PART TWO.

WIRELESS COMMUNICATION.
CANADIAN CORPS.
AMIENS.
August 8th to August 22nd, 1918.

1. DISPOSITIONS.

When the offensive began on August 8th, 1918, the disposition of Wireless Sets in the Canadian Corps Area was as follows :-

The Divisions reading from left to right were - 2nd, 1st, and 3rd in the line and the 4th in reserve to the 3rd on the right flank. Each Division had one Wilson Directing Station and three Brigade Stations erected, and in addition, each Divisional Artillery had one Mark III C.W. Set at Div. H.Q., and one Woolwich Set at each of its Brigades.

The Corps Directing Station was erected in the White Chateau, ST. FUSCHIEN, with a forward station at Corps Report Centre just ahead of GENTELLES. This station could not be erected until after dark on the evening of the 7th.

For liaison purposes, C.W. Mk. III Sets manned by Corps operators, were placed, one at the Right Div. H.Q., and one at the Corps D.H.Q., ST. FUSCHIEN. Four operators were also sent to the French Corps on the right and to the flanking French Division. Two operators were loaned from Army to assist in this liaison work.

Four C.W. Mk. III Sets and operators in charge of Lieut. DAWSON and Corpl. CHURCHILL were sent with the C.C.H.A., and placed at the disposal of the Field Survey Section for O.P. and Flash Spotting work.

The Canadian Independent Force of Machine Guns and Armoured Cars was provided with two C.W. Mark III Sets. One was erected at Corps Report Centre near GENTELLES, and the other mounted in a special car, went with the Force itself. In order to minimize ~~XXX~~ Jamming, a special long wave-length of 1450 metres was allotted to these stations. On account of enemy observation, the rear set could not be erected until after dark on August 7th.

The charging lorry was at ST. FUSCHIEN, as were also the shop and stores. Batteries were delivered by car to all stations of the Corps and Heavy Artillery. All forward stations, on going out,

/carried.....

carried accumulators for 48 hours.

2. OPERATION. - (a) SPARK.

In order to prevent the relief being disclosed, the various Corps and Division Stations were erected, but did not operate until midnight August 7th/8th, when the Corps D.S. opened up and worked all four Division Stations and the station at CRO.

The D.S. proved to be very favorably located, as it was able to handle all the Divisions and Brigades for over 36 hours, although the Division Stations moved considerably ahead during that time. Traffic for Report Centre was handled by the station located there; all other business being taken by the D.S. and forwarded by phone to DURY.

At 10-30 p.m. on August 9th, the CRO station took over the D.S. work as ST.FUSCIEN was losing the Divisions. On August 10th, the rear station was moved forward to the Sand Pits in DEMUIN and put into operation at 5-00 p.m. on that date. At this station, one 70 foot and one 30 foot mast were used. This gave sufficient range to handle all Divisions without a further move forward. The GENTILLES station was closed when Report Centre moved forward to DEMUIN. During the last two hours, GENTILLES had difficulty in working the Divisions on account of the small amount of power, and the fact that only 20 ft. masts were available for this station. Traffic was heaviest on the 11th, when over 150 messages were handled at the Corps H.Q. alone. This was because Divisions were moving so much that lines could not be kept up to them. From the 13th on, traffic decreased as things settled down.

OPERATION - (b) C.W. SETS WITH C.C.H.A.

These sets were used from forward observation and flash spotting posts to Counter Battery at C.C.H.A. A great deal of valuable information was sent in by these sets, and it has been proved that flash spotting by Wireless is not only possible but that better results can be obtained than by the use of telephone. All three forward stations were obtainable on the one setting of the condenser, and therefore reports came in in exactly correct time relation. In the period, August 8th - August 19th inclusive, over 20,000 words were sent over these sets, including 573 actual messages and many fleeting targets and bits of information picked up by the observers.

The posts were never out of touch with C.C.H.A., except when stations were being moved to new locations. The distances covered averaged 9000 yards from post to C.C.H.A.

/OPERATION - (c)...

OPERATION - (c). C.W.SETS WITH INDEPENDENT FORCE.

This force moved forward with the attack on August 8th, and a station was first operated from MAISON BLANCHE, near BEAUCOURT. After nine messages had been handled, the set at CRO [illegible] the Corps Liaison Set at ST. FUSCIEN took over the work, a second set being installed for liaison purposes. This worked perfectly, although it was a distance of nearly 20 kilometres. The CRO station was repaired and moved forward to the main cross-roads near DEMUIN on August 9th. This station was connected to the 4th Divn. exchange at DEMUIN. This station handled all traffic from August 10th on, and although the C.I.F. moved as far forward as DAMERY, no trouble was experienced in working this station. The wavelength was later changed to 1260 metres, as a French station opened up on 1450. During the first three days, over 120 messages were handled. Much valuable information was contained in these messages, as the C.I.F. were well forward and the Wireless was their only means of communication.

OPERATION - (d) C.W.SETS ON LIAISON.

For purposes of liaison with the French Corps on the right, special C.W. sets were used. One, working to the left French Division, was located at the Right Canadian Division, and the second, working to the French Corps, was placed at ST. FUSCIEN. These stations were all manned by Canadian Corps men and, in addition, 4 operators were sent to the French; 2 to the Division, and 2 to the Corps. These stations were all on 1250 metres. Considerable traffic was handled, but as was to be expected, it was chiefly between Divisions; only situation reports passing between the Corps. On August 10th, while the ST. FUSCIEN Station was being moved up to DEMUIN, the C.I.F. set on the ROYE Road, took over the work. These sets were taken over by the Australian Corps on August 22nd.

OPERATION - (e) INTERCEPTION STATION.

On August 15th, a station was erected near Corps Report Centre, DEMUIN, for the interception of German Wireless traffic. It had been found that German stations were sending a good deal in clear, and were also using Figure Code, which can easily be deciphered.

This station operated until August 21st, and an average of 30 messages per day were taken. All German priority messages were sent by wire direct to Intelligence "E", Fourth Army; ordinary traffic being sent in by D.R. three times a day. Copies of all

/messages were.....

messages were taken at once to Intelligence, Canadian Corps.

3. SUMMARY AND SUGGESTIONS.

(i) It is very essential that a more powerful set be provided for the Corps Directing Station, especially in operations of this nature. The rapidity of the advance makes it impossible for the D.S. to keep very far forward on account of the fact that charging lorry and stores must be kept at a sufficiently central point to accomodate all Divisions, as well as Heavy Artillery and any Special Corps Stations. It was possible to control Division Wilson sets most of the time, but the Wilson did not give sufficient power to control Brigade working at all times, and considerable unnecessary jamming resulted. Also, there is sometimes a tendency for Divisions to ignore the orders of the D.S., unless these orders are backed by considerable surplus power.

(ii) A special station should be erected to handle traffic for Corps H. Q., and only under exceptional circumstances should the D.S. accept messages for delivery. The Corps Station should come under the control of the D.S., in the same way as the Divisional Stations. This is vital for successful Division to Brigade working, which is the most important span for Wireless to cover.

(iii) A fourth Trench Set should be supplied each Division, to be used as a stepping-up station, thus providing a Continuous outlet for Brigades at all times. Under the present arrangement, when a Division Headquarters moves, its Brigades must be handed over to the Corps D.S., preventing it, for the time being, from carrying out its proper function. At one time during the present operations, two Divisions were moving at the same time, and as a result, the Corps Station was attempting to handle five Brigades for these two Divisions, and in addition, one Brigade of the 3rd Division, which was out of touch with its own D.S.

This set would also serve as a replacement in case one of the Brigade sets was out of action.

(iv) In a few instances it was found that Brigades did not try to carry their trench sets forward in the advance. Special precautions should be taken before the attack to ensure that this does not occur, as the rapidity of the advance, and the amount of traffic over the back areas, makes it impossible to keep up wire communication for the first 48 hours at least.

/(v) In.....

(v) In such circumstances when traffic is heavy and the operations are prolonged, a large stock of spare trench sets and Wilson meters should be available at the Corps for immediate replacements. At least one trench set per Division in the Corps and 2 or 3 meters should be carried. At present there are no spares available for C.W. Mark III Sets and whenever any serious trouble occurs, it means a complete replacement through Army. The parts most necessary are :- Intervalve transmitters, Grid Leaks for Transmitters and Receivers, Change-over Switch Handles, Ammeters and Reed Vibrators for H.T. Units.

(vi) Power Buzzer Amplifier Sets were useless, being too heavy and of too short a range.

(vii) Loop Sets were successful where properly used. The tendency was to try them between Brigade and Battalion, but this distance was usually too great. They should be used between Battalion and Companies, or between Battalion and Observation Posts. They were quite successful up to 4000 yards. In this connection, it would appear that, owing to the fact that Loop Sets have not been long in use, and were not required during Trench warfare, where buried cables were used between Battn. and Companies, that Brigades, in many cases, did not carry out instructions issued some months ago regarding the pooling and training of six signallers per Battalion for Loop Set - Power Buzzer Amplifier working, and as a result, were unprepared to take advantage of this most portable and efficient means of communication. It is very essential that Divisions take immediate steps to train additional men in the use of the Loop Sets. The instruments are very sensitive and a good deal of practice is necessary before the desired results can be obtained. Very satisfactory results were obtained by using two rear sets as a pair, on account of the more powerful transmitter.

(viii) There was a good deal of jamming on account of the large number of stations in the area, but where good operators manned the sets, it was possible to get through a large amount of business, but poor operators were hopelessly lost, clearly demonstrating that men sent up for training as Wireless Operators should be expert Telegraphers capable of reading at least 25 words per minute. Signalmen "A", even with the necessary technical qualifications, are practically useless during operations when traffic is heavy. Spark jamming on C.W. was only noticeable on the short wave-length, and where it was necessary to use amplifiers on the C.W. Sets.

/Jamming from.....

Jamming from H.T. units was not troublesome when the C.W. Stations were separated 2 to 3 hundred yards.

(ix) With the success of the first attack, the enemy communications became disarranged and he used the Wireless very freely, often in clear. Much valuable information is thus available and as an Army cannot possibly take all these messages, it would be advisable for Corps to [illegible] interception Stations behind the Trench and [illegible] that this information will be immediately available where it is most useful, i.e. the Corps Report Centre.

(x) Great difficulty was experienced regarding transportation of the Wireless Sets, especially the C.W. Stations, which were required to move with the Artillery, the only transport being the gun limbers. Care cannot be exercised in transit of these sets unless proper transport is provided.

Until such time as proper transport is provided, it is suggested that Wireless Officers will try and arrange to secure a G.S. limbered wagon, have a false bottom put in using old mattress springs to take up the shock and vibration.

(xi) All Wireless operators should be selected, ~~and~~ trained and provided by the Signal Service and should be on the strength of Corps and Divisional Signal Companies.

(xii) All ciphering and deciphering was done by the Wireless operators at the various stations. This is contrary to the standing orders on the subject and it is suggested that steps be taken to have Intelligence appoint an Officer for each traffic station. This officer should supervise the traffic through the station generally and be responsible for [illegible] messages sent in clear. In case Officers are [illegible] able, N.C.Os. specially trained in [illegible] should be substituted. It is impossible for operators to handle heavy traffic and at the same time do all ciphering and deciphering, also it often occurs that messages handed in are very awkward to cipher. This would not occur if the Staff were better acquainted with working of Field Cipher.

The above suggestions, if applied, would result in a great increase in the amount of traffic handled and a consequent decrease in the delay on individual messages, and would, in general, increase the efficiency of Wireless as a means of communication.

(sd) E.Forde, Lieut. Colonel,
A.D.Signals, Canadian Corps.

Aug.29th, 1918.

MESSAGE SUMMARY - WIRELESS. Aug. 8th - Aug 19th, 1918.

Date.	C.R.S H.Q. Serv. Received.		C.A.H.A. Sent.	Received.	C.I.F. Sent.	Rec'd.	LLANDUDNO. Sent.	Rec'd.	TOTALS.
Aug.									
8	30	35	5	12	42	8	3	1	138
9	50	53	4	10	47	9	2	1	172
10	37	70	3	20	14	1	4	1	146
11	38	121	5	40	4	1	2	1	208
12	35	91	6	32	8	1	4	1	177
13	10	43	5	45	6	1	3	1	113
14	8	37	10	45	6	1	2	1	110
15	2	36	11	34	9	1	1	1	97
16	4	32	8	19	2	1	1	1	65
17	15	28	12	26	4	1	1	1	89
18	10	22	13	10	7	1	1	1	65
19	7	16	9	14	1	1	1	1	46
									1421

REPORTS ON
WIRELESS COMMUNICATION DURING
AMIENS OFFENSIVE.
Aug. 8th - Aug. 22nd, 1918.

(Canadian Divisional Signal Companies)

1st Canadian Divisional Signal Coy.

-1-

A.D.Signals, Canadian Corps.

It would seem from this report, that an order should be enforced whereby the Staff do the coding and decoding.

24-8-18.

(sd.) P.Barnshaw, Major, OE.
Cmdg. 1st Cdn. Div. Signal Coy.

-2-

Map Ref. 62D. 62C.

The 1st Canadian Divisional Wilson Station was erected at GENTILLES WOOD (T.10.d.) a few hours before ZERO on the morning of the 8th, and was dismantled at 2. p.m. in order to move forward, but owing to transport difficulties, did not arrive at STOVE WOOD (V.23.b.6.4.) till 7. a.m. on the 9th. Communication was established with Corps, Flanking Divisions and Brigades. Some very important messages from our Brigades were received here, during the night 9/10th. At 3. p.m. on the 10th, the Set was dismantled and moved to BEAUFORT (K.5.a.6.2.), communication being established at 11. p.m. A great deal of work was handled from this position, mostly to Corps. From the 8th to the 12th inclusive, 157 messages were handled at the Division Station. Of these, 95% were "In Clear".

All ciphering and deciphering was done by Wireless operators. Wireless communication in a Division would be greatly improved if another set was available, which could be sent forward as soon as possible to act as a relay when the distance from the Brigades to Division is too great for satisfactory working., and to act as a Divisional Station while the Wilson Set is being moved. Owing to the distance, the

/Brigades....

Brigades could not work to Corps while the Division Station was on the move and unless they could get a flanking Division to handle their work, were out of touch. As the roads were invariably blocked, serious delays occurred which would not have happened if another set had been available.

The Artillery C.W. Sets were very successful, being for several days, the only available communication between Division, Artillery H.Q. and the Brigades. From the 9th to the 11th inclusive, they handled 50 messages, 28 being in Cipher and 22 In Clear. The ciphering and deciphering was done by the operators.

Two Power Buzzer-Amplifiers were carried by the 3rd Canadian Inf. Bde. on the 8th, but were not installed at the time; four Power Buzzer-Amplifiers were put in operation on the Divisional front on the 17th for Battalion to Company communication.

2nd Canadian Divisional Signal Coy.

A.D.Signals,
Canadian Corps.

Spark Wireless did not prove a very great success as a means of communication in this Division during the recent offensive, owing to the enormous amount of jamming and interference from other stations, and also to lack of proper control on the part of the Corps Directing Station. Communication between Division and Brigades was considered far more important than back from Division because it was easier to maintain lines to the rear than to the Brigades. Hence this Division attempted to work with its Brigade Stations, but this was almost impossible the first day because other Divisions in the Corps persisted in sending all messages to Corps by Wireless, and consequently Trench Sets were absolutely jammed out. The Corps Directing Station was informed of this trouble early in the morning of the first day, but in spite of that fact, the 4th Canadian Division Wilson Set sent messages to Corps for almost four hours steadily. Under these conditions, it was practically impossible to do any satisfactory work. I might also mention the fact that during ~~the~~ the time the 4th Cdn. Divn. was working with Corps, the Corps Directing Station did not once ask other Divisions if they had any messages to communicate. This trouble was encountered throughout the operation, and I would suggest that some ruling be laid down as to what work is to be done

/by Wireless.....

by Wireless between Divisions and Corps, as it is impossible to do both that and Division to Brigade at the same time.

Power Buzzer-Amplifiers were tried out the first day of the offensive, but the advance was too rapid to make any use of them. Later on the earthed lines prevented their use. No work was done with Loop Sets, as there are no men in this Division trained in the use of these sets.

C.W. Wireless proved fairly satisfactory throughout the operation, though this Division had considerable trouble with the Tonic Train supplied with the Mark III Set. It is thought that the adjustment of the contact was the cause of this trouble. Two 200 volt High Tension Batteries have been supplied as a substitute in case of future trouble with the T.V.T. There was also some trouble with the wave length, and we caused jamming with the C.C.T.A. Sets. This was overcome by changing the wave-length of our sets.

(sd) J.H.KERR, Lieut.Col.,
i/c Wireless,
for O.C. Signals, 2nd Cdn.Div.

23-8-18.

3rd Canadian Divisional Signal Coy.

A.D.Signals,
Canadian Corps.

During the first phase of the recent offensive, little Wireless work was performed, owing to the close proximity of Division and Brigade stations. From the 11th onwards, full use was made of the Service, the daily numbers being:-

August 12th	-	48.
" 13th	-	37
" 14th	-	42
" 15th	-	52

I would suggest Divisional Headquarters be provided with an additional French Set for "Stepping Up" purposes. Divisional Headquarters Wilson set is out of touch with Brigades when moving to new locations, and it is found during that time Brigades are endeavouring to work

/with Divisions.....

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with Division, consequently [illegible] unable to dispose of traffic. An additional [illegible] would be erected at new Division Headquarters [illegible] take over Brigade Stations before Wilson set closed down, thus providing continuous outlet for Brigades at all times.

(sd) K.M.Campbell, Capt.
A/O.C.Signals, 3rd Cdn.Divn.

Aug.24th,1918.

4th Canadian Divisional Signal Coy.

A.D.Signals,
Canadian Corps.

Reference your S.78/7-3 dated 18-8-18.

The greatest difficulty experienced by us was in the transportation of W/T apparatus. Great care must be exercised in transit so that the sets will be available for use immediately the Hqrs. is established.

I think that the extra N.C.Os. as recommended by Lieut. Skinner would be most valuable, and that we could improve the C/W communications a lot if the personnel belonged to Signals.

(sd) F.S.Mulloch, Major,O.R.,
O.C.Signals, 4th Canadian Division.

26-8-18.

- II -

Spark Wireless.

The Division Wireless Station handled 300 important messages between August 8th and August 16th.

Most of our work was done with Corps. Several messages were handled for Brigades but the line communications being good, we were seldom called upon to handle traffic.

Loop Sets.

Nothing was done with Loop Sets, which was principally due to the following :-

(a) The men were exhausted after marching so far before the attack and were unable to carry these sets.

(b) The Battalion Headquarters were too far ahead of Brigade to make it possible for Loop Set working.

Amplifier-Power Buzzers.

No results were obtained with these sets.

C.W. Wireless.

Good results were obtained with C.W., but owing to our Brigade sets being broken in transit, we were unable to do anything until the 11th August. Since that date, quite a lot of traffic has been handled between Artillery Brigades and Divisional Artillery.

Suggestions.

Personnel. Would suggest that the N.C.O. establishment be increased to allow each Brigade Station to have a 2nd Corporal in charge. The man in charge of a Brigade station has often to supervise Loop Sets and Amplifier and Power Buzzer working in his Brigade area. If he has no rank, he cannot control men and get the same results.

C.W. Personnel.

At present these men are attached to the Divl. Artillery to operate C.W. Stations. Most of these men have been away from their unit for several months, consequently their chance of promotion is nil. It is suggested that all C.W.

/personnel.....

personnel be taken on strength of the Divl. Wireless Section where they will get their promotion according to merit.

Wireless Communication.

On one or two occasions in the recent operation, we had considerable difficulty in keeping W/T communication with Corps. This was due to Corps Station being too far behind Divisions. Would suggest that Corps establish a Directing Station well forward in the centre of the Corps area. The duty of this station would be to act as an Intermediate Station when communication between Corps and Divisions is difficult. If a high-powered set could be procured for this purpose, it would be most useful.

Loop Sets, Amplifiers, Power Buzzers.

When the advance is so rapid as in our recent operations, it is extremely difficult to get these sets into operation. They are very useful for establishing temporary communication when the final objective has been gained.

(sd) C. Skinner, Lieut.,
for O.C. Signals, 4th Canadian Divn.

26-8-18.

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