the matter and report back to them. In practice the subject under examination came to be confined to how the intercept effort could be rationalized, and did not involve the question of the control of CBNRC. The only immediate result of Mr. Crean's raising of the subject at the CRC was a paper which DSRA prepared and sent to him in May. Cdr. Hewitt expressed his opinions about the various options for manning the intercept stations which were being considered, along the following lines: civilianization (in whole or in part) would not work, largely because of the problem of rotation, and

because a mix of Service and civilian staff was never a happy arrangement; rather than a joint operation between the three Services, he plumped for a one Service operation, which he thought should be provided by the RCN. He gave four supporting reasons:

a) The Navy was the only Service with a special intercept branch (DSRA);

b) It would have to continue to operate a shore-based HF/DF service, whatever happened;

c) The RCN was the only Service which had an adequate training establishment;

d) Their exchange arrangement with the USN was an advantage.

He ended by saying that if one Service was the answer, "it would probably be necessary to review the administrative chain of command organization, and determine at what level, and to whom the Director should report". At this time, DSRA was subordinate to the Director of Naval Communications.

5.29 Nothing further happened on this subject till June 1957, when Mr. Denning of CB, who was also the Chairman of the CSTG, sent Mr. Crean a paper on "The Intercept Organization". This paper reviewed the current status, including the estimate that 84 out of the planned 100 positions were in operation, but then went on to point out the disadvantages of the way the intercept effort was being run, detailing problems in the areas of manning, training and rotation of station staff, and deficiencies in the mechanisms of control. It proposed two feasible alternatives to overcome some of these disadvantages, listing pros and cons in each case. The first was complete civilianization of the SIGINT effort, with both the stations and the processing Centre in the same government department; and the second had all stations being administered by one Service, retaining Service staffs, and leaving the Centre unaffected. Mr. Denning didn't come down on the side of either alternative, leaving the pros and cons to speak for themselves. However, he did

say that if neither reorganization was accepted, some adjustments could be made to ease some of the problems. As an example of a possible improvement, he proposed that the commitment for 100 intercept positions might be modified along the lines of the Navy providing 30 positions (20 in the North, 10 in the South), the Army 30 (20 North, 10 South), and the RCAF 40 (30 North, 10 South). This scheme was further broken down into: Navy - Aklavik 20, Coverdale 10. Army - Churchill 20, Ottawa 10. RCAF - Far North 10, Whitehorse 20, Vancouver area 10. There is no record of any of these particular suggestions being pursued any further.

5.30 The next step in the continuing saga occurred in June 1958, soon after Mr. Southam had taken over from Mr. Crean as DCS. He informed the Communications Operations Policy Committee (COPC) at that time that he had been asked by the CSB to prepare recommendations for the "rationalization" of the intercept organization. He was to look into the merits of four possible options: a) The status quo; b) Unification under one Service; c) A tri-Service organization; and d) Civilianization. This time there was more of a response than when Mr. Crean had raised the subject in 1956. In August, Mr. Drake came up with the CB view that civilianization of the intercept service was a better solution than the status quo, and than management by one Service or on a tri-Service basis. The Army responded swiftly in early September, saying that there was no way that enough civilians would be found to man the Northern stations, and that in their view the status quo should be maintained. At the COPC meeting in September, all the members seemed to have different views on "rationalization", along previously indicated lines (CB by civilians, Navy by Navy, RCAF tri-Service, and Army status quo), which was not very helpful to the DCS, who decided to go ahead with his own paper for the CSB[16]. His draft paper (CSB/72) was brought before the COPC in October, and was opposed by all three Service members, whereupon he said he would place it before the CSB in his

16. See para. 2.16

capacity as DCS, and explain that it represented his own views, and not those of the COPC or CRC.

5.31 At this point, it might be as well to summarize the opinions and recommendations of Mr. Southam's CSB/72. As he himself states in the Introduction to his paper, after examining the advantages and disadvantages of the status quo and the various alternatives, he "concludes that the aims of our intercept organization would best be served by the creation of a civilian organization with a certain number of operators and technicians attached from each Service - ". He added: "My report reaches no conclusion about the proper subordination of such an organization." He ended his Introduction (really a Summary) by saying: "Finally, nothing in this report affects the present position of CBNRC as the central **processing** organization .... It deals only with the problem of improving the organization of our **collection** effort." After going through the pros and cons of the alternative options, he enlarges on his favoured conclusion referred to above: "This organization, which might also have a certain number of civilian operators and technicians of its own, would assume administrative control of all the intercept stations now established on Canadian territory. The headquarters staff would be largely civilian." The rest of this section (paragraph 17 of CSB/72) expands on the details of tours of duty, training, etc. Where a station was predominantly manned by Service personnel, the station Commander would be a Service officer; in other cases he would be a civilian, "with a Service officer on his staff for purposes of discipline". Service personnel would be encouraged to stay on as civilians when their military tours of duty were over, which could provide a career up to a retirement age of 65. The head of the intercept organization would be a civilian, with Service personnel on his staff.

5.32 As might have been expected, these proposals did not go down well with the Services at any level, though CBNRC was in favour of the scheme in general, in spite of being concerned about the relationship of two civilian Directors, one of collection and one of

processing. At the 118th Meeting of the CRC on 24 October 1958, all three Service representatives said that Mr. Southam's concept was not acceptable, but that maybe a Joint Services Coordinating Staff would work, and indeed a paper making proposals along these lines was produced on 28 October, presumably by one or more of the Services for use by their members on the CSB, where Mr. Southam's paper was to be considered on 6 November. Meanwhile, CB had checked what current thinking in the UK and US was, with the following results. In the UK, interception had been carried out by the three Services plus a civilian organization run by GCHQ since 1947; more recently, the civilianization of the whole intercept effort had been considered, but it had been decided to stay with the four separate organizations. In the US, the Service cryptologic agencies had been able to prevent the development of a fourth civilian intercept service; however, there was some opinion in NSA that "a tri-Service organization should emerge, to be followed by a unified Service structure. Perhaps this would contain elements of a mixed civilian and Service organization". A report from Mr. Drake on these positions only reached Mr. Southam on 5 November, just in time for the CSB meeting the next day. At that meeting, Mr. Southam told the Board, as he had promised, that CSB/72 represented his personal views, not those of the CRC or COPC. He led the CSB members through his reasoning and recommendations, explaining that the Director of the new intercept organization could be a military officer, even though he preferred a civilian, and that he might be collocated with the Director CBNRC, and would be similarly responsible to the CSB through the DCS. The individual Chiefs of Staff, as well as their Chairman (CCOS) and the DM of Defence, had extensive comments, most of them adverse, to make on the paper. In the end, the CCOS (Gen. Foulkes) recommended that a further study of the subject should be made, but that "as collection was a Service responsibility, it should be carried out by a military officer appointed by the Chiefs of Staff for that purpose". This view carried the day, and not long afterwards Lt.Col. Paul Smith of Army Signals was appointed to carry out the task.

5.33 The selection of Col. Smith by the CCOS was made early in 1959, but his Terms of Reference were not spelled out by Norman Robertson, the new Chairman CSB, till 10 March. Col. Smith then got down in April to preparing his report with energy and speed, and after getting general agreement with his draft main conclusions from the Services and CB, was able to produce on 15 July an Appreciation consisting of 17 pages with 9 Annexes, together with comments from the three Services and CBNRC on his earlier draft. There were 12 Recommendations in his paper, the main one addressing the question of which of the five suggested Courses for improving the intercept organization should be accepted. His choice was Course E, which involved transferring the station at Whitehorse from the RCAF to the Army, and setting up a combined Directorate composed of Army and Navy members with a Service Coordinator to control the intercept effort. After three to five years of this, Course D should be considered, which was to have one Service "gradually take over the entire SIGINT organization from the other two". It was understood that in this he was referring only to collection rather than processing. The other Recommendations were more detailed and less radical. From CB's point of view, one of the most attractive sentences in the Smith Report read: "The channel for operational control is direct from CBNRC to the stations concerned and is well understood and effective." As will have been gathered from earlier parts of this Chapter, CB had never been sure that this basic principle was in fact well understood by the Services.

5.34 The Smith Report gave rise to a great deal of discussion, though it did not stir up as much controversy as Mr. Southam's paper had, but it is hard to discover any major action resulting from it. On 29 September 1959, John Starnes, who had taken over from Mr. Southam as DCS in January, prepared a summary of CRC views on the Smith Report to submit to the CSB. He pointed out that the Recommendation for a Service Coordinator of intercept would eliminate the need for the COPC and the CSTG, and drew attention to the wide differences of opinion exhibited in the Comments attached to the Report itself, as well as in discussions

in the CRC. As a result, he said that it was his view as well as that of CRC members "that it would be inadvisable and inexpedient at the present time to attempt the major reorganization proposed by Lt. Colonel Smith". He added that it was felt that many of the specific difficulties which had given rise to the CSB initiative in 1956 "had since been resolved", and that it was important to take no steps to alter the status quo that could not be generally accepted, given the critical role which intelligence was likely to play in the next few years. However, everyone was prepared to go along with most of the minor detailed Recommendations of the Smith Report, which they apparently felt saved something out of the years of discussion and argument. Within National Defence the Chiefs of Staff met on 9 October, and reached a consensus which enabled the CSB on 13 October to say that they viewed the Smith Report very favourably, but that its Recommendations would have to be given "further consideration". In practice, "further" became "sine die". It should be noted that the Chiefs of Staff agreed to the appointment of a Service Coordinator of intercept, without disrupting the COPC and CSTG Committee structure. This decision probably formed the germ of the later consolidation of the intercept staffs in DND as first Directorate of Intelligence Operations (DIO) and later Canadian Forces Supplementary Radio System (CFSRS), after the unification of the Services in 1965[17].

s.15(1) - DEF
s.15(1) - IA

Northern Sites

5.35 Already in April 1952 the effectiveness of Churchill in providing wanted traffic, especially in the light of local radio interference, was being discussed at the CRC seriously enough to raise the question of whether the station there should be relocated.

17. See para. 2.28

18. See para. 11.64
19. See para. 11.59

s.15(1) - DEF

s.15(1) - IA

5.37 In March 1956, a paper was produced (COPC/18) about which intercept sites might be able to provide what was called s.15(1) - DEF in advance of North American radar reactions etc.). The stations proposed as having a potential capability were Aklavik, Churchill and Whitehorse, with Alert and Resolute perhaps coming along later. It was recognized that such a capability would require the immediate processing of "voice" transmissions at the stations, and probably also VHF intercept and D/F facilities. CB was pressing DSRA to get on with moving 10 positions up North, though since Aklavik could only cope with 5 for the time being, the other 5 would have to go to Churchill. In June 1956, as its contribution to a JIC paper on Soviet activities in the Arctic, CB said: a) After Alert and Resolute had been tested in 1957, it was hoped to have a station established closer to Soviet Arctic activities; b) Aklavik was better than Churchill or Whitehorse, but could only provide 5 positions at present which were already fully committed; c) It might be advisable to equip RCAF reconnaissance aircraft for SIGINT interception[20]. To help out with the Alert and Resolute surveys, it was decided that CB analysts would be posted to the sites for six months at a time to assist in the immediate steerage and processing; they were to receive Northern allowances while they were there.

20. See para. 6.41

5.38 The CANUKUS Arctic Conference took place in June 1957, and one of its results was the establishment in CB of a

This was to be achieved by reducing the commitment of at Ladner from 25 to 15 positions, but to have the 10 positions at Alert manned and supported by all three Services, at least for the first year, with the CO and administration to be provided by the Army. Since the station was to be experimental it was designated as accordingly, with the move of the RCN Northern station from Aklavik to Inuvik at about the same time, the list of the operational strategic intercept stations in 1960 was: (Alert), (Inuvik), (Ladner), (Whitehorse), (Coverdale), (Ottawa) and (Churchill). To round off the subject of station short titles, with the unification of the Canadian Forces in 1965 the individual Service letters M, N and A all became F, and with the transfers of Ladner to Masset and Coverdale to Gander in 1971, and the earlier closing down of the stations at Whitehorse and Churchill, what emerged was a series of five (Alert), (Masset), (Inuvik), (Gander) and (Ottawa/Leitrim).

21. See para. 11.82

5.39 With what must be regarded as amazing speed and efficiency, considering the formidable logistic and other problems which had to be overcome, the ten positions at Alert were manned by December 1959. This was achieved in spite of the fact that the Minister of National Defence (Gen. Pearkes) withheld approval for the heavy expenditures required to establish the station until Mr. Diefenbaker insisted on going ahead with the project. As of 30 June 1960, Alert was manned by 21 RCN, 51 Army and 19 RCAF personnel, of whom the latter were to drop out by December; anyhow, the tour of duty there was only six months, with no possibility of being re-posted there for two years. The Army reported that they were manning 5 of the positions in 1960, and would probably be able to take over the whole operation in two years. Meanwhile the Navy said that they were prepared to transfer 5 positions from Churchill to add to the 10 at the new site at Inuvik, which had turned out to provide far better traffic. Mr. Starnes as DCS was dealing with the CNS directly about increases at Inuvik, and with the CCOS and DM of National Defence about requirements at Alert for the winter of 1960/61, rather than having them discussed at the CSB. However, there were discussions throughout the year about providing strategic D/F facilities at Alert and Inuvik, though in the latter case it was realized that they would largely duplicate the RCN "tactical" D/F capability already in existence there, and contributing intermittently to the USN Pacific net. In the end (November 1960) the CRC requested: a) CB to state the need for D/F at Alert and Inuvik; b) The RCN to report on their Arctic D/F program; c) A paper to be presented giving the overall RCN plan for D/F resources. The results for D/F are reported in paragraph 7.13.

5.40 1961 and 1962 saw the culmination of this phase in the development of Northern sites. To bolster the capability of Alert for the winter of 1960/61, volunteers from CB were posted there to the extent of providing one extra manned position. In February 1961, a paper (CRC/224) proposed boosting the total position commitment to 150, and redeploying the current 100 positions, the major suggested change

being to close down Whitehorse and Churchill, and transfer their resources to Alert and Inuvik. In July approval was granted for the more practical step of increasing Alert from 10 to 15 positions by correspondingly reducing Churchill by five; and this trend was advanced further in November 1962 in IPC/22, which recommended increasing Alert to 20 positions, with an additional expensive facility for copying and locating short signals
The high cost of implementing these recommendations caused a deferral until they were put forward again in February 1964 in IPC/1-64. The proposals in this paper were eventually approved by the Intelligence Policy Committee (IPC) in November, involving 20 more operators at Alert to man the five new positions, and a scaled down version of equipment (costing $350k instead of $850k) which finally took shape as a Canadian modified facility known as

Moves from Vancouver and Coverdale

5.41 The functions and problems of the two "coastal" stations, Ladner (Vancouver) and Coverdale (Moncton), were quite different from those at Northern sites. Unlike the other Southern station, Leitrim (Ottawa), which gradually took on the function of retrieving wanted traffic from wideband tapes intercepted at Alert as well as the established collection of transmissions, the "coastal" stations were primarily employed in covering sea and air targets of interest to the Maritime Commands on both coasts. Problems arose from local interference from the built-up areas in their immediate environment, and in the case of Vancouver from approaches by the Department of Transport (DOT) to use Ladner as a landing-site for local private flights. In September 1958 the CCOS was under political pressure to do something about landing rights at Boundary Bay (Ladner), and instructed the Army to look into alternative sites for In his turn, DSigs Army was told to look into the possibility of

22. See para. 12.29

moving the facilities and manpower from the Vancouver area to some other site or sites, Alert, Inuvik and Masset being mentioned as locations which might absorb them. By June 1960 the Army was conducting a survey "in conjunction with CBNRC" for an alternative site for Ladner, and had already done some technical tests at a site on Westham Island in 1959, which had proved unsatisfactory. The CRC members all agreed that it would be inadvisable to move out of Ladner until a suitable alternate site had been found. Although the Army studied about ten possible locations during 1960, with the DOT helping to decide the likelihood of local interference in each case, no suitable solution emerged. The IPC in June fell back on enquiring whether a station on the West Coast was necessary at all. In October the Director CBNRC, supported by the Communications Research Technical Group (CRTG), reaffirmed the requirement for 10-15 positions on the W. Coast, and added that if the facilities were to be moved from Ladner, they should only be transferred to a site that could be shown to have better prospects for interception of wanted traffic. The whole affair thus remained at a standstill, and in February 1961 a decision was made to postpone policy consideration of a relocation for the station.

5.42 Although the effort to get the station moved from the Vancouver area had been temporarily stalled, it would not lie down. It was reported at the CRC meeting in March 1962 that the IPC had confirmed that the question of relocating Ladner was closed "at least for the present", and that the Minister of National Defence had so informed the DOT. Nevertheless, pressure obviously continued to be exerted, to add to the drawback of local radio interference with the station's interception. In 1965, as part of a proposed redeployment of intercept resources which will be dealt with in the next section of this Chapter, moves from Vancouver and Coverdale to Masset and Gander respectively were considered for inclusion in a paper CRTG/14, but the CRC at its October meeting decided to defer consideration of such moves. However, by June 1966, as part of a paper on consolidation of the

intercept service, approved by DND and presented to the senior interdepartmental committee as IPC/2-66, it was agreed that Masset and Gander should be given a full survey to determine whether they were capable of taking over all the strategic intercept tasks required by CB, as well as HF/DF operations for the Navy. As a result of this and other surveys conducted by the newly formed DIO[23], a press release from DND in September announced that by the end of 1971 Canadian Forces establishments at Frobisher, Whitehorse, Churchill, Coverdale and Ladner would be closed down. This general statement of closures was further refined at the CRC in October as follows: Frobisher in 1967, Churchill and Whitehorse in 1968, Ladner and Coverdale in 1970/71. The closures were to include D/F as well as intercept facilities (in the case of Frobisher only D/F).

5.43 To confine our consideration for the present to the situation of the two "coastal" stations, DIO reported in October 1967 that construction was going ahead at Gander for a full intercept station as well as an alternate D/F Net Control, to take over from Coverdale, and that land was being acquired at Masset in the Queen Charlotte Islands for the expansion of the existing small D/F facility to take over the intercept responsibilities of Ladner. By June 1968 the site for the Masset station had been cleared, and the operations building was under construction; the station at Gander was due to be complete and ready in the summer of 1969. CBNRC was prepared with assignments for the 10 intercept teams to be transferred from Coverdale to Gander as part of the overall redeployment, which included a planned transfer of 10 teams from Ladner to Masset; the remainder of the 100 committed positions were to be located 20 each at Alert and Inuvik, and 40 at Leitrim, mainly for processing the wideband (42-track) tapes from Alert. As might have been expected, there was some further slippage before the new coastal stations were finally ready to commence operations. In May 1970 Lt.Col. Allen, who had succeeded Cdr. Pratley as DIO, and was

23. See para. 2.28

to become the Commander of the CFSRS on 29 June[24], gave a full report on the redeployment of intercept and D/F resources, known in DND
Coverdale and Ladner were to be closed down in the fall of 1970, and the expanded facilities at Gander and Masset were to take over from them at that time. At Gander, the large "Circularly Disposed Antenna Array" (CDAA), with a narrow band equipment for the Control-directed D/F of short signals (FRD-10), was completely installed, and the stand-alone FLR-7 and FRA-54 wideband system was almost ready (for the meanings of these letters, see paragraph 12.1). All systems, including the equipment for strategic intercept, were to receive their final check-out in November 1970. As far as Masset was concerned, their FRD-10 was to be in by September 1970, and the rest of their intercept equipment by November; intercept and D/F systems were to be "fully automated" by 1 March 1971. The actual moves of operators had been delayed because of administrative and construction hold-ups such as the lack so far of sufficient married quarters at Gander, and the fact that the operations building at Masset was not quite ready for occupation, owing to a lockout of construction workers. After further extended discussions between CBNRC and CFSRS, it was eventually arranged that the moves in both cases would commence on 15 June 1971, and that the transfer of all intercept and communications facilities would be completed and full operations commenced at Gander by 2 August, and at Masset by 15 September[25].

Other Late Developments

5.44 Whereas up till the early 1970s developments or proposals on interception at stations were talked to death by committees at various levels, the situation then changed. As mentioned in paragraph 2.14, the COPC, which had been set up in June 1953 to advise the DCS on collection matters, was reintegrated with the CRC in late 1959. The CRC itself was disbanded by

24. See para. 2.28
25. See para. 14.98

the end of 1971, and in February 1972, with the Inter-departmental Committee on Security and Intelligence (ICSI) succeeding the IPC, the position of DCS was abolished, and it was implicitly assumed that his SIGINT "policy" functions, as well as the intelligence responsibilities of the JIC, were taken over by the newly created IAC[26]. This left the discussion and development of plans for interception at stations to CBNRC and CFSRS; and until the move of CB to DND in April 1975, the point at which this History ends, as long as Treasury Board staff agreed with any interception plans involving extra money, there was very little interference by DND or the IAC with the "inter-departmental" Collection Equipment Program presented each year to ICSI. The technical committee CRTG, headed by CB's Coordinator of Technical Development (Coord/T)[27], still met to prepare this annual Program, which was then passed in tandem with the CB Estimates through the IAC to the ICSI; although other representatives could attend the CRTG, all the effective work was done by the CB and CFSRS representatives. CB had also had to deal on some matters with the Director and staff of DIO at CFHQ, until its amalgamation with CFSRS in 1970. This Directorate, soon after its formation in 1966, had announced that unification of the Services would enable it to reduce the establishment of 1,900 personnel engaged on interception duties by 300 over a five-year period. By 1968, under questioning by CB, DIO admitted that the reduction in operators had caused a drop in manned positions to 73 out of the 100 committed. However, they said that measures in hand would probably raise this figure to 85 by the end of the year. Mr. Dornan as Coordinator of Production (Coord/P) represented the CB view that 85 would be the absolute minimum for fulfilling operational commitments, and contrasted the Canadian contribution of manned positions with the US (2,000) and the UK (600). The Collection Equipment Estimates, which with unification had moved from DRB Vote 712 to CFHQ Vote 603 (Primary 65), were able to absorb new items such as the $266k needed for

26. See para. 2.29 and Annex 2.G
27. See para. 3.12

the dealt with in the next paragraph. Nevertheless, these Estimates remained at an acceptable level, under the economic hand of Mr. Denning as Coord/T and Chairman CRTG; he was for example able to point out that the Estimates for FY 1969/70 were $213k lower than for the previous year, the new level representing all that the engineering and installation staff could absorb. In the succeeding years Treasury Board was dividing their Programming, Planning and Budgeting (PPB) System into Level A, which was supposed to mean "essential" but came to be tied to the previous year's figure, and Level B, which covered items which were desirable but over and above the previous year. In 1971 the Director CBNRC made a strong and successful appeal that in the case of the Collection Equipment Program, as well as of CB, Level A should include items necessary to maintain the current efficiency of the SIGINT effort, even if they amounted to an increase over the previous year's Estimates.

5.45 As just indicated, this paragraph will deal with the program, which represented an important new concept in intercepting larger amounts of wanted Arctic traffic at a difficult site like Alert, without a corresponding increase in the number of operators required there. This concept, which was known as

only one team of operators; The component would use at least 15 teams of operators at (Leitrim) to extract and record transmissions from the forwarded according to assignments and priorities laid on by CBNRC[28]. became operational at Alert on 3 December 1970, and the operators at Leitrim began retrieving wanted transmissions on their individual receivers on 11 December. The immediate reaction was that the whole system was performing way

28. See para. 12.34

beyond expectations, and that a large increase in useful SIGINT was being achieved with only moderate equipment expenditures, and with no extra requirement for operators in the difficult North. The material provided by
which R2 Section reported in April 1971 was producing "lots more useful stuff" for their important and largely unique work on
It also of course produced large amounts of communications intercept; while some of this duplicated traffic from Soviet forces, which had to continue to be intercepted on the positions in order to provide a timely processing capability at Alert if operationally required, a great deal of non-Service traffic was included which enabled CB analysts to produce useful intelligence of a longer term nature.

5.46 In CBNRC, the section in charge of Intercept Control (R1) was setting about its task in a more businesslike way, now that it no longer had to struggle with the idiosyncrasies of three separate Services. During 1967 and subsequently, a uniform Collection Management system was devised, after discussion internally and with DIO, for all the stations, incorporating the "Station Operating Instructions" (SOIs) as well as various new series providing background information ranging from formatting and communicating procedures to continually updated "Intercept Support Documents" (ISDs). In July 1968 there was inaugurated the "Monthly Digest of Canadian SIGINT Collection Resources", including the three categories Technical, Teamage and Tasks. In April 1969 R Group produced a paper on the "Partial Mechanization of Collection Processes for Computer Input" which, though not enthusiastically received by Coord/P and Coord/T, formed the basis of the formatting at Canadian stations, and the processing by CB on its developing computer facilities, of intercepted material in the system devised by NSA. Requirements for new kinds of interception cropped up from time to time. The submarine short signal problem has already been mentioned in

connexion with the proposed purchase of the expensive US equipment and the development of the cheaper Canadian system. In May 1969 the requirement to be able to pick up VHF transmissions in the first instance at Alert and Inuvik, and later perhaps at Gander and Masset, was discussed internally in CB. This was loosely connected with a slightly different CANUKUS joint arrangement which involved trying to locate by HF/DF any transmissions

The Canadian contribution to the latter arrangement, attempted from Gander for and Alert and Inuvik for after a somewhat hopeful start was reported in December 1971 to have declined over the past year, especially in the absence of any tip-offs as to when In the former case (VHF , it was decided that coverage at Alert was feasible, so, taking into account the fact that VHF D/F and the interception of non-communications transmissions (ELINT) would be extremely expensive there in both money and time, Coord/P in November 1969 instructed R Group to go ahead with VHF communications interception (but not D/F or ELINT) at Alert. This project, using a US VHF equipment nicknamed was tasked to cover the

but an evaluation of results in August 1971 came to the conclusion that the effort was not cost-effective. Another VHF-related project, involving the attempt to intercept was under consideration in 1971. R Group estimated that it might be possible to pick up radio signals by

It was proposed to conduct a test program along these lines with one position at Inuvik, being the most favourable location, for a period of two years, but although this proposal was made in November 1971, it was recognized that the practical difficulties of obtaining equipment, etc., meant that the test could not be started

till late 1974, which considerably lowered everyone's enthusiasm for the project.

5.47 Other developments during this period, selected in a somewhat haphazard but largely chronological manner according to apparent importance, will now be at least touched on. Following on their 1967 drive for more businesslike collection management referred to earlier, R Group in May 1970 decided to produce periodic computer read-outs entitled "Assignment Productivity Summaries" to help in assessing which intercept tasks were really worthwhile. In September of the same year they instituted longer term (5-year) planning papers for collection and SAR (Station Analysis and Reporting) activities, starting with the period 1972-77. Incidentally, it was discovered at this time that more than 50% of total Canadian intercept was in the range of frequencies [

In 1971 CB started being a regular part of the CFHQ inspection teams which visited the stations on a periodic basis; at first the CB representative only went along as an "advisor/consultant", which did not involve participating in preparing or even discussing the visit reports. However, as a result of a demarche by CB in May 1971, that a report presented to DND authorities on the status and proficiency of Alert should have been at least discussed with the involved CB experts, station visit reports were from that time on prepared in consultation with CB. In August 1971 CB requested CFSRS to provide a full-time one-position capability for voice interception at every station, and in September they wanted the teamage available at Leitrim for purposes to be increased from 18 to 25; this was soon regarded as an over-estimate as well as over-optimistic, especially in view of the fact that for the bandwidth required for the collection at Alert, was now regarded to be adequate as contrasted with the theoretical originally planned in 1969.

5.48 At this time the question of the necessity for a station at Alert, in view of the increasing US capability of interception kept on

cropping up from the mouths of economy-conscious authorities. A coordinating officer in Deputy Chief of Intelligence and Security (DCIS) raised the question persistently in October and November 1971, strongly enough for the JIC to get into the act, and CB was forced to produce formal statements of the absolute requirement for interception from Alert over at least the succeeding ten year period. Part of the DCIS position and rationale was that the "processing and production" of intelligence could be increased only if there were significant savings in the collection program. In spite of the fact that Alert was still far the most important station for the Canadian intercept effort, CB found itself very impressed with the capability of Masset to intercept

As the transcribers in CB put it, the on a variety of interesting subjects came simply "booming in" on the tapes sent in from Masset. As a piece possibly of trivia for the readership, it is noted from the 1971 record that the COs at all Canadian stations, including the purely HF/DF stations at Bermuda and Gloucester, held the rank of Major.

5.49 1972 was not a very active year in terms of significant developments in the collection area, though activities and assessments proceeded in a regular fashion. The quality of the forwarded from the position at Alert was a constant problem to the operators at Leitrim and the analysts in CB, due largely to the characteristics introduced onto the tapes in the large volume of low-powered transmissions, which could not all be monitored and checked by the single operator. There were also problems with the complicated equipments on loan from NSA to digitize and format Soviet transmissions at stations; it was discovered that there was not an adequate air-conditioning capability at Alert, where most of the wanted was intercepted, so extra equipments had to be put into operation at Leitrim rather than Alert, thus adding an additional delay before the material processed by the reached the analysts in CB. At a CANUKUS

Conference held in CB in September 1972[29], CBNRC presented a paper on "Review of Intercept Sites", which claimed the number of positions manned at stations to be: (Alert) - 20, (Masset) - 10, (Inuvik) - 20, (Gander) - 10, and (Leitrim) - 31, for a total of 91. Also in October 1972 a start was made in the direction of planning for the conversion and preliminary processing of intercepted data from all stations to be done centrally at CB, rather than by Forward Processing teams at stations. This plan, known as Project which envisaged "mechanized" (i.e. computer) processing of radio-printer (Phase I) and then Morse (Phase II) material in CB, was an early forerunner of schemes such as , and dealt with later in this Chapter. Some such centralizing scheme was made even more urgent when Sylvain Cloutier, the DM/DND, announced at the ICSI in February 1973 that he was seriously considering cutting the costs of interception at stations by 25%. DND had already insisted, in a policy paper in March 1972 on the requirements and costs of the Canadian Intelligence Program, that the costs incurred by CFSRS in running the intercept stations should be listed separately from the cost of SIGINT processing at CBNRC.

5.50 The suggestion by the top authorities in DND that they might have to reduce the intercept effort by 25%, which in effect meant reducing the target for manned positions from 100 to 75, occupied the attention of CBNRC and DCIS, and to a much lesser extent the residual committee structure, for the whole of 1973. In February the Assistant Director, Production (AD/P) asked R1 to develop the concept of "block tasking" with a view to economizing on intercept operators. In "block tasking" a block of positions at a station was assigned by CB to a particular task, and the supervisors and operators could be flexible about switching between specific links contributing to that task, or even switching to another task if the assigned one was not busy enough. Another gambit designed to economize in operators was "asymmetrical

29. See para. 11.98

coverage", whereby the procedure for having more intercept teams operating at times of greater target activity was rigidly applied and extended as far as the shift system would permit. In April the DCIS office tried to intervene in reaction to CB's economizing measures, querying whether any really effective savings were being made by block tasking and asymmetrical coverage. They also pointed out that teams assigned to processing duties at stations had considerably increased the staff requirement for manning 100 intercept positions. The average number of manned intercept positions over the last few years had been: 1968 - 80-1/4, 1969 - 80-3/4, 1970 - 80, 1971 - 84-3/4, and 1972 - 89-1/4 (in spite of CB's claim of 91 in September 1972); but in addition manning for an average of about 20 processing teams had to be provided. Under the proposal by DND, Intercept and Processing (I and P) were in future to be combined in the planned teamage, so that the FY 72/73 planned teamage (100 I, 18 P) was to be reduced in FY 73/74 to 85 I/20 P, and in FY 74/75 to 80 I/20 P to satisfy the commitment for 100 manned positions. As far as the actual intercept positions were concerned, CB said it was prepared to accept the current figure of 89, by reducing the requirement at Alert from 20 to 16, and at Leitrim from 40 to 33, but could not go lower. At the Tripartite Conference in September 1972, NSA and GCHQ had both said that Canadian cover, especially on the Arctic, was "unique and valuable".

5.51 However, the DM/DND was still saying that DND could not provide and support more than 75 positions. Papers were drafted for the IAC and ICSI attempting to assess the impact on SIGINT tasking and intelligence production in Canada, as well as on the crucial relationships with collaborating Centres. CBNRC pointed out the difficulties of accurately describing the precise effects of a reduction of SIGINT interception on intelligence production, since the former deals with individual communication facilities and the latter with general subjects of intelligence interest. Nevertheless, throughout the year assessments by CB and the intelligence community of the impact of a 25% reduction in intercept were considered by the committee structure without any firm conclusion

being reached. Basically, the DM/DND was engaged in an exercise to show how the overwhelming majority of the Canadian SIGINT effort was funded by DND, and by threatening reductions to persuade his colleagues on the policy committee to propose a more equitable division of costs. In December 1973 Gen. R.J.G. Weeks, the DCIS, was in NSA enlisting support for the thesis that Canadian intercept stations should remain as they were, and in February 1974 NSA replied giving strong support for the status quo rather than a 25% reduction, stressing the geographical location of Canadian stations which enabled them to provide the CANUKUS community with material which was "unavailable from US, UK, facilities". At this point the DND pressure for the 25% reduction fizzled out, largely due to advice from the DCIS.

5.52 During 1973 a test to see if Masset could intercept useful amounts of traffic, known as Project was carried out. The tests lasted about 6 months, but the results were unsatisfactory, as NSA did an evaluation which showed that Masset could not produce anything that was not done better at stations under US control, or available A more general model of Canadian intercept facilities for the future was produced by R Group in December 1973. This was based on objectives, widespread by this time, to provide effective collection with less manpower and at lower cost. NSA had for systems development its project including previous concepts such as for remote control; and the British were developing a comparable system called The R Group paper embraced two basic principles: a) The control and processing of intercept should be concentrated centrally (e.g. at Leitrim or CBNRC), and b) The concept should be extended from Alert to all stations. It was recognized that a total Remote Control system (i.e. setting the specific frequency coverage of all positions electrically from a central control) would require a vast communications bandwidth, and that the alternative to this, in order to reduce the bandwidth requirement, was to incorporate and central extrac-

tion system. The modified remoting concept would then include "mission controllers" at stations to take over part of the control of col-lection effort. It will be seen later that these were two of the main subjects dealt with in the Study, which said "Yes" to central processing and "No" to total remoting. What was basically needed in order to be able to process all Morse, radioprinter and traffic (voice was a different problem) at a central location was for more and better to be installed and operated at stations, and this became an aim of R Group and Chief Technical Adviser (C/T) in CBNRC.

The Final Position and

5.53 In 1973 Canadian intercepted traffic broke down into 50% radioprinter (including , 45% Morse page-print, 4% voice (including ciphony) and 1% "other". It was established that the ciphony intercept on MF/HF was of too poor quality for any sustained attack to be mounted on it at the other Centres. Even clear voice intercept proved very expensive in sensitive recorders and trained operators, so that as late as July 1975 R1 was telling Director General Production (DG/P) that it had proved impossible to establish a capability at Gander yet, and asking whether the whole requirement for voice intercept could be rechecked and restated. CFSRS introduced a 5-watch system of shifts in 1974, which resulted in a "sharp fall" in teamage on any given shift at all stations except Alert. The Review of Operations for 1974 reported a 9% reduction in average teamage, though it added hopefully that "new tasking procedures" (probably block tasking and asymmetrical coverage)[30] were expected to lead to "a flexible use of manpower and more productivity". Proposals had been made and plans started in 1974 to intercept transmissions from

30. See para. 5.50

CB felt that it should now start planning to collect traffic from areas of interest included the Arctic Phase I of the plan was scheduled for FY 74/75, and was to provide $12k to obtain a

5.54 Such was the general situation in January 1974, when the study called foreshadowed in paragraph 5.52, whose basic theme was the modernization of Canadian intercept techniques, was presented by R Group representatives to the CB SIGINT Committee, and separately to CFSRS officers. A model was put forward for combining at Alert intercept from involving 42 Morse and 72 printer signal links to be forwarded electrically to Leitrim, where would be retrieved and processed. A further description of the possible central operation at Leitrim was given, including remote control of the narrow band receivers at Alert on time-sensitive tasks, and incorporating raw traffic from the coastal stations in its processing, analysis and reporting functions. It was accepted that the scheme would entail practically no reduction in operator teamage overall, but only in the expensive North, and that millions of dollars more would be needed for the communications capability. CB and CFSRS representatives went together to NSA to discuss the new Canadian remoting concept and US reactions to it. The concept was given a boost by the discovery of a USAF plan for a which might become available in 1976 to meet the crucial requirement for wide bandwidth and reliable communications with Alert.

31. See para. 12.49

and they had not yet been able to conduct studies on its engineering or cost effectiveness. Their inclusive project

The scheme for Canada would include 46 automatically tuned receivers at Alert with 18 remote operator consoles at Leitrim, both with minicomputers to assist with automatic synchronization and tuning, and a 1.544 megabit/second reliable communications channel to connect them. This last requirement was to prove a major stumbling block, and a concrete plan for between Ottawa and Alert had not been developed in the time frame of this History[32]. Based on these discussions between CB, CFSRS, and NSA, a study group consisting of representatives from CB and CFSRS under the leadership of John Burrell of CB was set up in June 1974 to

This was named the Study Group (with a nod to the much larger NSA project). Although its Final Report was not issued till April 1976, considerably after the closing date for this History, it is considered worthwhile to follow the general lines of its deliberations, and to touch on those of its Main Recommendations which provide a suitable forward-looking close to the subject of

5.55 By August 1974 thinking about the remoting and central processing concepts had already been modified to dealing only with and thus reducing the required bandwidth for the communications link with Alert, which was now envisaged as an and line-of-sight unattended relay stations from there on. The first Working Paper was circulated on 14 August. It dealt with the basics of collection requirements, noting that CBNRC processing

32. See para. 12.46

operations were based on material from Canadian stations and from other sources, and that while of Canadian collection was undertaken to meet CBNRC requirements, was conducted mainly to satisfy requests from the US and UK. It also looked at some of the fundamental weaknesses in the Canadian SIGINT collection system, and came to the conclusion that organizational and policy problems needed to be solved, prior to the provision of sophisticated equipment systems, in order to achieve

Some Interim Recommendations were included in Study Group Paper No. 2, issued on 9 October 1974. These indicated inter alia that the Group had '

As will be seen, it was not. Paper 2 also asked for a program of comparative collection tests at Alert and Inuvik, using the UK which had by now been installed at both stations. By February 1975 the Group was getting involved in the CFHQ problems in manning the stations, and its leader was asking GCHQ for their views on total or partial civilianization of stations, which must have created an impression of déjà vu. Head of Division in GCHQ, spoke to the Group on the British project,

5.56 We turn now to some of the Main Recommendations of the Study Group, put forward as part of their major and important Final Report issued in April 1976; CSE's SIGINT Committee "gave approval in principle to all of them" on 15 June 1976. A Implementation Committee" was set up, and had its First Meeting on 21 September 1976, but its deliberations will not be discussed here, since that would take us even further outside the time-frame for this History. However, it can be said that the event-

ual implementation paper, drafted in June 1977 for the approval of the policy committees, proposed a Central Processing and Reporting (P and R) effort in Ottawa, also responsible for Mission Control at the stations, and a plus radio-relay communications system to support these efforts. These proposals were in harmony with US/UK concepts. But to return to the original Report and Recommendations, the Report of April 1976 was a thorough and comprehensive survey of collection problems and proposed solutions. It cannot be adequately summarized here, and anyone wishing to see its sensible handling of a wide range of problems relating to the Canadian SIGINT collection system should consult the original. All that will be touched on now are some of its highlights and their implications for the future. By way of background, it need only be said that the Study Group found itself "in an era of decreasing CFSRS collection manpower, with threats of further reductions to an already small-sized operation". As a result, the members "detected feelings of despondency among the field collection organization, particularly relative to the threatened 25% cut in intercept teamage three years ago".

5.57 After raising and dealing with a number of problems responsible for this gloomy situation, the Report listed ten Major Recommendations (Section H), followed by a list of all their recommendations (Section I), the whole lot being supported in detail by nine Annexes. The Major Recommendations did deal with organizational and administrative matters, such as that CSE should do more in stating total requirements and join (more closely) with CFSRS in devising means to meet them (Rec. 1), and that forecasts and estimates should allow for replacements of collection equipment "on a ten year average cycle" (Rec. 5); the Report came down on the side of military rather than civilian provision of facilities and manpower (Rec. 9), but recommended the amalgamation of the CSE and CFSRS collection operations and engineering staffs under some "suitably unified" management and administrative structure (Rec. 10). However, for our purposes the most significant Major Recommendations

were Numbers 2, 3, and 4. These rejected for the present the "full remoting" concept, even for Alert (Rec. 3), but proposed what was called the "middle level" collection facility and methodology (Rec. 2), tied in with Recommendation 4, which read in full: "All traffic processing and reporting functions be transferred to a central location in the Ottawa area." "Middle level" methodology left interception and preliminary signal processing at the stations, together with search and local task control, while central "mission control" as well as processing and reporting (P and R) were to be located in the Ottawa area. This middle level concept would require less of the expensive bandwidth than "full remoting" would entail, and would also achieve economies in manpower by concentrating "forward processing" operations in the Ottawa area. At the Conclusion of the Report (Section J) the members wondered self-doubtingly whether they had covered the subject adequately, and whether their effort had ultimately accomplished its purpose "to propose a new collection system, etc.", as laid out in paragraph 5.54, but everyone would probably agree with them that "the opportunity to survey the total collection function has been worthwhile ---". Looking ahead, one can see in the Recommendations the germ of the later Project at least as far as Morse and radioprinter collection is concerned.

s.15(1) - DEF

Positions Manned September 1950 - February 1953

Commitment	20	20		20	20		20	100
1950	Churchill	Coverdale	RCN Total	Vancouver	Ottawa	Army Total	RCAF Whitehorse	TOTAL
Sep.	2.5	5.0	7.5	9.3	3.9	13.2	10.5	31.2
Oct.	2.5	5.0	7.5	9.1	4.0	13.1	10.2	30.8
Nov.	3.0	5.0	8.0	9.6	4.1	13.7	12.8	34.5
Dec.	2.1	4.9	7.0	9.4	3.9	13.3	12.2	32.5
1951								
Jan.	2.3	5.0	7.3	10.1	6.1	16.2	12.8	36.3
Feb.	2.0	5.0	7.0	8.7	7.2	15.9	14.0	36.9
Mar.	2.0	5.0	7.0	8.3	6.5	14.8	10.7	32.5
Apr.	1.6	5.9	7.5	9.9	4.4	14.3	12.7	34.5
May	3.5	4.2	7.7	10.4	4.4	14.8	14.0	36.5
Jun	7.8	2.9	10.7	9.0	5.5	14.5	13.8	39.0
Jul	9.	4.	13.	8.57	7.18	15.75	16.22	44.97
Aug.	9.	4.	13.	9.27	7.53	16.80	16.22	46.02
Sep.	9.	4.	13.	10.19	8.29	18.48	16.60	48.08
Oct.	10.	5.	15.	10.13	8.57	18.70	17.	50.70
Nov.	12.	4.	16.	11.40	8.15	19.55	18.	53.55
Dec.	14.	4.	18.	11.10	8.60	19.70	20.	57.70
1952								
Jan.	15.	4.	19.	11.20	9.94	21.14	22.	62.14
Feb.	15.	4.	19.	11.48	9.00	20.48	22.8	62.28
Mar.	15.	4.	19.	10.80	8.09	18.89	19.66	57.55
Apr.	13.	4.	17.	10.40	11.80	21.48	19.	57.48
May	13.	4.	17.	11.30	10.84	22.14	22.	61.14
Jun	9.	5.	14.	11.80	10.73	22.53	21.	57.53
Jul	8.	7.	15.	12.30	11.62	23.92	21.	59.92
Aug.	8.	10.	18.	12.79	13.45	26.24	19.	63.24
Sep.	13.	10.	23.	12.70	14.09	26.79	21.	70.79
Oct.	13.	10.	23.	13.42	13.98	27.40	20.	70.40
Nov.	13.	10.	23.	15.40	14.16	29.56	21.	73.56
Dec.	14.	10.	24.	14.10	14.98	29.08	22.	75.08
1953								
Jan.	14.	10.	24.	14.30	13.71	28.01	20.	72.01
Feb.	14.	11.	25.	14.20	14.70	28.90	20.	73.90

Henceforth only circulated to CRC members; not in Minutes.

Chapter 5/Annex B

CRC/184

4 September 1953

To: CRC Members

Forward Processing and Reporting
at Canadian Intercept Stations

1. In a time of emergency it will be necessary that trained staff able to do immediate processing, to recognize important items, and to report them speedily and accurately, should be available at intercept stations. Such staff can be trained only by working on material available at the stations while no emergency exists. Further, it is possible that, at any time, an item of immediate and vital importance might be intercepted by Canadian stations. It is essential that, should such an item appear, it should be recognized and disseminated with an absolute minimum of delay. This can be achieved only by scanning the traffic at the station as soon as it is received.

2. I therefore recommend that staff be allocated by the Services concerned to all intercept stations to perform preliminary processing, both traffic analysis and low grade cipher, on a day to day basis and to scan traffic for immediate of unusual items; such staff being additional to the staff for compilation and the preparation of technical summaries already authorized at the 83rd Meeting of CRC.

s.15(1 - DEF

3. In order that the work done at the intercept stations be completely integrated with the main Canadian COMINT effort, that duplication be reduced to a minimum and that procedures and reporting formats be standardized, the general direction of the staff and allocation of tasks should be under the authority of Director CBNRC, who would be required to furnish all

necessary technical material of both code categories and would also detach some experienced personnel for duty at the stations.

4. Inasmuch as CANOE material would be required at the stations, necessary security measures would have to be taken by the Services.

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5. Forward processing staff would be required to make both and daily reports (the latter probably in the form of INTSUMS) to Director CBNRC who would disseminate information through regular COMINT channels to users and cooperating COMINT agencies. Since processing at the stations would be on a shift basis, steps should be taken by Director CBNRC to insure immediate briefing of the appropriate authority should an item of immediate importance be flashed by a station.

6. Director CBNRC has been asked recently to produce a detailed plan for one station, to serve as a basis for discussion and, in its final form, as a model for other stations. The RCAF station at Whitehorse has been selected as being the station at which current compilation tasks are most nearly fully manned.

G. deT. Glazebrook,
Director of Communications Security.

THIS DOCUMENT CONTAINS CODEWORD MATERIAL