DEPARTMENT OF THE INTERIOR
CANADA

HON. CHARLES STEWART, *Minister* W. W. CORY, C.M.G., *Deputy Minister*

PUBLICATIONS

OF THE

Dominion Observatory

OTTAWA

R. MELDRUM STEWART, *Director*

Vol. VIII

No. 10

Magnetic Results, 1924-1926

BY

C. A. FRENCH AND R. G. MADILL

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1930

CONTENTS

84610—1½

MAGNETIC RESULTS, 1924-6

INTRODUCTION

An account of the progress of the magnetic survey of the Dominion of Canada carried on by the Dominion Observatory between 1907, the year the survey was inaugurated, and 1923 is given in Vol. V, No. 5 and Vol. VIII, No. 8 of Publications of the Dominion Observatory. The former contains a summary of the results obtained between 1907 and 1920, while the latter accounts for the work of the three years 1921 to 1923. In the present publication it is intended to deal briefly with the work accomplished during the three years 1924 to 1926.

During the earlier part of the period that the work of the survey has been in progress, the operations were confined to the older and more settled parts of the country along the railroads and main waterways, thus facilitating the problem of transportation. At the same time it was possible to obtain a fairly satisfactory distribution of stations. Some idea of the manner in which stations were distributed is conveyed in the report of the results of the observations for the year 1910 given in the Journal of the Royal Astronomical Society of Canada, Vol. V, 1911, p. 138. The report states: "The 44 stations of the first list are distributed over Western Ontario, from Napanee to Windsor, and are at intervals of 25 miles. . . . The 48 stations of the second list are all along the main line of the Canadian Pacific railway, and are about 25 miles apart." During recent years the work has been gradually extended to regions less readily accessible. It has been found impossible, however, to maintain in these regions the same uniformity as to the distribution as was aimed at in the beginning. The progress of the survey, so as to cover new territory, has suffered on account of the necessity of more time being spent in occupying repeat stations for secular change.

The program of work which commenced in 1924 and continued throughout 1925 and 1926, had for its main object the securing of secular change data. In addition to the repeat stations, which this involved, a number of new stations were occupied. Some of these were in the vicinity of repeat stations which were found unavailable, or appeared unlikely to be suitable for future use. Others were selected in localities where there were no stations, in accordance with the policy of improving, when it could conveniently be done, the uniformity of the distribution of stations.

During 1924 one observer only was in the field. Twenty-three stations, representing twenty distinct localities, were occupied. Of these, eight are in the Yukon Territory, four being exact and two approximate locations of stations occupied by the Carnegie Institution. The Yukon Territory is a region heretofore untouched by the Dominion Observatory. The remaining fifteen are in British Columbia, fourteen being along the Pacific coast, or on islands adjacent to the coast. Four of these are repeat stations.

The work during 1925 and 1926 was confined to the area lying between the Atlantic seaboard and longitude 100° W., and between the Canada–United States boundary and latitude 57° N. The work of 1925 included a number of stations in Labrador and one in Newfoundland. It was an unusual departure to thus extend the work to points outside the Dominion. In giving consideration to the needs of the work in Eastern Canada, in addition to occupying a number of stations along the St. Lawrence below Quebec, it was considered important at this time to extend the survey north of the St. Lawrence in the vicinity of the boundary between Canada and Labrador. Owing to the region being practically inaccessible, this was considered out of the question. An alternative program was to occupy a series of stations along the Labrador coast. The results at these stations would furnish data which would likely be of immediate practical use for purposes of navigation, as the stations would be in the vicinity of waters traversed by coastal and ocean-going vessels. The most of this traffic is, moreover, to and from Canadian ports. To do this work it was necessary to obtain the permission of the Newfoundland Government. This was arranged through the State Department at Ottawa, so that the work was carried out as planned. The total number of stations occupied during the two seasons, 1925–6, was seventy-two, comprising fifty-seven repeat and fifteen new stations, and representing sixty-three distinct localities. Two of the stations in Labrador had been occupied previously, one at Battle Harbour established by the Carnegie Institution, and the other at West Turnavik established by the United States Coast and Geodetic Survey.

INSTRUMENTAL EQUIPMENT

From 1924 to 1926 the magnetic results were obtained with instruments of the approved type for use in field work. For the most part they are similar to those used during preceding years. These types are so well known that anything like a detailed description seems unnecessary. In the summary which follows there are given, in addition to the name of the instrument, brief notes with reference to the history of the particular instrument, as well as references which will enable the reader to obtain any desired information regarding the type.

Combined magnetometer-dip circle C.I.W. No. 20.—This is, as the name indicates, one of the types designed by the Carnegie Institution. It was constructed in their workshop and purchased in 1916, having been used on field work prior to that date and reconditioned. It was used during the three seasons, 1924–6, for declination and horizontal intensity. Its use as a dip instrument was discontinued after 1924. This was due to the erratic behaviour of the dip needles. A detailed description of this type of instrument is given on pages 9–12 of the Journal of Terrestrial Magnetism and Atmospheric Electricity, Vol. XVI, 1911. In one respect the description does not apply, namely, in regard to the arrangement for determining total intensity by Lloyd's method; this is lacking.

Combined magnetometer-earth inductor, P.I.C. No. 104.—This, also, is one of the types designed by the Carnegie Institution, but was constructed by the Precise Instrument Company, Brooklyn, N.Y. The designation adopted corresponds to the name of

the maker. A description of this type of instrument is given on pages 9–12, Land Magnetic Observations,[1] 1911–1913, Vol. II, No. 175. It was received from the maker in August, 1925, and was used on field work during the remainder of that season and during 1926.

Cooke magnetometer No. 15.—On account of its size and weight magnetometer No. 15 has not been used regularly in field work. It was standardized at Agincourt in the spring of 1925, and used at Ottawa in making a series of observations during the summer. It was the intention to use it in field work during that season. The arrival of the new instrument, P.I.C. No. 104, made this unnecessary. A general description of this design is given in an article entitled "Magnetometer" in Encyclopædia Britannica, eleventh edition, Vol. XVII, pp. 386–388.

Dover dip circle No. 145,—Dover dip circle No. 145 was standardized in 1925 at Agincourt. It was intended that it, with magnetometer No. 15, should comprise the instrumental equipment of one party during that season. It was, however, used for dip observations only at Ottawa. It is of the Kew pattern and constructed by Dover. For a general description of the dip instrument, see an article on "Inclinometer" in Encyclopædia Britannica, eleventh edition, Vol. XIV, pp. 354–355.

Dover dip circle, No. 212.—This instrument is similar to Dover dip circle No. 145. It was used during 1925 and 1926 for inclination in place of C.I.W. No. 20.

Chronometers.—Two timepieces were carried by each observer. In all, five were used during the three seasons, namely: half-seconds pocket chronometer Kittel No. 261; half-seconds pocket chronometers Nardin No. 19726 and No. 19728; pocket watch Nardin No. 9015, which will produce seconds beats if connected with a relay and battery; and half-seconds standard chronometer Roskell No. 711.

Wireless receiving sets.—Each observer was provided with a wireless receiving set for determining the corrections to the chronometers from the time signals which are broadcast at certain times of the day. These sets, which were first used in 1923, were constructed by the Department of Naval Service of the Dominion Government, Ottawa.

DETERMINATION OF THE CONSTANTS OF MAGNETOMETER-EARTH INDUCTOR P.I.C. No. 104

The instrumental constants of magnetometer-earth inductor P.I.C. No. 104 were determined in 1925 after it was received from the maker. These determinations were, in fact, postponed until the end of the observing season, owing to the desire to make as much use of the instrument as possible during the time that would likely be favourable for field work. Furthermore, the desired assistance was not available at an earlier date.

The constants required for the reduction of the magnetometer observations are: value of one scale division of the diaphragm of the reading telescope; dimensions and mass of the auxiliary cylinder for determining the moment of inertia of the intensity magnet, and its suspension; distances between pairs of notches on the deflection bar; induction coefficient of the long or intensity magnet; the distribution coefficient P, assuming the second coefficient Q to be zero; and the temperature coefficient of the long magnet.

[1] Published by the Department of Terrestrial Magnetism, Carnegie Institution, Washington, D.C.

The length and diameter of the inertia cylinder, and the linear distances between three pairs of notches of the deflection bar, were determined at the Physical Testing Laboratory of the Topographical Surveys Branch, Department of the Interior. With the exception of the determination of the scale value, and the mass of the auxiliary weight, which was done at the Dominion Observatory, the remainder of the work was carried out by officials of the Dominion Observatory at the Agincourt Magnetic Observatory in conjunction with the standardizing observations.

With reference to the methods which were adopted for the determination of the constants, two publications only were consulted, namely: Directions for Magnetic Measurements, by Daniel L. Hazard, Washington, Government Printing Office, 1921; and Land Magnetic Observations, 1905–1910, by L. A. Bauer. The methods outlined in both are practically identical. With reference to the coefficient of induction, the latter refers specifically to two methods, while the former refers to only one. The method of Lamont, which is outlined in both, was used. The latter publication was especially helpful in regard to the construction of the apparatus for carrying out the observations necessary for the determination of this constant.

The values of the constants are summarized in Table I. There are also included the constants for the magnetometer-dip circle C.I.W. No. 20, which, in the main essentials, is quite similar to P.I.C. No. 104. The constants for C.I.W. No. 20 were furnished by the Carnegie Institution.

TABLE 1.—SUMMARY OF CONSTANTS OF MAGNETOMETERS

	Instrument	
	P.I.C. No. 104	C.I.W. No. 20
Scale division: 1 division	1′·88	2′·14
Deflection distances at 20° *C.*		
r_1	20·0237 cm.	20·0000 cm.
r_2	25·0174 "	25·0014 "
r_3	28·0091 "	28·0031 "
Log *C* at 20° *C.*		
r_1	6·40412	6·40596
r_2	6·11131	6·11233
r_3	5·96312	5·96357
For increase of 1° *C.* in temperature log *C* is diminished by	0·000025	0·0000235
Temperature coefficient: q	0·000466	0·000499
Induction coefficient: $\mu = \frac{m}{h}$	2·54	2·62
m	268	283
h	0·0095	0·0093
Distribution coefficient: P	7·46	7·73
[1]Dimensions and mass of auxiliary inertia bar, or cylinder, at 20° *C.*:		
Length	5·6002 cm.	.....
Diameter	0·9100 "	.....
Mass	32·4271 gm.	.....
Moment of inertia of auxiliary inertia bar:		
log K_1 at 0° *C.*	1·93632	1·93612
" 10 "	649	629
" 20 "	665	645
" 30 "	682	662
" 40 "	698	678
Moment of inertia of magnet and suspension:		
log $\pi^2 K$ at 0° *C.*	2·80534	2·80593
" 10 "	544	603
" 20 "	554	613
" 30 "	564	623
" 40 "	574	633
Moment of inertia of magnet and suspension at 20° *C.*:		
log $\pi^2 K$, determined in 1916	.....	2·80671[2]
" " 1921	.....	613[3]
" " 1924	.....	562
" " 1926	.....	523

COMPARISON OF MAGNETIC INSTRUMENTS WITH STANDARDS

In accordance with the usual procedure the field instruments were compared in the spring and fall of each year, at the standard magnetic observatory at Agincourt, with the exception that there was but one comparison in 1925 between magnetometer-earth inductor No. 104 and standard. The first series of comparisons between this instrument and standards was made indirectly. In August, 1925, just after it was received from the maker, it was compared for declination and horizontal intensity with magnetometer

[1] The dimensions and mass of the auxiliary inertia bar No. 20 were not supplied with the constants accompanying the instrument. The values determined at the Physical Testing Laboratory and the Dominion Observatory are: l=5·5996 cm., d=0·9100 cm. and w=32·4154 gm. The length and diameter are given for 20° *C.* These give for log K_1 at 20° *C.* the value 1·93640. This is in good agreement with the value furnished by the Carnegie Institution, namely, 1·93645. The latter value has been used throughout in the computations for the determination of the moment of inertia of the magnet and suspension.

[2] This value was used in the computations from 1916 to 1920.

[3] This value, which was determined at Washington in 1921 was used in the computations from 1921 to 1926.

Cooke No. 15, and for inclination with earth inductor Toepfer No. 1911. The latter instruments were standardized, respectively, at Agincourt in June, 1925, and Washington D.C., in 1915. This series was carried out in tent stations at Ottawa.

The comparisons at Agincourt were made in a manner similar to that of preceding years. The field instrument is mounted on one of the piers of the absolute room of the observatory. Simultaneously with the observations taken with this instrument eye readings of the scale of the variometer are noted. The readings are reduced after the base-line value of the variometer has been determined. One disadvantage with this method is that the final values determined with the standard instruments are not known for at least, approximately, two months after the comparisons have been made. This makes it impossible to compare promptly the results with previous determinations. As a consequence, there is no opportunity to investigate causes of discrepancies, which sometimes occur.

During a series of comparisons adverse observing conditions are sometimes encountered. The two main causes contributing to these are poor visibility and magnetic disturbances. In order, therefore, to avoid the possibility of having to observe all of a particular series, say, of declination, under unfavourable conditions, the program is arranged so that the observations of each element are spread over a period of not less than two days. When two instruments are being standardized, as was the case in 1925 and 1926, the time is extended somewhat by observing with the two, alternately. There was one set of observations, however, that was not taken according to this program, namely, that with the earth inductor. This was due to the inconvenience encountered in mounting and dismounting the galvanometer, which was placed on a temporary support. The inclination observations were therefore completed, when once begun, before other work was undertaken.

The methods of observing the various elements were quite similar to those adopted in preceding years. In declinations, eight readings constitute a set. Two are taken with the magnet in the erect position, four in the reverse or inverted, and two in the erect. During 1924 and preceding years the interval between readings was usually somewhat less than a minute, or what was considered sufficiently long to obtain good results. Between readings taken before and after reversal of magnet the time required was, of course, longer. During 1925 and 1926 it was usual to allow a minute between readings with magnet in one position and two minutes at the time of reversal. The advantage of this method is that the observer reading the variometer is able to anticipate the signal from the obserever using the field instrument when to take a reading. It sometimes occurs, however, that a departure from this routine is advisable. For example, at the even hour and lasting for three minutes, the "cut-off" takes place, which is simply the closing of a shutter to intercept the light from registering on the recording paper of the variometer. When this occurs the magnets are disturbed, due to the electric current operating the shutter. An observation beginning at eight minutes before the hour would end, if this method were followed, at one minute after. Two readings would be taken when the variometer magnets were in a disturbed condition. Invariably under these conditions the time of the set is shortened so as to finish before the hour.

Horizontal intensity[1] observations were made in the usual way, that is by observing in the order: oscillations, deflections, deflections and oscillations. The magnets are

inverted between the first and second sets of deflections. Simultaneous eye-readings were taken on the *H* variometer. In all standardizing comparisons deflections were observed at three distances.

Inclination[1] with the dip circle and the earth inductor[2] was obtained according to the usual methods. Simultaneously with these observations eye readings were taken on the *H* and *Z* variometers, from which is deduced the value of the inclination from the relation, $\tan I = Z/H$, *Z* and *H* being, respectively, the vertical and horizontal intensity. With regard to the method of observing with the earth inductor, it may be pointed out that the coil of earth inductor No. 104 is not provided with a level, as in some types of earth inductor.[2] Circle readings with the coil vertical are thus dispensed with.

In order to utilize the deflection observations for determining a value of declination, a correction was determined for the short magnet for each of the two magnetometers, C.I.W. No. 20 and P.I.C. No. 104. This was not done, however, prior to 1926. The observations were carried out in two ways. While observing deflections, eye readings were taken alternately on the *H* variometer and on the *D* variometer, thus furnishing a declination value for every set of deflections. In addition, a number of comparisons were made in the ordinary direct way.

The observations for each of the elements were carried out with the foot screws of the instrument oriented in three positions.

The results of the standardizing comparisons for the three years, 1924–6, are summarized in Tables 2–4.

TABLE 2.—SUMMARY OF RESULTS OF DECLINATION COMPARISONS, 1924–6

(a) RESULTS FOR MAGNET 20*L* OF MAGNETOMETER No. 20

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
	′		
1924, April-May	−0·68	16	Agincourt
1924, October	−0·78	12	"
1925, June	−0·98	16	"
1925, November	−0·98	16	"
1926, June	−0·49	15	"
1926, October	−0·56	12	"

(b) RESULTS FOR MAGNET 20*S* OF MAGNETOMETER No. 20

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
	′		
1926, June	−1·75	7	Agincourt
1926, October	−1·24	13	"

[1] Publications of the Dominion Observatory, Vol. V, No. 5, pp. 137–139.
[2] Directions for Magnetic Measurements, by Daniel L. Hazard, Washington, Government Printing Office, 1921, pp. 67–68.

(c) Results for Magnet 15*L* of Magnetometer Cooke No. 15

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
	′		
1925, January	− 1·3	4	Agincourt
1925, June	− 1·5	14	"

(d) Results for Magnet 104*L* of Magnetometer No. 104

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
	′		
1925, August	−1·35[1]	11	Ottawa
1925, November	−1·32	15	Agincourt
1926, June	−0·90	15	"
1926, October	−0·97	12	"

(e) Results for Magnet 104*S* of Magnetometer No. 104

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
	′		
1926, June	−0·95	7	Agincourt
1926, October	−0·46	10	"

TABLE 3.—SUMMARY OF RESULTS OF HORIZONTAL INTENSITY COMPARISONS, 1924-6

(a) Results of Comparisons of Magnetometer No. 20

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
1924, April–May	− 19·4 γ = −0·00123 H	8	Agincourt
1924, October	− 13·7 γ = −0·00087 H	6	"
1925, May	− 17·3 γ = −0·00110 H	6	"
1925, November	− 14·5 γ = −0·00092 H	8	"
1926, June	− 13·3 γ = −0·00085 H	6	"
1926, October	− 17·5 γ = −0·00111 H	6	"

[1] I.M.S. values of declination were obtained with Dominion Observatory magnetometer Cooke No. 15, using the results obtained at Agincourt in January and June, 1925, namely:
(I.M.S.—Cooke No. 15) = −1′·4

(b) Results of Comparisons of Magnetometer Cooke No. 15

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
1925, May-June	+ 13·1 γ = +0·00083 H	10	Agincourt

(c) Results of Comparisons of Magnetometer No. 104

Date	I.M.S.–Mag'r	Number of Sets	Place of comparison
1925, August	+ 7·5[1] γ = +0·00050 H	2	Ottawa
1925, November	+ 9·0 γ = +0·00057 H	12	Agincourt
1926, June	+ 3·6 γ = +0·00023 H	12	"
1926, October	− 2·3 γ = −0·00018 H	6	"

TABLE 4.—SUMMARY OF RESULTS OF INCLINATION COMPARISONS, 1924-6

(a) Results of Comparisons of Magnetometer–Dip Circle No. 20

Date	I.M.S.–No. 20 Needle				Number of Sets	Place of comparison
	No. 1	No. 2	No. 5	No. 6		
	′	′	′	′		
1924, May	−0·8	−0·1	+1·6	+0·5	6	Agincourt
1924, October	+0·1	−5·9	0·0	+3·0	6	"

(b) Results of Comparsons of Dip Circle Dover No. 145

Date	I.M.S.–No. 145 Needle		Number of Sets	Place of comparison
	No. 1	No. 2		
	′	′		
1925, June	+0·6	+0·8	6	Agincourt

[1] I.M.S. values were obtained with Dominion Observatory magnetometer Cooke No. 15, using the results determined in May–June, 1925, namely:

(I.M.S.—Cooke No. 15) = +0·00083H

(c) Results of Comparisons of Dip Circle Dover No. 212

Date	I.M.S.–No. 212 Needle No. 1	I.M.S.–No. 212 Needle No. 2	Number of Sets	Place of comparison
	′	′		
1925, May	0·0	−0·1	6	Agincourt
1925, November	+0·5	+0·1	6	"
1926, June	+0·2	−0·5	6	"
1926, October	+0·6	+0·1	6	"

(d) Results of Comparisons of Magnetometer–Earth Inductor No. 104

Date	I.M.S.–No. 104	Number of Sets	Place of comparison
	′		
1925, August	−0·6[1]	3	Ottawa
1925, November	−2·2	8	"
1925, November	−2·3	12	Agincourt
1926, June	−1·2	12	"
1926, October	−1·1	14	"

The results of the standardizing comparisons for the period 1924–6 are on the whole not unsatisfactory. Discrepancies exist which appear larger than one might expect. but compare favourably with results obtained prior to 1924 and under similar conditions,

From an examination of the results given in Table 2, *a*, it will be noted that there is a difference of approximately 0′·5 between the corrections obtained in 1925 and 1926 with magnet 20*L* of magnetometer No. 20. This rather large difference indicates that some instrumental change took place, in view of the fairly good agreement among the individual values comprising each of the four series of comparisons. The ranges in the values of [I.M.S.—No. 20*L*] for these are, respectively, −0′·4 to −1′·3, −0′·3 to −1′·5, +0′·4 to −1′·2 and 0′·0 to −1′·1. Comparing the mean values obtained in November 1925, and June and October, 1926, with this magnet, and the corresponding values obtained with magnet 104*L* of magnetometer No. 104, which are given in Table 2, *d*, it will be noted that whereas the change in No. 20 between November, 1925, and June, 1926, was 0′·49, the corresponding change in No. 104 was 0′·42. The change between June and October, 1926, is 0′·07 for each instrument. The close agreement between the results obtained with No. 20 and No. 104 rather indicates the possibility of a change in the standard instrument between 1925 and 1926.

The results obtained with the short magnets, on the other hand, rather tend to discount the evidence pointing to a change in the standard instrument. Both long magnets, as was pointed out, show a change of only 0′·07 between June and October, 1926. The changes for the corresponding dates, with No. 20*S* and No. 104*S* are, respectively,

[1] I.M.S. values were obtained with Dominion Observatory earth inductor Toepfer No. 1911, using the results determined at Washington, D.C., in 1915, namely:

(I.M.S.—Toepfer No. 1911) = −0′·25

0′·51 and 0′·49, but of opposite sign, as will be seen from Table 2, *b* and Table 2, *d*. In explanation of these discrepancies with the short magnets, it may be pointed out that there was quite a large range in the values of [I.M.S.—C.I.W. No. 20] both in June and October; these were, respectively, from +0′·1 to −2′·6 and −0′·1 to −2′·6. The results with P.I.C. No. 104 were, however, in quite as good agreement as with the long magnet. The discrepancies in the mean values might easily be accounted for by a comparatively small error in the setting of the torsion head. For example, with the fibre used in P.I.C. No. 104, for 90° turn of the torsion head the deflection of the short magnet amounted to 17′·5, so that the discrepancy between June and October would be accounted for by an error of approximately 2°·5 in the setting. With the long magnet, 90° turn of the torsion head produced a change of only 2′·8 in the position of the magnet. An error of 2°·5 in the setting of the torsion head would produce an error of less than 0′·1 in the declination when using the long magnet. Attention may be drawn here to the fact that the declination is determined regularly with the long magnets, the short magnets being used for declination only when horizontal intensity is being determined. From the evidence furnished by these comparisons a definite conclusion regarding the discrepancies is impossible.

The results obtained in January and June, 1925, with magnetometer Cooke No. 15, as given in Table 2, *c*, when compared with the results obtained in 1910 and 1915, are interesting. The values are as follows: [I.M.S.—No. 15] = +0′·4, for 1910, and [I.M.S. No. 15] = −0′·3 for 1915, the two values being determined, respectively, at Agincourt and Washington. The value for 1925, which is given in the Table 2, *c*, is −1′·4.

With regard to the horizontal intensity results, which are given in Table 3, there is little that calls for discussion. The mean values with C.I.W. No. 20, which are given in Table 3, *a*, are in good agreement. This was rather unexpected in view of the more or less uniform change in the value of [I.M.S.—C.I.W. No. 20] over the period 1916 to 1923. This change was apparently due to the change in the moment of inertia of the intensity, or long, magnet and suspension system. With regard to the changes between spring and fall of each of the three seasons there is no apparent explanation. The cause is evidently not due solely to accidental errors, as there are no outstanding residuals in any of the series of comparisons The ranges in the values of [I.M.S.—C.I.W. No. 20] for the six series from April, 1924, to October, 1926, are respectively: −14γ to −25γ, −9γ to −20γ, −13γ to −25γ, −7γ to −22γ, −7γ to −19γ, and −12γ to −24γ.

The results obtained with P.I.C. No. 104, which are given in Table 3, *c*, indicate that probably some change was taking place in one or more of the constants of this instrument throughout the period from November, 1925, to November, 1926. Changes are not unexpected, especially as the natural process of ageing of the magnets had been going on for a comparatively short time. Changes quite similar were observed with C.I.W. No. 20, which were due, as has been stated, to changes in the moment of inertia of the magnet and suspension system. In order to determine if the change in the correction was due to this cause, the moment of magnet 104*L* and suspension system was redetermined in November, 1926. The values of log $\pi^2 K$ at 20° *C.* determined in November, 1925, and November, 1926, respectively, are 2·80554 and 2·80543. The change, while in the right direction, accounts for only 2γ, whereas the change observed, from the comparisons at Agincourt, amounts to 11γ. The remaining 9γ may be due to

causes similar to those responsible for the discrepancies in the values obtained with C.I.W. No. 20; these causes are as yet undetermined.

The inclination results are given in Table 4. It will be seen from *a* of this table that the discrepancies among the results obtained with C.I.W. No. 20 are very marked. Each of the four needles shows a large change between spring and fall. There is, moreover, an entire absence of uniformity in the values representing the change. Without attempting to determine the cause of the discordant values, the use of this instrument for determining inclination was discontinued after 1924. The results of the comparisons with Dover No. 212, which was substituted for C.I.W. No. 20 for determining inclination, and Dover dip circle No. 145, are as satisfactory as can be expected with this type of instrument.

The results of the comparisons with the earth inductor P.I.C. No. 104 are given in Table 4, *d*. The range in the values between August and November, 1925, which amounts to $1'{\cdot}6$, as well as that between November, 1925, and June and October, 1926, amounting to $1'{\cdot}1$, was unexpected, especially with this type of instrument. It is suspected that the cause may be attributed, partly at least, to the lack of proper adjustment, especially as regards the taking up of the lost motion between the upper end of the rotation axis of the coil and the bearing. It would be expected, however, if such a condition existed, that the inclination of the axis of the coil might alter during the process of rotation, with a consequent fluctuation of the galvanometer. If, however, the axis took up a definite position with respect to the bearing, say the upper or lower part, there would be no difficulty in obtaining a setting, but in such a case the circle reading would not indicate the correct inclination, or dip. In this way an error might be introduced in the observation.

In offering the suggestion as to a possible cause of the discrepancies, there is implied what appears to be a lack of precaution in making the adjustment of the instrument. In the opinion of the observer, whose previous experience with earth inductors was confined to one, namely, the Dominion Observatory earth inductor Toepfer No. 1911, the usual precaution had been taken in this respect. There was one feature about P.I.C. No. 104, however, which up to the end of 1926 had not been discovered. It had been noticed before this, however, that the axis of the coil, or its bearing, required to be adjusted occasionally. Sometimes there was lost motion between the axis and the bearing, at other times it was difficult, and occasionally impossible, to rotate the coil. It was finally noticed, during the early part of 1927, that the latter condition prevailed at comparatively high temperatures. The cause of the necessity of this re-adjustment then appeared quite evident. It was due to a differential expansion between the hard rubber comprising the disc on which the wire is wound and the metal ring supporting the bearings of the axis of the coil. Later observations showed that if the instrument is adjusted for a temperature of 30° C., at 10° C. the lost motion between the axis and bearing is very perceptible. This range of temperature is sometimes encountered during the course of field observations at a station, though it is doubtful if it ever amounted to that during a series of standardizing observations. It is the intention to give further consideration to this problem and determine, if possible, the extent to which dip observations might be affected owing to changes of temperature. Until this undesirable feature of the instrument is remedied it will be necessary to take extra precautions in making the proper adjustment.

ASTRONOMICAL OBSERVATIONS AND THEIR REDUCTION

The astronomical work consists in making a determination at each place of the latitude, the astronomical meridian and true bearing of some well-defined object, and the chronometer correction on local mean time. Combining with the latter the chronometer correction on standard time, which is obtained by comparing the chronometer with wireless time signals, or the time signals sent over the telegraph wires, the longitude of the place may be determined.

At practically all the stations the method of sun observations was employed for determining the necessary astronomical data. With a view, however, to increasing the accuracy of the meridian determination, observations were taken on Polaris at as many of the stations as possible for azimuth. In a few cases, however, it was necessary to depend on one or other of the two methods as a result of unfavourable conditions.

The methods of observing were quite similar to those adopted during preceding years and outlined in reports[1] published previously. This applies also to the reduction of the observations.

MAGNETIC WORK

The magnetic work consists in making a determination of the three magnetic elements —declination, inclination and horizontal intensity—at each station. In general, the methods adopted are similar to those described in the report[2] covering the work of the period 1921–3.

From 1907 to 1920 declinations were reduced so that the mean value corresponded to the mean of elongations. The method is outlined in the report[3] covering the work of the period 1907–20. In systematic surveys, it is usual, however, to refer the observations to the mean of the day, which corresponds to the mean of twenty-four hourly values. In order to secure the necessary data for this purpose the records of an observatory are practically essential. In Canada there are but two magnetic observatories, one at Agincourt and the other at Meanook (established in 1916). The records from the two, it was considered, would be applicable to a comparatively small portion of the country which it was intended to cover in the course of the survey. For this reason the alternative plan was adopted. There was one unsatisfactory feature about this method, and that was the difficulty of determining when the maximum easterly and westerly pointing of the magnet occurred. The time varied considerably from day to day. In 1921 this method was discontinued, and, after due consideration, it was decided to refer the results of declination to the mean of the twelve hourly values from 7h to 18h L.M.T.

The adoption of this method of reducing the declinations necessitated a slight change in the method of observing. Formerly special attention was given to securing continuous observations from 7h to 8h 30m and from 13h, and if possible earlier, to 14h. Less attention was given to observations between 16h and 18h than was given to those taken earlier in the day. During the period since 1921 the regular routine of work was planned so that the declination observations were spread as uniformly as possible over the entire observing period. It was possible in many cases to secure from these a good representation of the daily change of declination, which was used with the results obtained

[1] Publications of the Dominion Observatory, Vol. V., No. 5, pp. 134–135; also Vol. VIII, p. 157.
[2] Publications of the Dominion Observatory, Vol. VIII, No. 8, pp. 159–183.
[3] Publications of the Dominion Observatory, Vol. V, No. 5, pp. 136–139.

from the declinations observed specifically for that purpose, to determine the corrections to be applied to the observations on account of diurnal variation to reduce them to the mean of the day. The question of diurnal variation corrections will be discussed more fully in a subsequent portion of the report.

With regard to the inclination and horizontal intensity there has been practically no change in the method of observing, or in the reduction of the observations, since the inception of the work in 1907, except in the matter of securing diurnal variation of horizontal intensity simultaneously with the special diurnal variation observations of declination, to which reference will be made later. It was usual to observe inclination at or about 10h 00m and again about 16h 00m, and the horizontal intensity at 11h 15m, approximately, and 14h 20m. A slight variation from the times as given will not be serious, as the normal change in each of these elements over a period of an hour or so is not large. Between forenoon and afternoon, however, if the observations are taken at the times indicated, the change in both inclination and horizontal intensity is quite appreciable and considerably in excess of observational errors. It has been customary to secure, if possible, at least one observation of inclination and one of horizontal intensity both in the forenoon and in the afternoon. In the reduction, the mean value is considered as being that derived from the mean of the forenoon and afternoon observations. If, for example, two inclinations are taken in the forenoon and one in the afternoon, the mean value for the station is derived by giving equal weight to the mean of the two forenoon observations and to the single afternoon observation. The horizontal intensities are reduced in a similar manner. If it is found impossible to secure more than one observation of either of these elements, a correction is applied to reduce it to the adopted mean of the day. This has occurred in a few cases during the three seasons.

As uniformity in the methods of work is desirable, the following program has served as a guide in the taking of observations:

PROGRAM OF OBSERVATIONS AT MAGNETIC STATIONS

Observation	L. M. T.					Remarks
	h	m		h	m	
Declination	7	00	to	8	45	If possible two or three sets, or continuous observations at short intervals.
Azimuth	8	55	"	9	10	
Declination	9	30				
Inclination	10	00				Inclination with two needles, or two sets with earth inductor.
Declination	10	30				
Horizontal intensity	10	40	"	11	50	Two sets. Take reference mark reading for determining declination.
Latitude	12	00				
Declination	13	00	"	13	30	
Horizontal Intensity	13	40	"	14	50	Two sets. Take reference mark reading for determining declination.
Azimuth	14	55	"	15	10	
Declination	15	30				
Inclination	16	00				Inclination with two needles, or two sets with earth inductor.
Declination	16	30				
Declination	17	00				
Declination	18	00				

It was not the intention that this schedule should be carried out, necessarily, in one day. The purpose was rather to indicate, not only the time of observation of a particular element, but the number of observations that were considered desirable for a good determination of the element. At practically all stations occupied during the three years the results are for secular change, and require greater care than if they are for ordinary magnetic distribution. In order to make a preliminary computation of the results it has been found advisable to spend the greater part of two days at each station. On this account the work as indicated by the program is usually distributed over the two days. For example, one set of horizontal intensity might be taken in the morning of one day, one in the afternoon, and two in a like manner on the following day; or, one in the forenoon, two in the afternoon and one the following forenoon, at approximately the times indicated in the program.

The method of observing inclination with the earth inductor is essentially the same as that usually followed. Earth inductor P.I.C. No. 104, which was used in field work, differs in one particular from the Wild pattern, which is the one to which reference is usually made in manuals or publications.[1] In the latter there is a level which is set in the coil approximately at right angles to the rotation axis. This is lacking in the field instrument P.I.C. No. 104. This omission shortens the time necessary to observe an inclination, since no readings are taken with the axis vertical, as is done with instruments provided with a level. The method of making an inclination observation with P.I.C. No. 104, after having placed the instrument in the magnetic meridian with the compass which is provided for that purpose, is as follows:—

(1) With vertical circle east place the axis of the coil as nearly as possible in the line of dip. Rotate the coil and observe the galvanometer. A deflection of the scale in the latter is an indication that the axis of the coil is not at the proper inclination. Alter the setting of the circle and, if the deflection of the galvanometer scale is slight, make the final adjustment by means of the slow-motion screw until there is no deflection when the coil is rotated. Read the vertical circle.

(2) Rotate the coil in the opposite direction and, if necessary, adjust the inclination of the axis until the galvanometer shows no deflection as in (1). Again read vertical circle.

(3) and (4). Repeat (1) and (2).

(5), (6) ,(7) and (8). Proceed as in (1), (2), (3) and (4) with vertical circle west.

With circle east the reading is the co-dip and with circle west it represents the dip, assuming the axis to be vertical when the reading of the circle is 90°. The mean of the eight readings constitutes one determination of inclination.

Inclination with the dip circle was observed according to the method regularly used. An outline of the method will be found in text books and manuals, as well as in a former publication of the Dominion Observatory.[2]

Horizontal intensity was determined at all stations according to the usual method,[3] which involves two operations, oscillations and deflections. As a rule, the deflections were taken at three distances. There were a few stations at which only two distances

[1] Directions for Magnetic Measurements, by Daniel L. Hazard, Washington, Government Printing Office, 1921, p. 67; also, Land Magnetic Observations, 1905–1910, by L. A. Bauer, p. 41.
[2] Publications of the Dominion Observatory, Vol. VIII, No. 8, p. 181.
[3] Publications of the Dominion Observatory, Vol. VIII, No. 8, pp. 182–183.

were used, but at none were there less than two. An exception may be made in the case of the horizontal intensity observed for purposes of diurnal variation. In the summary all results obtained from the diurnal variation observations will be distinguished from the results determined from oscillations and deflections.

DIURNAL VARIATION AND DISTURBANCE CORRECTIONS

In reducing the declination observations of the mean of the day two corrections are usually taken account of, provided the necessary data are available, namely, the diurnal variation and the disturbance. It is assumed that the declination at any time is equivalent to a mean declination, a regular diurnal variation and a disturbance effect. The mean declination is usually referred to the mean of twenty-four hourly values. In observatory practice it is usual to derive the mean from a selected number of quiet days of each month. The diurnal variation is the departure of the mean value at any time from the mean of the twenty-four hourly values. Individual values of declination will differ from the mean values for the same time. The departure of this value from the mean, which differs from the mean monthly value by the amount of the diurnal variation at that time, is assumed to be the disturbance. For the selected quiet days these disturbance factors are likely to be small, and correspond to residuals.

To determine the disturbance corrections for field observations it is necessary to have the records of a magnetic observatory. Through the courtesy of Sir Frederic Stupart the records for determining these data have always been available. In order that the disturbance factor derived from observatory data may be applicable to the field observations it is assumed that the disturbance effects at both places are equal. In general this may be accepted as holding, provided the stations are not too far removed from the base station, or observatory. In connection with the reduction of the observations of 1922 and 1923 it was found that, for distant stations, the agreement among the results was only slightly improved by the application of the so-called disturbance corrections.[1] As many of the stations of 1924 are comparable to those of 1923 as regards the distance from the base station, which in this case was Meanook, it was decided not to go to the trouble of determining these corrections. They were, however, applied to the observations of 1925 and 1926.

The corrections which were applied to the declination observations were determined, for the most part, from special observations taken for that purpose in the field. For stations in the vicinity of the standard observatories, data from the records of these institutions were used.

SPECIAL DECLINATION OBSERVATIONS

Special declination observations were taken as a rule on at least three days every month. In addition to these, results, which were used for the same purpose, were obtained from observations taken at approximately hourly intervals throughout the day, the intervening time being devoted to other work. During 1925 and 1926 an effort was made to take these special observations on the 10th, 20th and 30th of the month. For various reasons this plan was not entirely successful. The unsettled state of the weather some-

[1] Publications of the Dominion Observatory, Vol. VIII, No. 8, pp. 159–160.

times made observing difficult, if not impossible, and occasionally a magnetic storm was encountered which was so pronounced that either observing was discontinued, or the results obtained were later discarded.

During 1926 a slight departure was made in the method of observing where the whole day was devoted to these special observations. Previously all readings were taken with the long magnet suspended in the erect position. The alternative method, used with satisfactory results by the Carnegie Institution, makes it possible to observe not only declination but also horizontal intensity simultaneously. The readings are obtained by observing with the short magnet suspended and the long magnet deflecting at the short distance, as in the deflection observations for horizontal intensity. Using the value of M, the magnetic moment of the long or intensity magnet, which is determined from absolute observations by means of deflections and oscillations, and C, a constant for a particular temperature and fixed deflection distance, and knowing the variation of M and C due to temperature, the value of the horizontal intensity can be readily evaluated. This method was used by one observer only.

With regard to the determination of the diurnal variation, only days comparatively free from disturbance were selected. The results are referred to the mean of the hourly values from 7 to 18, inclusive, in accordance with the method of reducing the observations of 1922–3[1]. The results were plotted and a mean curve drawn. From the curve hourly values of declination were tabulated. The mean of the twelve hourly values was determined, as were also the differences between the mean and the hourly values. The latter correspond to what is commonly known as the diurnal inequality, though this term strictly applies to the twenty-four hourly readings. The stations were then grouped, the manner of grouping being quite arbitrary, and from these mean hourly values were determined. In the case of the stations occupied in 1924 they fall naturally into three divisions, taking into consideration seasonal changes. During May and June stations were occupied in British Columbia south of Prince Rupert. The latter station was occupied in June and again in August. With the exception of Stewart and Prince Rupert all the stations occupied in July and August were in the Yukon Territory. Those occupied in September were in British Columbia. The three groups are as follows: (1) Stations occupied during May–August in British Columbia; (2) Stations in the Yukon Territory; (3) Stations occupied in September and October, all in British Columbia. The stations at which special observations were taken in 1925 and 1926 were likewise grouped, due consideration being given to the time of the observations and the location of the stations. The available diurnal variation data, which were derived in the manner outlined, are given in tables 5 to 7.

[1]Publications of the Dominion Observatory, Vol. VIII, No. 8, pp. 159-160

TABLE 5.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1924

Date	May 22–26		June 4–5		June 23–24		August 19–21		July 3–5		July 10–11	
Station	Victoria		Clayoquot[1]		Ocean Falls		Prince Rupert		Dawson		Intern'l Boundary	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
h.	East ° ′	′	East ° ′	′	East ° ′	′	East ° ′	′	East ° ′	′	East ° ′	′
7	24 43·2	+ 6·0	25 26·6	+ 5·1	27 03·8	+ 5·1	29 04·7	+ 5·0	35 11·0	+ 6·8	35 35·5	+ 7·8
8	42·8	+ 5·6	27·9	+ 6·4	04·4	+ 5·7	05·7	+ 6·0	11·6	+ 7·4	38·3	+10·6
9	41·0	+·3·8	28·6	+ 7·1	04·3	+ 5·6	05·6	+ 5·9	10·9	+ 6·7	37·3	+ 9·6
10	38·6	+ 1·4	27·0	+ 5·5	02·2	+ 3·5	03·8	+ 4·1	9·4	+ 5·2	34·2	+ 6·5
11	36·1	− 1·1	23·5	+ 2·0	26 58·6	− 0·1	01·2	+ 1·5	7·2	+ 3·0	30·0	+ 2·3
12	34·3	− 2·9	20·0	− 1·5	56·0	− 2·7	28 57·8	− 1·9	4·0	− 0·2	25·7	− 2·0
13	33·5	− 3·7	17·0	− 4·5	54·5	− 4·2	55·0	− 4·7	34 59·0	− 5·2	22·4	− 5·3
14	33·7	− 3·5	15·3	− 6·2	53·6	− 5·1	53·8	− 5·9	57·2	− 7·0	20·7	− 7·0
15	34·7	− 2·5	15·8	− 5·7	54·6	− 4·1	55·3	− 4·4	58·0	− 6·2	20·3	− 7·4
16	35·8	− 1·4	17·5	− 4·0	56·5	− 2·2	57·2	− 2·5	59·3	− 4·9	21·5	− 6·2
17	36·4	− 0·8	19·0	− 2·5	57·6	− 1·1	58·1	− 1·6	35 00·5	− 3·7	22·8	− 4·9
18	36·8	− 0·4	20·1	− 1·4	58·2	− 0·5	58·6	− 1·1	01·8	− 2·4	24·2	− 3·5
Mean 7h to 18h	24 37·2	.....	25 21·5	.....	26 58·7	.....	28 59·7	.....	35 04·2	.....	35·27·7	.....
Max. and min...	24 38·4	.....	25 22·0	.....	26 59·0	.....	28 59·8	.....	35 04·4	.....	35 29·3	.....

Date	July 21–22		Sept. 6–7		Sept. 24–25		Oct. 3–4		Oct. 13–18	
Station	Mayo		Jedway, A		Jedway, C		Alert Bay		Pemberton	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
h.	East ° ′	′	East ° ′	′	East ° ′	′	East ° ′	′	East ° ′	′
7	36 12·0	+ 4·0	30 03·0	+ 3·2	29 44·0	+ 3·8	25 54·5	+ 6·8	24 18·7	+ 2·5
8	14·8	+ 6·8	03·4	+ 3·6	45·0	+ 4·8	54·3	+ 6·6	19·6	+ 3·4
9	16·5	+ 8·5	02·8	+ 3·0	44·2	+ 4·0	53·4	+ 5·7	20·0	+ 3·8
10	15·0	+ 7·0	01·6	+ 1·8	41·7	+ 1·5	50·2	+ 2·5	19·3	+ 3·1
11	11·8	+ 3·8	00·2	+ 0·4	39·0	− 1·2	46·2	− 1·5	17·0	+ 0·8
12	08·0	0·0	29 58·6	− 1·2	37·3	− 2·9	44·6	− 3·1	14·5	− 1·7
13	04·7	− 3·3	57·3	− 2·5	37·0	− 3·2	43·8	− 3·9	12·8	− 3·4
14	02·0	− 6·0	57·0	− 2·8	37·8	− 2·4	43·6	− 4·1	12·7	− 3·5
15	01·5	− 6·5	57·3	− 2·5	38·6	− 1·6	43·7	− 4·0	13·4	− 2·8
16	02·2	− 5·8	58·0	− 1·8	39·2	− 1·0	44·7	− 3·0	14·3	− 1·9
17	03·0	− 5·0	59·0	− 0·8	39·4	− 0·8	46·3	− 1·4	15·4	− 0·8
18	04·0	− 4·0	59·8	0·0	39·6	− 0·6	47·5	− 0·2	16·3	+ 0·1
Mean 7h to 18h	36 08·0	.....	29 59·8	.....	29 40·2	.....	25 47·7	.....	24 16·2	.....
Max. and min	36 09·0	.....	30 00·2	.....	29 41·0	.....	25 49·1	.....	24 16·4	.....

[1]Clayoquot observations given weight 2 in computation of corrections.

TABLE 6.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1925

Date	June 19–24		June 29–July 2		July 31–Aug. 3		Aug. 13–15		Aug. 24–27		Aug. 31–Sept. 1	
Station	Pointe aux Basque		Havre St. Pierre		Blanc Sablon		Battle Harbour		Bersimis		Matane	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
h.	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′
7	26 52·4	+ 8·3	34 37·8	+ 4·5	31 57·0	+ 6·2	34 10·0	+ 8·1	21 42·0	+11·1	25 09·1	+ 6·1
8	53·8	+ 6·9	38·2	+ 4·1	57·5	+·5·7	10·0	+ 8·1	44·0	+ 9·1	10·5	+ 4·7
9	56·0	+ 4·7	40·2	+ 2·1	58·8	+ 4·4	13·2	+ 4·9	46·8	+ 6·3	12·0	+ 3·2
10	59·0	+ 1·7	42·8	− 0·5	32 01·5	+ 1·7	16·5	+ 1·6	50·0	+ 3·1	15·5	− 0·3
11	27 04·0	− 3·3	46·0	− 3·7	05·3	− 2·1	20·0	− 1·9	55·6	− 2·5	19·8	− 4·6
12	08·0	− 7·3	48·5	− 6·2	09·5	− 6·3	22·8	− 4·7	22 01·7	− 8·6	22·2	− 7·0
13	08·3	− 7·6	48·0	− 5·7	09·8	− 6·6	25·0	− 6·9	02·8	− 9·7	20·5	− 5·3
14	06·5	− 5·8	45·7	− 3·4	07·4	− 4·2	25·0	− 6·9	01·0	− 7·9	15·8	− 0·6
15	03·5	− 2·8	43·0	− 0·7	05·3	−·2·1	22·7	− 4·6	21 57·8	− 4·7	14·3	+ 0·9
16	00·6	+ 0·1	40·6	+ 1·7	03·2	0·0	19·4	− 1·3	55·5	− 2·4	13·8	+ 1·4
17	26 58·5	+ 2·2	39·0	+ 3·3	02·3	+ 0·9	17·0	+ 1·1	51·0	+ 2·1	14·1	+ 1·1
18	57·3	+ 3·4	38·0	+ 4·3	01·0	+ 2·2	15·3	+ 2·8	49·0	+ 4·1	15·0	+ 0·2
Mean 7h to 18h	27 00·7	.....	34 42·3	.....	32 03·2	.....	34 18·1	.....	21 53·1	.....	25 15·2	.....
Max. and min...	27 00·4	.....	34 42·3	.....	32 03·6	.....	34 17·5	.....	21 52·2	.....	25 15·8	.....

Date	Sept. 5–8		Sept. 9		Sept. 10		Sept. 8–11		Sept. 16–18		Sept. 29–30	
Station	Magdalen River		Magdalen River		Magdalen River		West Turnavik		Matapedia		Grindstone	
L.M.T.	Declination	Variation	Declination	Variation	Delcination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
h.	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′
7	26 57·0	+ 8·4	26 58·0	+ 5·7	26 59·0	+ 7·2	36 34·2	+ 8·2	23 51·2	+ 8·9	26 26·2	+ 7·6
8	27 00·0	+ 5·4	27 00·8	+ 2·9	27 01·0	+·5·2	37·0	+·5·4	53·8	+ 6·3	27·3	+ 6·5
9	04·0	+ 1·4	02·7	+ 1·0	03·6	+ 2·6	41·0	+ 1·4	57·5	+ 2·6	29·8	+ 4·0
10	07·4	− 2·0	05·0	− 1·3	06·6	− 0·4	44·0	− 1·6	24 01·5	− 1·4	33·0	+ 0·8
11	11·0	− 5·6	07·4	− 3·7	09·8	− 6·6	46·8	− 4·4	05·0	− 4·9	36·2	− 2·4
12	12·7	− 7·3	09·0	− 5·3	12·5	− 6·3	47·8	− 5·4	07·2	− 7·1	39·0	− 5·2
13	10·8	− 5·4	07·3	− 3·6	11·7	− 5·5	48·0	− 5·6	06·3	− 6·2	38·5	− 4·7
14	07·6	− 2·2	05·0	− 1·3	09·3	− 3·1	46·8	− 4·4	04·0	− 3·9	37·0	− 3·2
15	04·8	+ 0·6	03·5	+ 0·2	07·0	− 0·8	44·5	− 2·1	01·6	− 1·5	35·7	− 1·9
16	03·4	+ 2·0	02·4	+ 1·3	05·0	+ 1·2	41·3	+ 1·1	23 59·0	+ 1·1	34·7	− 0·9
17	03·0	+ 2·4	01·8	+ 1·9	04·4	+ 1·8	39·0	+ 3·4	57·5	+ 2·6	34·2	− 0·4
18	02·8	+ 2·6	01·6	+ 2·1	04·4	+ 1·8	38·2	+ 4·2	56·7	+ 3·4	33·8	0·0
Mean 7h to 18h	27 05·4	.....	27 03·7	.....	27 06·2	.....	36 42·4	.....	24 00·1	.....	26 33·8	.....
Max. and min...	27 04·4	.....	27 03·5	.....	27 05·7	.....	36 40·6	.....	23 59·0	.....	26 32·6	

TABLE 6.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1925—(concluded)

Date	Oct. 3–7		Oct. 14–15		Oct. 16–17	
Station	Mulgrave		Halifax		Yarmouth	
L. M. T.	Declination	Variation	Declination	Variation	Declination	Variation
h.	West ° ′	′	West ° ′	′	West ° ′	′
7	24 58·4	+ 2·7	22 24·2	+ 2·4	18 19·7	+ 4·5
8	58·2	+ 2·9	23·5	+ 3·3	19·6	+ 4·6
9	58·7	+ 2·4	23·3	+ 3·5	20·2	+ 4·0
10	25 00·2	+ 0·9	24·2	+ 2·4	22·0	+ 2·2
11	02·5	− 1·4	25·7	+ 1·1	24·5	− 0·3
12	04·2	− 3·1	27·8	− 1·0	27·5	− 3·3
13	04·5	− 3·4	30·7	− 3·9	28·0	− 3·8
14	04·2	− 3·1	31·2	− 4·4	27·4	− 3·2
15	03·0	− 1·9	29·7	− 2·9	26·6	− 2·4
16	01·5	− 0·4	28·0	− 1·2	25·7	− 1·5
17	24 59·8	+ 1·3	26·8	0·0	24·7	− 0·5
18	58·5	+ 2·6	26·0	+ 0·8	24·0	+ 0·2
Mean 7h to 18h	25 01·1	.....	22 26·8	.....	18 24·2	.....
Max. and min	25 01·2	.....	22 27·2	.....	18 23·8	.....

TABLE 7.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1926

Date	June 19–21		June 25–26		July 1		July 1–2		July 8–10		July 14–16	
Station	Kinmount		Stanstead		Woodstock		Mont Laurier		Rivière du Loup		Quebec	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
h.	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′
7	9 34·2	+ 8·9	16 06·2	+10·1	20 57·0	+ 8·8	10 26·8	+ 9·9	21 41·8	+10·2	19 10·4	+11·0
8	33·7	+ 9·4	06·4	+ 9·9	56·8	+ 9·0	26·8	+ 9·9	43·5	+ 8·5	10·7	+10·7
9	36·3	+·6·8	09·3	+ 7·0	58·6	+ 7·2	28·6	+ 8·1	46·8	+ 5·2	14·7	+ 6·7
10	40·5	+ 2·6	14·6	+ 1·7	21 02·4	+ 3·4	32·8	+ 3·9	50·0	+ 3·0	19·4	+ 2·0
11	46·0	− 2·9	18·6	− 2·3	06·2	− 0·4	38·4	− 1·7	53·8	− 1·8	23·6	− 2·2
12	48·4	− 5·3	22·2	− 5·9	09·8	− 4·0	42·4	− 5·7	57·0	− 5·0	27·1	− 5·7
13	49·3	− 6·2	23·6	− 7·3	13·0	− 7·2	44·3	− 7·6	59·6	− 7·6	29·7	− 8·3
14	49·0	− 5·9	23·0	− 6·7	14·1	− 8·3	44·1	− 7·4	59·5	− 7·5	29·4	− 8·0
15	47·7	− 4·6	20·7	− 4·4	12·5	− 6·7	42·6	− 5·9	56·7	− 4·7	26·5	− 5·1
16	45·6	− 2·5	18·5	− 2·2	09·7	− 3·9	40·3	− 3·6	53·7	− 1·7	23·5	− 2·1
17	43·8	− 0·7	16·8	− 0·5	05·7	+ 0·1	37·8	− 1·1	51·3	+ 0·7	21·3	+ 0·1
18	42·6	+ 0·5	16·0	+ 0·3	04·0	+ 1·8	35·1	+ 1·6	49·7	+ 2·3	20·0	+ 1·4
Mean 7h to 18h	9 43·1	.....	16 16·3	.....	21 05·8	.....	10 36·7	.....	21 52·0	.....	19 21·4	.....
Max.and min....	9 41·5	.....	16 14·8	.....	21 05·5	.....	10 35·6	.....	21 50·8	.....	19 20·0	.....

TABLE 7.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1926—(continued)

Date	July 20–23		July 24–30		July 27–28		July 29–30		Aug. 4–5		Aug. 12	
Station	Roberval		Ottawa		La Tuque		Hervey Junction		Shawinigan Falls		Doucet	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Delcination	Variation
h.	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′
7	18 46·8	+ 9·2	14 01·6	+ 8·6	18 06·0	+ 7·7	19 53·7	+ 9·0	15 55·0	+ 9·6	14 46·5	+ 8·9
8	46·3	+ 9·7	01·7	+ 8·5	05·8	+ 7·9	53·6	+ 9·1	56·1	+ 8·5	47·2	+ 8·2
9	47·4	+ 8·6	03·3	+ 6·9	07·0	+ 6·7	56·0	+ 6·7	16 00·0	+ 4·6	50·7	+ 4·7
10	54·0	+ 2·0	08·0	+ 2·2	12·0	+ 1·7	20 00·0	+ 2·7	04·5	+ 0·1	54·7	+ 0·7
11	19 00·0	− 4·0	11·8	− 1·6	18·0	− 4·3	04·5	− 1·8	09·4	− 4·8	58·7	− 3·3
12	03·1	− 7·1	15·8	− 5·6	21·5	− 7·8	07·6	− 4·9	12·7	− 8·1	15 01·6	− 6·2
13	04·2	− 8·2	17·3	− 7·1	22·5	− 8·8	09·2	− 6·5	13·8	− 9·2	02·7	− 7·3
14	03·3	− 7·3	17·3	− 7·1	20·0	− 6·3	09·4	− 6·7	11·3	− 6·7	01·9	− 6·5
15	01·3	− 5·3	14·9	− 4·7	16·3	− 2·6	08·0	− 5·3	07·0	− 2·4	14 59·5	− 4·1
16	18 57·0	− 1·0	12·3	− 2·1	12·6	+ 1·1	05·7	− 3·0	03·3	+ 1·3	55·8	− 0·4
17	54·3	+ 1·7	09·6	+ 0·6	11·3	+ 2·4	03·3	− 0·6	01·0	+ 3·6	53·5	+ 1·9
18	54·0	+ 2·0	08·2	+ 2·0	11·3	+ 2·4	01·4	+ 1·3	00·5	+ 4·1	52·5	+ 2·9
Mean 7h to 18h	18 56·0	.....	14 10·2	.....	18 13·7	.....	20 02·7	.....	16 04·6	.....	14 55·4	.....
Max. and min...	18 55·2	.....	14 09·5	.....	18 14·2	.....	20 01·5	.....	16 04·4	.....	14 54·6	.....

Date	Aug. 20		Aug. 24–25		Aug. 27		Aug. 30		Aug. 31–Sept. 3		Sept. 10–11	
Station	New Liskeard		Cochrane		Hearst		Port Stanley		Sioux Lookout		Redditt	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Vari ation
h.	West ° ′	′	West ° ′	′	West ° ′	′	West ° ′	′	East ° ′	′	East ° ′	′
7	9 54·0	+10·2	10 12·6	+10·8	4 41·3	+12·6	3 36·5	+ 7·3	4 33·9	+ 8·1	8 03·5	+ 6·4
8	54·2	+10·0	11·8	+11·6	42·7	+11·2	35·4	+ 8·4	33·2	+ 7·4	02·7	+ 5·6
9	57·6	+ 6·6	17·8	+ 5·6	47·3	+ 6·6	36·8	+ 7·0	31·0	+ 5·2	00·6	+ 3·5
10	10 03·5	+ 0·7	23·7	− 0·3	52·7	+ 1·2	41·2	+ 2·6	27·7	+ 1·9	7 57·2	+ 0·1
11	10·1	− 5·9	28·7	− 5·3	57·4	− 3·5	46·0	− 2·2	24·0	− 1·8	54·7	− 2·4
12	13·0	− 8·8	31·8	− 8·4	5 00·8	− 6·9	49·7	− 5·9	20·6	− 5·2	53·2	− 3·9
13	13·0	− 8·8	32·7	− 9·3	02·7	− 8·8	51·2	− 7·4	18·6	− 7·2	52·2	− 4·9
14	09·8	− 5·6	30·3	− 6·9	01·3	− 7·4	50·2	− 6·4	20·0	− 5·8	52·0	− 5·1
15	07·0	− 2·8	26·7	− 3·3	4 58·2	− 4·3	48·2	− 4·4	22·8	− 3·6	54·4	− 2·7
16	04·4	− 0·2	23·0	+ 0·4	55·5	− 1·6	45·9	− 2·1	25·0	− 0·8	56·7	− 0·4
17	02·4	+ 1·8	20·7	+ 2·7	53·6	+ 0·3	43·1	+ 0·7	26·3	+ 0·5	58·7	+ 1·6
18	01·2	+ 3·0	20·5	+ 2·9	52·8	+ 1·1	41·6	+ 2·2	26·8	+ 1·0	59·5	+ 2·4
Mean 7h to 18h	10 04·2	.....	10 23·4	.....	4 53·9	.....	3 43·8	.....	4 25·8	.....	7 57·1	.....
Max. and min...	10 03·5	.....	10 22·2	.....	4 52·0	.....	3·43·3	.....	4 26·2	.....	7·57·8	.....

TABLE 7.—RESULTS OF SPECIAL OBSERVATIONS FOR DIURNAL VARIATION OF DECLINATION AT STATIONS OCCUPIED IN 1926 (concluded)

Date	Sept. 23		Sept. 27–29		Oct. 2–3		Oct. 2–4		Oct. 4–6		Oct. 12–14	
Station	Algoma		Twin City Junct'n		Schreiber		Atikokan		White River		Sudbury	
L.M.T.	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation	Declination	Variation
	West		East		West		East		West		West	
h.	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′	° ′	′
7	6 12·2	+ 5·2	1 51·0	+ 5·7	1 53·5	+ 7·6	4 14·5	+·4·8	4 57·5	+ 7·1	8 25·0	+ 5·5
8	12·3	+ 5·1	50·5	+ 5·2	53·2	+ 7·9	15·6	+ 5·9	56·3	+ 8·3	24·3	+ 6·2
9	13·7	+ 3·7	49·2	+ 3·9	54·6	+ 6·5	15·8	+ 6·1	57·2	+ 7·4	24·1	+ 6·4
10	16·7	+ 0·7	46·5	+ 1·2	58·0	+ 3·1	14·2	+ 4·5	5 00·1	+ 4·5	26·6	+ 3·9
11	20·0	− 2·6	42·8	− 2·5	2 01·6	− 0·5	10·6	+ 0·9	06·6	− 2·0	30·0	+ 0·5
12	22·7	− 5·3	39·8	− 5·5	04·7	− 3·6	06·2	− 3·5	11·5	− 6·9	33·6	− 3·1
13	23·0	− 5·6	40·4	− 4·9	06·7	− 5·6	04·8	− 4·9	11·4	− 6·8	36·3	− 5·8
14	21·0	− 3·6	41·6	− 3·7	07·2	− 6·1	05·5	− 4·2	09·2	− 4·6	35·8	− 5·3
15	19·0	− 1·6	43·2	− 2·1	06·0	− 4·9	06·3	− 3·4	07·2	− 2·6	34·5	− 4·0
16	17·2	+ 0·2	44·8	− 0·5	04·4	− 3·3	07·0	− 2·7	06·4	− 1·8	33·2	− 2·7
17	15·7	+ 1·7	46·3	+ 1·0	02·3	− 1·1	07·8	− 1·9	06·0	− 1·4	31·8	− 1·3
18	15·1	+ 2·3	47·0	+ 1·7	01·0	+ 0·1	08·5	− 1·2	05·8	− 1·2	30·8	− 0·3
Mean 7h to 18h	6 17·4	.....	1 45·3	.....	2 01·1	.....	4 09·7	.....	5 04·6	.....	8 30·5	.....
Max. and min...	6 17·6	.....	1 45·4	.....	2 00·2	.....	4 10·5	.....	5 04·2	.....	8 30·2	.....

TABLE 8.—DIURNAL VARIATION CORRECTIONS TO BE APPLIED TO OBSERVATIONS TAKEN DURING 1924

L.M.T.	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Remarks
Month	′	′	′	′	′	′	′	′	′	′	′	′	
May–August.....	−5·3	−6·0	−5·9	−4·0	−0·9	+2·1	+4·3	+5·4	+4·9	+2·8	+1·7	+1·0	Stations in British Columbia.
July–August.....	−6·2	−8·3	−8·3	−6·2	−3·0	+0·7	+4·6	+6·7	+6·7	+5·6	+4·5	+3·3	Stations in Yukon Territory.
September-October.	−4·1	−4·6	−4·1	−2·2	+0·4	+2·2	+3·2	+3·2	+2·7	+1·9	+1·0	+0·2	Stations in British Columbia.

TABLE 9.—DIURNAL VARIATION CORRECTIONS TO BE APPLIED TO OBSERVATIONS TAKEN DURING 1925

L.M.T.	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Remarks
Month	′	′	′	′	′	′	′	′	′	′	′	′	
June–August.....	−7·4	−6·4	−4·2	−1·2	+3·0	+6·7	+7·0	+4·8	+2·4	+0·1	−1·8	−2·8	
September.....	−7·5	−5·2	−2·4	+0·8	+4·0	+6·2	+5·2	+2·8	−0·7	−0·8	−1·7	−2·1	Stations south of St. Lawrenc river.
September.....	−8·2	−5·4	−1·4	+1·6	+4·4	+5·4	+5·6	+4·4	+2·1	−1·1	−3·4	−4·2	Stations in Labrador and Newfoundland.
October.....	−3·1	−3·4	−3·1	−1·6	+0·5	+2·6	+3·6	+3·4	+2·3	+0·9	−0·5	−1·6	Stations in Nova Scotia and New Brunswick.

TABLE 10.—DIURNAL VARIATION CORRECTIONS TO BE APPLIED TO OBSERVATIONS TAKEN DURING 1926

L.M.T.	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Remarks
Month	′	′	′	′	′	′	′	′	′	′	′	′	′
June	−9·5	−9·6	−6·9	−2·2	+2·6	+5·6	+6·8	+6·3	+4·5	+2·4	+0·6	−0·4	
July	−9·3	−9·2	−7·0	−2·5	+2·2	+5·7	+7·7	+7·2	+5·0	+2·0	−0·5	−1·8	
August	−10·0	−9·5	−5·6	−0·7	+4·1	+7·3	+8·4	+6·5	+3·3	+0·2	−1·8	−2·5	Stations in Northern Quebec and Northern Ontario.
August	−9·5	−8·8	−5·7	−0·1	+3·9	+6·4	+7·1	+5·7	+3·2	+0·7	−1·0	−2·0	Derived from Agincourt data: applied to stations in Southern Ontario.
September	−5·8	−5·3	−3·7	−0·7	−2·5	+4·9	+5·1	+4·1	+2·1	+0·2	−1·5	−2·1	Stations in Ontario north of latitude 45°·5.
September	−5·9	−5·8	−3·3	−0·4	+2·5	+4·5	+5·3	+4·0	+1·8	−0·3	−1·3	−1·8	Derived from Agincourt data; applied to stations in Southern Ontario.
October	−6·2	−7·1	−6·8	−4·0	+0·3	+4·3	+5·8	+5·0	+3·7	+2·6	+1·4	+0·6	

MAGNETIC RESULTS, 1924-1926

From the results given in the foregoing tables were determined most of the diurnal variation corrections which were used in the reduction of observations of declination. In cases where the field data were not used for this purpose, the corrections were determined from the records at Agincourt. The corrections are summarized in Tables 8 to 10, which correspond, respectively, to the years 1924 to 1926. As will be seen, the results are grouped according to months, and under the heading of remarks are references which indicate the grouping as to locality. For example, in Table 8 are given the hourly values corresponding to the period, May–August, and a reference to a locality. It is to be understood from this that the results were derived from the special observations of declination at stations in British Columbia during the months May–August, 1924, and further, these results were applied as corrections at all the stations in that particular region and occupied during those months. Where no remarks appear after a series of values, as, for example, those of June–August, 1925, Table 9, the inference is that these values apply to all stations occupied during those months regardless of the locality.

The question may naturally arise as to the reliability of the corrections determined in this manner. The method was used in connection with the reduction of the observations obtained in 1922 and 1923 and found quite satisfactory.[1] From the results given in Table 10 it will be seen that there is fairly good agreement between the results obtained at field stations and those derived from Agincourt for the corresponding months. The results for October, 1926, show a larger range than was expected, even making allowance for difference of magnetic latitude. The results on the whole, however, appear to be quite satisfactory. In view of the policy of securing at all stations declinations spread over the observing period of the day, the error in the mean value at any station due to errors in the adopted correction for diurnal variation will probably be small.

[1] Publications of the Dominion Observatory, Vol. VIII, No. 8, pp. 160–181.

In applying the corrections given in Tables 8–10 it is assumed that west declination is negative and east declination positive. A negative sign in the tables indicates that west declination must be increased and east declination decreased in order to reduce the observation to the mean of the day; in the case of a correction with a plus sign the procedure is, of course, the reverse.

SPECIAL DECLINATION—HORIZONTAL INTENSITY OBSERVATIONS

Reference has been made to the method of determining the diurnal variation of horizontal intensity simultaneously with declinations by observing deflections at one distance. The value of the intensity is computed from the formula

$$H = \frac{M_t \; C_t}{\sin u}$$

where M_t = the value of the magnetic moment at temperature $t°$ centigrade
C_t = a constant at a particular deflection distance and a particular temperature, in this case $t°$
u = observed angle of deflection

To determine H it is necessary to know the value of both M and C at temperature $t°$. These values are determined from values at 20° by applying a correction for change of temperature. The value of log C, which is one of the instrumental constants used in the computation of H from deflections and oscillations, is known. As M, the magnetic moment, is found, usually, to vary during a season it is necessary to compute a value for the time of observation. It has been the custom, as a matter of interest, to compute a value of M from each observation of horizontal force obtained by the method of deflections and oscillations. These were then reduced to 20° centigrade, and the values for the season were adjusted. For convenience in computing the force from the special observations, the values of 1926 were tabulated for intervals of ten, or, in a few cases, eleven days. These, as well as the values of log MC at 20°, are given in Table 11.

The change in the logarithm of the product of the magnetic moment, M, and the constant, C, is given by the following expression:

$$\log (MC)_t = [\log M_{20} \{1-(t-20°)\, q\}] + \log [C_{20} \{1-(t-20°)\, x\}]$$

where q and x are, respectively, the decrease in the magnetic moment, M, and the constant C, for 1° increase in temperature.

For our purpose this becomes

$$\log (MC)t = \log M_{20} + \log C_{20} + \log \{1-(t-20°)\, q\} + (t-20°) \log (1-x)$$

where $q = 0{\cdot}000466$ and $\log (1-x) = -0{\cdot}000025$.

The values of the correction to be applied to log $(MC)_{20}$ are given in Table 12.

TABLE 11.—VALUES OF MAGNETIC MOMENT OF INTENSITY MAGNET No. 104L FOR USE IN COMPUTING DIURNAL VARIATION OBSERVATIONS OF HORIZONTAL INTENSITY FOR THE SEASON 1926.

Date	M_{20}	log M_{20}	log C_{20}	log $(MC)_{20}$
1926				
June 10	266·82	2·42622	6·40412	8·83034
" 20	·80	619	.....	·83031
" 30	·77	614	.....	·83026
July 10	·75	610	.....	·83022
" 20	·73	607	.....	·83019
" 30	·70	602	.....	·83014
Aug. 10	·68	599	.....	·83011
" 20	·65	594	.....	·83006
" 30	·63	591	.....	·83003
Sept. 10	·60	586	.....	·82998
" 20	·57	581	.....	·82993
" 30	·55	578	.....	·82990
Oct. 10	·52	573	.....	·82985
" 20	·50	570	.....	·82982
" 30	·47	565	.....	·82977

TABLE 12.—VALUES OF log $\{1-(t-20°)\ q\}$ + log $\{1-(t-20°)x\}$ FOR DIFFERENT TEMPERATURES

$(t-20°)$ Cent.	log $\{1-(t-20°)\ q\}$		$(t-20°)$. log $(1-x)$	log $\{1-(t-20°)\ q\}$ + log $\{1-(t-20°)x\}$	
	$(t-20°)$ − ve	$(t-20°)$ + ve		$(t-20°)$ − ve	$(t-20°)$ + ve
1	+0·00020	−0·00020	±0·000025	+0·00022	−0·00022
2	040	040	050	045	045
3	061	061	075	068	068
4	081	081	100	091	091
5	101	101	125	114	114
6	+0·00121	−0·00122	±0·000150	+0·00136	−0·00137
7	141	142	175	158	159
8	162	162	200	182	182
9	182	182	225	205	205
10	202	202	250	227	227
11	+0·00222	−0·00223	±0·000275	+0·00250	−0·00250
12	242	244	300	272	274
13	262	264	325	295	296
14	282	284	350	317	319
15	303	305	375	340	342
16	+0·00323	−0·00325	±0·000400	+0·00363	−0·00365
17	343	345	425	386	388
18	363	366	450	408	411
19	383	386	475	430	434
20	403	407	500	453	457

TABLE 13.—RESULTS OF SPECIAL DECLINATION-HORIZONTAL INTENSITY OBSERVATIONS, 1926

Ottawa			Port Stanley			Algoma		
Date	July 30		Date	August 30		Date	September 23	
L.M.T.	D	H	L.M.T.	D	H	L.M.T.	D	H
	West			West			West	
h m	° ′	γ	h m	° ′	γ	h m	° ′	γ
7 00	14 01·9	14749	7 00	3 34·0	16108	6 59	6 14·3	14117
20	01·2	757	20	34·4	102	7 19	11·6	115
40	01·7	754	40	.....	.....	39	10·7	118
8 00	02·2	751	8 00	33·4	087	59	12·0	107
20	03·2	739	20	34·2	079	8 19	11·7	109
40	03·7	744	40	34·5	076	39	12·8	099
9 00	05·2	737	9 00	34·7	068	59	12·4	092
20	07·3	740	20	36·8	068	9 19	13·5	102
40	06·7	738	40	38·7	066	39	15·8	093
10 00	09·9	738	10 00	39·2	059	59	17·6	094
20	11·8	741	20	40·8	063	10 19	18·2	090
40	11·4	737	40	42·5	065	39	19·3	084
11 00	12·0	724	11 00	43·3	073	59	21·0	089
20	13·3	747	20	44·0	075	11 19	21·7	093
40	15·0	745	40	.....	.....	39	.....	.....
12 00	13·9	748	12 00	.....	.....	59	.....	.....
20	.....	.....	20	48·8	088	12 19	26·1	111
40	.....	.....	40	48·8	093	39	26·2	141
13 00	12·4	768	13 00	48·2	110	59	26·7	145
20	13·0	768	20	48·5	095	13 19	24·2	135
40	13·6	779	40	48·3	097	39	23·1	156
14 00	14·2	781	14 00	48·7	112	59	22·0	161
20	13·9	776	20	48·6	113	14 19	21·7	155
40	14·0	785	40	47·6	110	39	21·1	163
15 00	13·4	788	15 00	46·7	119	59	19·4	171
20	11·9	782	20	46·4	116	15 19	15·6	152
40	11·1	779	40	45·8	132	39	14·0	159
16 00	10·3	780	16 00	44·6	137	59	16·0	167
20	09·4	789	20	42·7	129	16 19	16·1	173
40	09·8	781	40	42·3	121	39	17·7	148
17 00	08·6	781	17 00	42·2	116	59	18·8	140
20	08·7	779	20	.....	.....	17 19	.....	.....
40	08·1	788	40	.....	.....	39	17·1	154
18 00	08·5	773	18 00	43·0	126	59	.....	.....

TABLE 13.—RESULTS OF SPECIAL DECLINATION-HORIZONTAL INTENSITY OBSERVATIONS, 1926
(concluded)

White River					Sudbury				
Date	October 5		October 6		Date	October 13		October 14[1]	
L.M.T.	D	H	D	H	L.M.T.	D	H	D	H
h m	West ° ′	γ	West ° ′	γ	h m	West ° ′	γ	West ° ′	γ
6 58	.....	.....	.....	.....	7 09	.....	.....	8 17·3	14176
7 18	.....	.....	4 54·7	12613	29	.....	.....	18·5	187
38	.....	.....	52·9	608	49	.....	.....	16·5	193
58	.....	.....	51·6	588	8 09	.....	.....	19·4	193
8 18	.....	.....	54·3	596	29	.....	.....	19·7	179
38	.....	.....	53·9	582	49	.....	.....	18·7	182
58	.....	.....	57·4	578	9 09	.....	.....	17·7	162
9 18	.....	.....	55·8	571	29	.....	.....	17·6	162
38	.....	.....	58·3	571	49	.....	.....	17·1	156
58	.....	.....	59·9	566	10 09	.....	.....	18·6	162
10 18	.....	.....	5 01·9	557	29	.....	.....	21·0	166
38	.....	.....	05·5	547	49	.....	.....	23·6	161
58	.....	.....	08·1	557	11 09	.....	.....	22·4	168
11 18	.....	.....	11·0	561	29	.....	.....	25·6	171
38	.....	.....	14·7	571	49	.....	.....	29·9	163
58	.....	.....	15·1	568	12 09	.....	.....	32·0	156
12 18	.....	.....	13·2	573	29	.....	.....	43·2	172
38	.....	.....	13·4	578	49	.....	.....	43·8	190
58	.....	.....	12·5	583	13 09	8 38·2	14174	39·2	212
13 18	.....	.....	.....	.....	29	39·3	180	31·5	225
38	.....	.....	11·4	596	49	39·1	185	32·1	225
58	.....	.....	10·8	595	14 09	39·3	218	35·0	233
14 18	.....	.....	10·4	597	29	38·8	215	37·6	252
38	.....	.....	08·2	602	49	37·3	221	.....	.....
58	.....	.....	07·2	614	15 09	.....	.....	.....	.....
15 18	.....	.....	08·6	622	29	37·2	236	.....	.....
38	.....	.....	07·5	616	49	38·4	233	.....	.....
58	5 02·7	12610	06·4	606	16 09	38·1	247	.....	.....
16 18	03·0	608	04·9	597	29	37·1	203	.....	.....
38	02·6	614	05·1	604	49	36·3	228	.....	.....
58	02·3	615	04·4	606	17 09	33·5	238	.....	.....
17 18	.....	.....	03·7	612	29	.....	.....	.....	.....
38	.....	.....	.....	.....	49	.....	.....	.....	.....

[1] Disturbance developed on October 14.

SUMMARY OF MAGNETIC RESULTS

The results of the observations for the three years 1924–6 are given in accordance with the plan adopted for summarizing the results of the two years, 1922 and 1923, which, with slight modification, is similar to the scheme used by the Carnegie Institution for recording similar data.

In the summary the observations are grouped according to years and the results of each year are arranged in order of increasing west longitude. For each station there are given the values of the latitude, longitude, date, local mean times corresponding to the values of the three magnetic elements, declination, inclination and horizontal intensity, which are also given, as well as the instrument number and observer's initial. The letters *F* and *M* refer, respectively, to C. A. French and R. G. Madill.

The method of arriving at the mean value of each of the elements may be briefly explained. In three columns are entered values of local mean time, which is given to the nearest $0 \cdot 1^h$, followed by a value or values of the magnetic element. Where, for example, four values of time precede a value of declination the inference is that the value given is the mean of four observations taken at the times indicated. In some cases there is given the time of beginning and time of ending of what may be either a continuous series of readings at uniform intervals, or a number of sets taken in the ordinary way and distributed fairly uniformly over the interval, followed by a bracketed number. The number indicates either the actual number of sets taken, or the weight to be assigned to the result in deriving a mean value for the station. Where no such number is given, the weight is determined by the number of values of the time preceding the value of the magnetic element.

Inclination values are, at most stations, grouped, but the method of grouping differs slightly from that adopted for the declinations. Corresponding to each value of time there is given one value of inclination. Two numbers in the column headed "needle" indicate that the inclination was determined from the mean of results using two needles. These numbers, furthermore, designate the needles used in the observations. When two dip needles were used, the observations were carried out in such a way that the mean time was the same for each needle. When the earth inductor was used the corresponding spaces in the column for the number of needle remain blank, except in a few cases, where the bracketed number, (2), occurs. This number indicates that the value of inclination is the mean of two observations. The time given for this value of inclination is the mean for the two observations, which are separated at most by $0 \cdot 2^h$.

As in the declination results, the number of values of time preceding a horizontal intensity result indicates the number of sets of observations entering into the result.

In the summary there is given for each station a mean value for each of the three magnetic elements. It has already been pointed out that each observation of declination has been corrected for diurnal variation, so that the mean value is simply the weighted mean. Corresponding values of inclination and horizontal intensity, however, have not been similarly corrected, that is for diurnal variation, but represent observed values. In certain cases the mean value for the station has been derived by assigning weights to the individual values in accordance with the method outlined on pages 347–8. For example, observations were taken at Alert Bay, $\lambda = 126° 55' \cdot 8$, on Oct. 3 and 4, 1924. The mean value of the inclination for this station is $71° 22' \cdot 7$ and the horizontal intensity

18318γ. The mean value of the inclination is obtained by taking the mean of the values at $14{\cdot}4^h$ on Oct. 3 and $14{\cdot}4^h$ on Oct. 4, which is $71°\ 23'{\cdot}6$, giving it weight unity and combining it with the morning observation on Oct. 4 to obtain the mean value $71°\ 22'{\cdot}7$. In the case of the horizontal intensity, the mean of the morning values is 18314γ and the afternoon 18323γ, giving for the station the mean value 18318γ. At a few stations observations were obtained only in the morning, or the afternoon. As a rule a correction was applied to these observations to reduce them to the mean of the day, though a few exceptions to this will be noted. For example, on June 9, 1924, at Nanaimo, $\lambda = 123°\ 56'{\cdot}2$, observations of horizontal intensity were taken at $15{\cdot}8^h$, $16{\cdot}4^h$ and $20{\cdot}2^h$. As there were no observations during the season at the time of the last, namely, $20{\cdot}2^h$, from which a correction could be determined, the mean of the three observations was adopted as the mean value for the station.

In the summary of the horizontal intensity results are the means of the hourly values from 7^h to 18^h at five stations at which special declination-horizontal intensity observations were taken in 1926. These values are obtained from Table 13 and in order that they may be distinguished from the other values they are given in italics. As they differ fairly consistently, though by a small amount, from the values determined according to the regular program, they were not included when deriving the general mean.

SELECTION AND DESCRIPTION OF STATIONS

The usual consideration was given to the selection and description of stations. In the selection it is important that the point chosen appears likely to be available for future observations. The site must also be free from artificial disturbance. Having made the selection the description should be sufficiently complete that its recovery at a future date may be readily made. When possible the point is connected by linear measurements to some well-defined and permanent marks, and bearings, referred to the meridian, of some prominent objects are determined. As an additional aid in relocating the station a mark of some kind is left in the ground to indicate the precise point of observation. For this purpose a wooden peg is sometimes used. It is customary, however, to use material of a more permanent nature, such as a brick, a stone or concrete block.

The general form adopted for the description is: name of station, province in which it is located, year occupied and the general description, including details of linear and angular measurements and marking of the station.

The stations are arranged alphabetically.

MAGNETIC OBSERVATIONS, 1924

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Ottawa	45 23·6	75 43·0	April 17	7·6 8·0 12·2 12·6	14 01·9	.....	.....	.....	10·7 11·1	14771	20	....	M
			" 17	.....	.....	.....	.....	.....	13·4 14·2	14793	20	....	M
			" 23	7·9 8·3 12·5 12·9	00·7	10·8	75 38·4	1, 2	11·6	14769	20	20	M
			" 23	.....	.....	16·2	36·4	5, 6	13·7	14769	20	20	M
			" 24	7·6 8·2 13·1 13·4	02·2	10·2	37·6	1, 5	11·4	14765	20	20	M
			" 24	.....	.....	15·1	35·8	6, 2	13·9	14786	20	20	M
				Mean.....	14 01·6	.....	75 37·0	.....	.....	14780			
Ottawa	45 23·6	75 43·0	Nov. 11	7·5 to 17·0 (10)	14 05·5	9·7	75 36·6	1, 2	10·6 11·6	14755	20	20	M
			" 11	.....	.....	15·6	35·2	5, 6	13·4 14·7	14784	20	20	M
			" 12	7·5 to 17·0 (10)	05·0	9·6	37·4	5	10·3 11·5	14757	20	20	M
			" 12	.....	.....	15·5	37·8	6	13·4 14·5	14776	20	20	M
			" 13	8·0 to 16·0 (7)	03·8	9·6	39·4	1, 2	10·5 11·5	14753	20	20	M
			" 13	.....	.....	15·6	37·0	5, 6	13·5 14·5	14775	20	20	M
				Mean.....	14 04·9	.....	75 37·2	.....	.....	14767			
					East								
Pemberton	50 19·6	122 48·2	Oct. 13	10·4 10·6 13·4 13·8	24 17·2	11·3	73 00·3	1, 5	.....	.....	20	20	M
			" 13	14·1 15·2 15·7	15·9	14·6	72 56·2	2, 6	15·5 16·2	17027	20	20	M
			" 14	8·9 9·3 9·7 10·0	15·4	.....	.....	.....	10·7 11·4	17003	20	..	M
			" 15	11·8 13·5 14·9 16·2	14·6	.....	.....	.....	15·0 15·8	17039	20	..	M
			" 18	15·0	14·9	14·1	58·0	5, 6	.....	.....	20	20	M
				Mean.....	24·15 7	.....	72 58·7	.....	.....	17018			
Vancouver	49 17·8	123 07·1	June 19	16·4 16·6	25 19·2	.....	.....	.....	16·0 17·2	18631	20	..	M
			" 20	8·0 8·4 11·4 13·7	24·5	9·6	71 31·0	1, 5	10·4 11·0	18636	20	20	M
			" 20	14·0 14·4 16·4 16·6	24·0	17·3	29·7	6, 2	15·5 16·2	18625	20	20	M
			" 21	9·0 9·3	25·3	8·5	29·8	2, 1	.....	.....	20	20	M
				Mean.....	25 23·6	.....	71 30·0	.....	.....	18632			

Squamish	49 42·6	123 08·6	Oct.	9	10·6 10·8 13·8 14·1	25 28·4	15·4	71 41·4	1, 2	11·0	11·5	18167	20	20	M
			"	9	14·4 15·9 17·1	27·5	.....	.....	.....	16·2	16·8	18185	20	..	M
			"	10	8·4 8·8	24·9	9·7	44·2	5, 6	.....		.....	20	20	M
					Mean.....	25 27·3	.....	71 42·8	.....	.....		18176	....		
Victoria (Mount Douglas)..	48 29·1	123 19·9	May	27	9·4 12·8 13·0 13·5	24 33·7	10·2	70 55·2	1, 5	11·0	.....	18850	20	20	M
			"	27	15·2 16·8 17·0	34·2	14·2	51·7	2, 6	11·5	.....	18884	20	20	M
			"	28	8·0 to 16·2 (12)	32·0	10·5	57·7	1	.....		.....	20	20	M
			"	28	.....	.....	15·5	58·4	6	.....		.....	..	20	M
					Mean.....	24 32·7	.....	70 54·8	.....	.....		[1]18874			
Victoria	48 24·5	123 22·2	May	22	16·4 16·8	24 37·7	.....	.....	.....	.....		.....	20	..	M
			"	23	7·8 8·2 8·6	36·6	9·6	71 10·8	1, 2	10·8	11·7	18533	20	20	M
			"	23	10·2 10·3	36·6	.....	.....	.....	14·2	14·9	18583	20	..	M
			"	23	13.0 13·4 13·8 15·4	38·7	.....	.....	.....	.....		.....	20	..	M
			"	26	10·0 10·3	33·2	9·4	11·0	5, 6	10·8	.....	18585	20	20	M
					Mean.....	24 36·9	.....	71 10·0[1]	.....	.....		18567			
Nanaimo	49 12·8	123 56·2	June	9	11·5 12·4 12·8 13·3	25 16·8	14·1	71 11·2	1, 6	15·8	.....	18647	20	20	M
			"	9	13·6 14·6 15·4 16·8	16·2	.....	.....	.....	16·4	.....	18659	20	..	M
			"	9	17·4 18·0 18·5	17·1	.....	.....	.....	20·2	.....	18655	20	..	M
					Mean.....	25 16·7	.....	71 12·1[1]	.....	.....		18654			
Courtenay	49 42·0	124 59·2	June	12	11·5 to 16·7 (6)	26 23·6	14·4	71·08·1	1, 2	15·8	16·4	18701	20	20	M
			"	13	6·9 7·3 7·7	22·1	10·0	09·3	5, 6	11·0	11·6	18693	20	20	M
			"	13	14·5 16·6 16·8	23·3	14 0	08·1	5, 1	15·4	16·0	18690	20	20	M
					Mean.....	26 23·1	.....	71 08·7	.....	.....		18694			
Clayoquot	49 09·5	125 56·5	June	4	9·6 to 13·8 (6)	25 23·1	14 9	70 36·8	5, 6	10·3	11·5	19028	20	20	M
			"	4	14·1 " 19·6 (5)	21·3	.....	.....	.....	15·8	16·4	19026	20	20	M
			"	5	6·4 " 12·6 (8)	22·2	10·2	36·0	1, 2	.....		.....	20	20	M
			"	5	13·0 " 16·9 (8)	20·2	16·3	36·8	5, 2	.....		.....	20	20	M
					Mean.....	25 21·6	.....	70 36·4	.....	.....		19027			

[1] Corrections applied to observations for diurnal change.

MAGNETIC OBSERVATIONS, 1924 (continued)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	East ° ′	h.	° ′		h. h.	γ			
Alert Bay	50 35·6	126·55·8	Oct. 3	9·3 9·5 11·2 13·6	25 47·4	14·4	71 23·0	1, 6	10·1 10·9	18313	20	20	M
			" 3	15·1 16·6	45·0	.....	.....	.....	15·4 16·2	18323	20	..	M
			" 4	8·4 8·8 11·5 13·5	45·0	9·6	21·8	2, 5	10·4 11·1	18315	20	20	M
			" 4	15·4 15·8 16·5 17·2	44·1	14·4	24·2	1, 2	.....	.....	20	20	M
				Mean.....	25 45·4	.....	71 22·7	.....	.....	18318			
Ocean Falls B	52 21·3	127 42·1	June 23	14·0 14·2 16·5 20·0	26 58·2	19·4	73 04·4	5, 6	15·6 16·1	16821	20	20	M
			" 24	7·6 8·0 9·7	58·9	8·6	05·8	1, 2	10·1 10·8	16813	20	20	M
			" 24	11·1 14·0 14·3	59·2	.....	.....	.....	.....	.....	20	..	M
				Mean.....	26 58·7	.....	73 05·1	.....	.....	16817			
Stewart	55 56·3	129 59·2	Aug. 24	14·9 15·1 17·0	30 06·7	.....	.....	.....	15·8 16·6	15238	20	..	M
			" 25	10·0 11·9 15·8 16·1	01·8	15·5	74 53·6	1, 6	10·4 11·4	15208	20	20	M
			" 28	7·3 to 13·4 (6)	03·9	10·9	53·0	5, 2	.....	.....	20	20	M
			" 28	13·8 to 19·2 (6)	04·3	.....	.....	.....	.....	.....	20	..	M
				Mean.....	30 04·0	.....	74 53·3	.....	.....	15223			
Prince Rupert	54 18·2	130 20·0	June 26	10·9 11·2 12·6 13·0	28 57·7	.....	.....	.....	14·6 15·4	16380	20	..	M
			" 26	13·5 13·9 15·8	29 00·5	.....	.....	.....	.....	.....	20	..	M
			" 26	16·2 18·9 19·3	28 59·1	.....	.....	.....	.....	.....	20	..	M
				Mean.....	28 59·0	.....	.....	.....	.....	[1]16370			
Prince Rupert	54 18·2	130 20·0	Aug. 18	19·2	28 57·8	.....	.....	.....	.....	.....	20	..	M
			" 19	10·6 12·6 12·9	58·8	14·4	73 33·6	1, 2	11·2 12·3	16355	20	20	M
			" 19	13·2 13·4 15·0	58·8	.....	.....	.....	15·5 16·0	16380	20	..	M
			" 20	9·9 15·4	59·8	11·6	37·2	5, 6	.....	.....	20	20	M
			" 20	.....	.....	14·9	33·6	1, 5	.....	.....	20	20	M

[1] Corrections applied to observations for diurnal change.

			"	21	8·0 to 9·6 (5)	59 0	.....	.....	.....	.....	.....	20	..	M
			"	21	12·6 to 16·7 (7)	58·6	.....	.....	.....	.....	.....	20	..	M
					Mean.....	28 58·8	.....	73 35·4	.....	.....	16358			
Jedway A.....	52 18·2	131 13·0	Sept.	6	13·9 14·1	29 59·8	.....	.....	.....	.....	.....	20	..	M
			"	8	12·7 13·4 15·8 16·5	59·4	.....	.....	.....	14·5 15·4	18261	20	..	M
			"	9	9·8 11·1 15·5 16·5	59·1	14·6	71 35·8	5, 6	10·2 10·9	18245	20	20	M
			"	9	....	.....	.....	.....	.....	15·9 16·2	18278	20	..	M
			"	11	7·9 8·2	58·5	16·4	34·3	2, 1	.....	.....	20	20	M
					Mean.....	29 59·2	.....	71 35·8[1]	.....	.....	18257			
Jedway B.....	52 18·2	131 13·0	Sept.	15	11·2 to 15·4 (9)	27 04·6	.....	.....	.....	.....	.....	20	..	M
			"	21	15·5	06·0	.....	.....	.....	.....	.....	20	..	M
			"	22	9·1 9·2 12·6 15·4	03·4	11·5	71 19·7	1 ,2	10·0 10·8	18732	20	20	M
			"	22	.....	.....	14·8	20·1	5, 6	13·0 13·7	18718	20	20	M
					Mean.....	27 04·4	.....	71 19·9	.....	.....	18725			
Jedway C.....	52 17·8	131 13·0	Sept.	24	13·1 to 17·8 (9)	29 39·8	.....	.....	.....	15·3 16·1	17851	20	..	M
			"	25	7·6 " 9·7 (5)	39·5	11·4	71 45·9	1, 5	9·9 10·5	17837	20	20	M
			"	25	10·8 " 14·1 (5)	39·2	13·5	44·2	2, 6	.....	.....	20	..	M
					Mean.....	29 39·6	.....	71 45·0	.....	.....	17844			
Whitehorse.....	60 43·5	135 02·5	Aug.	12	10·0 10·2 14·1 15·8	32 15·1	15.0	77 20·5	1, 2	.....	.....	20	20	M
			"	13	8·1 8·5 9·1 10·0	15·8	10·7	25·8	5, 6	8·6 9·5	12781	20	20	M
			"	13	11·1 11·8 13·7 14·6	14·0	.....	.....	.....	11·5 14·2	12757	20	..	M
					Mean.....	32 15·0	.....	77 23·2	.....	.....	12769			
Keno City.....	63 55·0	135 17·8	July	24	15·2 15·3 17·2 20·8	36 54·6	17·9	78 53·2	1, 2	15·9 16·8	11321	20	20	M
			"	25	10·0 11·9 15·0 16·6	53·8	16·1	54·8	5, 6	10·7 11·4	11277	20	20	M
					Mean.....	36 54·0	.....	78 54·0	.....	.....	11299			
Mayo.....	63 36·0	135 53·5	July	21	14·7 14·9 17·2	36 06·9	.....	.....	.....	.....	.....	20	..	M
			"	21	17·4 20·0 20·2	05·8	.....	.....	.....	16·0 16·8	11648	20	..	M
			"	22	7·2 7·8 9·4 10·7	08·2	10·1	78 25·0	1, 2	10·5 11·4	11625	20	20	M
			"	22	11·8 14·0 15·2 16·4	08·1	14·7	33·8	5, 6	15·6 16·1	11635	20	20	M
			"	22	.....	.....	16·8	34·7	1, 5	.....	.....	20	20	M
					Mean.....	36 07·4	.....	78 29·6	.....	.....	11633			

[1] Corrections applied to observations for diurnal change.

MAGNETIC OBSERVATIONS, 1924 (concluded)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	East ° ′	h.	° ′		h. h.	γ			
Tantalus	62 05·5	136 15·8	Aug. 5	15·5 16·0 16·2 17·7	34 31·0	17·0	77 36·6	1, 2	.....	.....	20	20	M
			" 6	10·0 14·8 16·3 17·8	33·0	17·3	41·0	1, 5	15·2 15·9	12443	20	20	M
			" 7	9·9 11·8 14·3	30·0	15·0	37·6	2, 6	10·4 11·3	12457	20	20	M
			" 7	15·5 16·7	31·2	.....	.....	.....	15·8 16·4	12450	20	..	M
				Mean.....	34 31·4	.....	77 38·4	.....	.....	12452			
Selkirk	62 46·3	137 22·2	Aug. 2	12·6 14·2 16·5	33 59·8	.....	.....	.....	.....	.....	20	..	M
			" 2	17·8 18·2 18·9	54·6	17·3	78 25·0	5, 1	14·6 16·0	11765	20	20	M
			" 3	9·8 11·3 13·4 14·4	59·8	10·4	22·4	2, 6	11·7 14·0	11747	20	20	M
				Mean.....	33 58·2	.....	78 23·7	.....	.....	11756			
Stewart	63 19·2	139 24·2	July 29	15·3 16·9 18·1	34 03·5	17·5	77 41·8	1, 5	15·9 16·6	12309	20	20	M
			" 30	7·5 7·8 9·8 10·2	02·7	11·8	41·6	6, 2	15·6 16·3	12305	20	20	M
			" 30	12·4 15·2 16·7 17·0	02·0	.....	.....	.....	.....	.....	20	..	M
				Mean.....	34 02·7	.....	77 41·7	.....	.....	[1]12302			
Dawson	64 03·4	139 26·0	July 3	11·3 to 20·8 (12)	35 03·8	.....	.....	.....	15·8 19·3	12571	20	..	M
			" 4	8·3 9·4 13·7	03·4	11·5	77 41·4	5, 6	10·0 10·7	12554	20	20	M
			" 4	.....	.....	14·6	37·4	1, 2	.....	.....	..	20	M
			" 5	11·2 to 16·3 (7)	02·4	14·0	42·1	1, 5	15·4 16·0	12553	20	20	M
				Mean.....	35 03·3	.....	77 40·6	.....	.....	12558			
International Boundary	64 40·9	141 00·0	July 10	10·3 to 19·1 (10)	35 29·1	.....	.....	.....	14·8 16·0	12178	20	..	M
			" 11	6·4 " 9·2 (7)	27·4	10·0	77 58·2	1, 6	11·0 11·7	12147	20	20	M
			" 11	10·6 " 14·9 (6)	26·5	16·3	56·8	2, 5	13·8 14·4	12154	20	20	M
			" 11	15·6 " 19·6 (6)	26·9	19·2	54·7	1, 2	.....	.....	20	20	M
				Mean.....	35 27·7	.....	77 56·6	.....	.....	12157			

[1] Corrections applied to observations for diurnal change.

Station	Lat.	Long.	Date.	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
St. Anthony, Newfoundland	51 22·1	55 33·5	Sept. 29	10·2 11·8	34 09·8	15·4	75 34·8	1, 2	10·6 11·4	13878	20	212	M
			" 29	13·0 14·4	11·8	.....	.....	.....	13·4 14·1	13901	20	....	M
			" 30	9·0 10·0	12·2	9·5	38·0	1, 2	10·5	13858	20	212	M
			" 30	11·0 11·5 12·0	12·6	.....	.....	.....	.....	.....	20	....	M
				Mean.....	34 11·7	.....	75 36·4	.....	.....	13886			
Battle Harbour, Labrador..	52 16·4	55 35·4	Aug. 13	13·8 16·1	34 17·3	.....	.....	.....	14·4 15·6	13643	20	....	M
			" 15	8·0 9·2 10·7	17·4	8·6	75 47·7	1, 2	9·6 10·2	13596	20	212	M
			" 15	11·8 13·6 15·4	16·7	16·0	44·2	1, 2	14·1 15·0	13662	20	212	M
			" 16	7·0 to 12·0 (7)	16·8	8·5	47·2	1, 2	9·7 10·4	13595	20	212	M
			" 16	13·0 " 17·0 (6)	19·1	16·5	43·9	1, 2	.....	.....	20	212	M
				Mean.....	34 17·6	.....	75 45·8	.....	.....	13624			
Point Amour, Labrador.....	51 27·9	56 51·5	Aug. 6	9·5 to 16·7 (5)	32 10·0	16·8	75 50·2	1, 2	10·1 10·9	13730	20	212	M
			" 6	.....	.....	.....	.....	.....	14·4 15·2	13762	20	....	M
			" 7	8·5 to 14·8 (5)	12·7	9·8	51·6	1, 2	.....	.....	20	212	M
				Mean.....	32 11·4	.....	75 50·9	.....	.....	13746			
Blanc Sablon.....	51 25·8	57 08·6	July 31	11·9 15·1 16·9	32 04·7	.....	.....	.....	15·8 16·5	13679	20	212	M
			Aug. 1	10·0 11·7	02·6	.....	.....	.....	10·4 11·2	13673	20	....	M
			" 3	7·0 to 12·0 (6)	03·5	7·5	75 53·5	1, 2	10·4 11·6	13654	20	212	M
			" 3	13·0 " 17·0 (6)	01·8	12·5	51·8	1, 2	15·0 16·0	13714	20	212	M
			" 4	.....	.....	10·2	54·5	1, 2	.....	.....	....	212	M
			" 4	.....	.....	14·7	50·1	1, 2	.....	.....	....	212	M
				Mean.....	32 03·0	.....	75 52·5	.....	.....	13680			

MAGNETIC OBSERVATIONS, 1925 (continued)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
West Turnavik, Labrador...	55·15·8	59 19·9	Sept. 8	16·4	36 42·7	.....	.....	.....	.....	.....	20	....	M
			" 9	16·2	29·3	16·9	78 33·4	1, 2	.....	.....	20	212	M
			" 10	7·0 8·0 9·0	42·9	.....	.....	.....	.....	.....	20	....	M
			" 10	11·0 13·0 15·5 16·0	42·8	.....	.....	.....	.....	.....	20	....	M
			" 11	8·8 11·2	42·3	9·4	41·2	1, 2	10·1 10·8	11215	20	212	M
			" 11	12·7 14·6 15·9	41·9	15·4	39·6	1, 2	13·4 14·2	11247	20	212	M
			" 12	9·3	43·2	8·7	41·6	1, 2	9·8 10·5	11225	20	212	M
				Mean.....	36 41·7	.....	78 39·0	.....	.....	11234			
Salmon Bay.....	51 25·3	57 37·3	July 21	15·8 17·4	30 11·8	.....	.....	.....	16·3 16·9	13573	20	....	M
			" 22	8·6 9·8 11·5	11·7	9·2	76 01·7	1, 2	10·3 11·1	13515	20	212	M
			" 22	13·5 15·0 16·4	08·6	15·9	75 56·0	1, 2	13·9 14·6	13557	20	212	M
			" 23	9·8 11·4 14·2 15·7	11·0	9·3	76 00·7	1, 2	10·3 11·1	13511	20	212	M
			" 23	.....	.....	15·0	75 58·8	1, 2	.....	.....	....	212	M
				Mean.....	30 10·7	.....	75 59·3	.....	.....	13539			
Harrington Harbour.....	50 30·1	59 28·1	July 14	10·1 11·7 14·1	31 05·5	16·4	75 55·4	1, 2	10·6 11·3	13706	20	212	M
			" 14	15·8 17·0	05·4	.....	.....	.....	14·4 15·3	13764	20	....	M
			" 15	9·7 10·7 11·9	04·1	10·3	56·2	1, 2	11·0 11·6	13724	20	212	M
			" 15	14·4 16·4 17·4	07·7	17·0	55·3	1, 2	15·6 16·1	13748	20	212	M
				Mean.....	31 05·7	.....	75 55·8	.....	.....	13736			
Sydney B.....	46 08·8	60 12·0	Oct. 8	15·2 15·5 16·4 17·0	26 07·4	15·9	73 51·6	.....	.....	.....	104	104	F
			" 8	.....	.....	16·1	51·5	.....	.....	.....	....	104	F
			" 9	7·8 8·2 9·2 10·0	07·4	9·6	53·0	.....	10·4 11·2	15551	104	104	F
			" 9	11·2 to 16·0 (6)	10·0	9·7	53·1	.....	14·7 15·1	15591	104	104	F
				Mean.....	26 08·5	.....	73 52·3	.....	.....	15571			

Mulgrave A.....	45 36·3	61 23·3	Oct.	3	17·5 17·7	24 59·4	.....	.....	.....	.....	.....	104	....	F
			"	5	7·2 to 11·0 (6)	25 02·2	9·6	73 32·3	(2)	10·6 11·4	15959	104	104	F
			"	5	12·0 " 17·0 (6)	00·9	15·6	29·6	(2)	13·6 14·4	16009	104	104	F
			"	6	7·5 " 16·5 (17)	01·9	.....	.....	.....	.....	.....	104	....	F
			"	7	7·0 " 12·2 (6)	00·3	.....	.....	.....	.....	.....	104	....	F
					Mean.....	25 01·4	.....	73 31·0	.....	.....	15984			
Nain, Labrador.....	56 32·2	61 41·8	Sept.	1	9·8 11·5 14·2	42 25·8	.....	.....	.....	10·3 11·1	11299	20	....	M
			"	2	14·0 16·6	27·3	17·1	78 42·5	1, 2	14·4 16·2	11325	20	212	M
			"	3	6·5 to 16·0 (9)	26·4	9·5	45·3	1, 2	.....	.....	20	212	M
					Mean.....	42 26·4	.....	78 43·9	.....	.....	11312			
Natashkwan.....	50 11·3	61 51·4	July	8	9·4 11·0 13·6 15·8	29 42·6	11·6	76 23·9	1, 2	9·8 10·6	13503	20	212	M
			"	8	.....	.....	.....	.....	.....	14·0 14·6	13539	20	....	M
			"	9	8·2 9·4 1·08 11·6	40·6	8·8	23·3	1, 2	9·8 10·4	13516	20	212	M
			"	9	13·4 14·4 15·7 16·3	45·0	15·2	20·6	1, 2	.....	.....	20	212	M
					Mean.....	29 42·7	.....	76 22·6	.....	.....	13524			
Grindstone.....	47 22·6	61 51·4	Sept.	29	9·8 10·8 11·9 13·5	26 31·6	10·4	74 58·7	(2)	11·1 11·6	14738	104	104	F
			"	29	15·0 16·3 17·0 17·5	35·8	15·9	56·7	(2)	13·8 14·6	14778	104	104	F
			"	30	7·6 to 11·0 (8)	32·8	.....	.....	.....	.....	.....	104	....	F
			"	30	11·5 " 16·0 (8)	33·8	.....	.....	.....	.....	.....	104	....	F
					Mean.....	26 33·4	.....	74 57·7	.....	.....	14758			
Etang du Nord.....	47 22·8	61 57·2	Oct.	1	9·6 10·5 11·5 12·7	26 39·2	10·2	75 05·3	.....	10·9	14590	104	104	F
			"	1	13·1 14·1 15·3 15·8	36·3	14·4	04·5	.....	13·6	14635	104	104	F
					Mean.....	26 37·8	.....	75 04·9	.....	.....	14612			
Charlottetown.....	46 14·0	63 07·4	Sept.	24	15·1 16·0 16·9 17·4	24 38·8	16·4	74 34·8	.....	.....	.....	104	104	F
			"	24	.....	.....	16·6	34·6	.....	15·5	15217	104	104	F
			"	25	8·4 8·9 9·9 11·2	36·2	9·4	38·6	.....	10·2	15146	104	104	F
			"	25	13·0 13·9 14·9	39·9	9·6	38·0	.....	10·9	15152	104	104	F
			"	25	15·9 16·9	39·9	.....	.....	.....	14·3	15199	104	....	F
			"	26	7·0 to 12·0 (8)	36·9	.....	.....	.....	.....	.....	104	....	F
					Mean.....	24 37·8	.....	74 36·5	.....	.....	15178			

MAGNETIC OBSERVATIONS, 1925 (continued)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Truro	45 21·3	63 16·6	Oct. 12	9·0 10·0 11·4 11·8	23 13·8	9·6	73 38·1	(2)	10·4 11·1	16039	104	104	F
			" 12	13·0 14·5 15·5 16·2	12·1	15·2	38·9	(2)	13·4 14·2	16051	104	104	F
			" 13	7·5 to 13·0 (7)	11·8	.....	.....	.....	.....	.....	104	....	F
				Mean.....	23 12·4	.....	73 38·5	.....	.....	16045			
Halifax	44 37·6	63 34·5	Oct. 14	9·6 10·7 11·7 12·0	22 25·8	10·2	73 41·7	.....	11·1	15887	104	104	F
			" 14	12·7 14·2 14·9 ...	27·4	15·4	41·2	.....	13·1	15898	104	104	F
			" 14	15·9 16·6 16·9	27·1	15·5	41·0	.....	13·8	15918	104	104	F
			" 15	7·4 7·9 8·3 8·9	26·8	.....	.....	.....	.....	.....	104	....	F
				Mean.....	22 26·7	.....	73 41·4	.....	.....	15898			
Havre St. Pierre	50 14·6	63 36·0	June 29	9·8 11·3 13·4	34 37·7	15·7	76 08·6	1, 2	10·2 10·9	13851	20	212	M
			" 29	15·0 16·5	44·6	.....	.....	.....	13·8 14·4	13894	20	....	M
			" 30	6·5 to 17·5 (21)	42·6	.....	.....	.....	.....	.....	20	....	M
			July 1	.....	.....	11·1	09·9	1, 2	.....	.....	....	212	M
			" 1	.....	.....	16·0	08·8	1, 2	.....	.....	....	212	M
			" 2	9·1 11·6 13·9 15·3	40·4	8·5	11·4	1, 2	9·6 10·2	13843	20	212	M
			" 2	.....	.....	13·4	09·9	1, 2	14·2 14·9	13900	20	212	M
				Mean.....	34 41·9	.....	76 09·8	.....	.....	13872			
Tignish	46 56·4	64 02·0	Sept. 22	16·7 17·0	24 50·0	.....	.....	.....	.....	.....	104	....	F
			" 23	7·0 to 10·1 (5)	50·7	9·7	75 26·1	.....	10·5 11·1	14437	104	104	F
			" 23	11·4 " 16·3 (5)	51·9	14·9	23·7	.....	13·4 14·1	14465	104	104	F
				Mean.....	24 51·1	.....	75 24·9	.....	.....	14451			
Gaspe Basin	48 49·9	64 29·5	Sept. 12	15·8 17·8 18·1	26 07·7	17·4	76 01·7	.....	16·6	13956	104	104	F
			" 13	7·2 9·8 10·8 11·8	08·06	10·5	03·0	.....	11·2	13915	104	104	F
			" 13	14·0 15·0 16·0 17·0	05·6	16·4	75 58·0	.....	14·4	13950	104	104	F

			"	14	8·5 to 12·5 (6)	06·8	10·2	76 03·1	.....	10·7	13922	104	104	F
					Mean.....	26 07·1	.....	76 01·5	.....	.....	13936			
Moncton A.....	46 05·0	64 47·2	Oct.	21	14·0 15·7 16·4	23 24·2	.....	.....	.....	14·4 15·3	15108	104	....	F
			"	22	8·3 8·8 9·4 10·7	22·4	10·3	74 51·0	.....	11·0 11·7	15014	104	104	F
			"	22	12·1 13·8 15·3 16·4	25·2	15·9	47·7	.....	14·1 14·9	15064	104	104	F
			"	23	8·1 to 15·9 (8)	21·8	.....	.....	.....	.....	.....	104	....	F
			"	24	8·2 " 15·2 (8)	24·3	.....	.....	.....	.....	.....	104	....	F
					Mean.....	23 23·4	.....	74 49·4	.....	.....	15050			
Magdalen River.....	49 15·1	65 19·4	Sept.	5	8·9 to 12·9 (5)	27 07·8	10·3	76 28·7	.....	11·1	13641	104	104	F
			"	5	13·7 " 17·6 (5)	04·7	15·3	22·7	.....	14·2	13715	104	104	F
			"	7	7·0 8·0 9·0 10·0	05·4	9·6	28·2	.....	10·4	13645	104	104	F
			"	7	11·0 12·4 13·0 14·0	03·8	15·4	24·6	.....	13·9	13718	104	104	F
			"	8	13·0 to 18·2 (6)	04·2	15·8	25·0	.....	.....	.....	104	104	F
			"	9	6·8 " 18·1 (23)	04·1	.....	.....	.....	.....	.....	104	....	F
			"	10	6·8 " 18·0 (23)	06·2	.....	.....	.....	.....	.....	104	....	F
					Mean.....	27 05·2	.....	76 26·2	.....	.....	13680			
Annapolis.....	44 45·0	65 31·2	Oct.	19	10·1 to 16·9 (10)	21 40·0	15·8	73 53·0	.....	13·0 13·7	15855	104	104	F
			"	20	7·6 " 10·6 (5)	39·5	9·3	55·0	.....	10·1	15829	104	104	F
					Mean.....	21 39·8	.....	73 54·0	.....	.....	15842			
Yarmouth.....	43 49·8	66 06·4	Oct.	16	9·9 11·0 11·9 13·2	18 23·4	10·1	74 09·0	.....	11·4	15514	104	104	F
			"	16	15·4 16·4 17·1 17·3	25·0	16·2	08·1	.....	14·9	15551	104	104	F
			"	17	7·1 to 9·7 (5)	23·7	9·3	08·8	.....	10·1	15507	104	104	F
			"	17	10·7 " 14·8 (5)	24·6	14·3	08·1	.....	13·3	15525	104	104	F
					Mean.....	18 24·2	.....	74 08·5	.....	.....	15524			
Seven Islands (Pointe aux Basques).	50 11·2	66 22·0	June	19	9·6 11·2 13·4 15·5	27 00·2	16·2	77 27·0	1, 2	10·0 10·8	12768	20	212	M
			"	19	.....	.....	.....	.....	.....	13·6 14·4	12799	20	....	M
			"	20	7·0 to 17·0 (20)	00·8	10·6	28·6	1, 2	.....	.....	20	212	M
			"	22	14·2 16·0	01·9	.....	.....	.....	14·6 15·4	12815	20	....	M
			"	23	15·0 16·2	00·4	15·6	27·0	1, 2	.....	.....	20	212	M
			"	24	9·6	26 58·7	8·5	30·0	1, 2	10·0	12770			
					Mean.....	27 00·7	.....	77 28·2	.....	.....	12788			

MAGNETIC OBSERVATIONS, 1925 (concluded)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Ste. Anne des Monts.....	49 08·3	66 29·6	Sept. 3	6·9 to 10·5 (6)	25 24·6	9·2	76 40·3	.....	11·0	13449	104	104	F
			" 3	11·6 " 17·7 (6)	20·9	16·1	33·7	.....	14·4	13518	104	104	F
				Mean.....	25 22·8	.....	76 37·0	.....	.....	13484			
Matapedia.....	47 58·5	66 57·8	Sept. 16	9·4 to 12·6 (6)	24 00·1	10·4	76 10·8	.....	11·3	13834	104	104	F
			" 16	13·6 " 17·8 (6)	01·0	10·6	10·5	.....	12·1	13848	104	104	F
			" 16	.....	.....	16·6	9·3	.....	14·6	13862	104	104	F
			" 16	.....	.....	16·8	9·7	.....	15·4	13859	104	104	F
			" 17	7·9 to 18·0 (12)	00·6	.....	.....	.....	.....	.....	104	....	F
			" 18	7·0 " 16·0 (12)	00·1	.....	.....	.....	.....	.....	104	....	F
				Mean.....	24 00·4	.....	76 10·1	.....	.....	13851			
Matane.....	48 51·7	67 32·1	Aug. 31	11·2 12·3 13·7	25 15·3	.....	.....	.....	11·7	13558	104	....	F
			" 31	15·6 17·1 18·0	14·6	16·7	76 39·0	.....	14·2 15·1	13598	104	104	F
			Sept. 1	7·0 9·1 9·6	15·1	10·1	39·2	.....	11·0	13550	104	104	F
			" 1	10·5 11·5 12·6	15·4	.....	.....	.....	.....	.....	104	....	F
				Mean.....	25 15·1	.....	76 39·1	.....	.....	13576			
Godbout A.....	49 19·0	67 36·1	June 15	9·4 11·1 12·9	25 06·1	15·7	77 11·0	1, 2	9·9 10·7	12955	20	212	M
			" 15	14·4 16·6	08·6	.....	.....	.....	13·3 14·0	12976	20	....	M
			" 16	8·1 9·5 11·3	06·9	8·8	14·4	1, 2	10·3 11·0	12935	20	212	M
			" 16	12·9 15·6	06·2	15·0	10·0	1, 2	13·3 14·0	13001	20	212	M
				Mean.....	25 06·9	.....	77 12·4	.....	.....	12967			
Godbout B.....	49 19·0	67 36·1	June 11	14·3 16·3 17·1	25 04·6	.....	.....	.....	14·9 15·8	12987	20	....	M
			" 12	7·6 9·1 11·0 12·8	04·3	8·3	77 14·9	1, 2	9·7 10·5	12929	20	212	M
			" 12	14·5 17·1	04·6	15·8	12·4	1, 2	13·2 14·0	12985	20	212	M

			"	13	9·2 13·6 15·0	03·9	10·0	17·0	1, 2	10·7	11·2	12911	20	212	M
			"	13	.....	.....	14·2	12·1	1, 2	.....		.....	20	212	M
					Mean.....	25 04·3	.....	77 15·5	.....	.....		12953			
Bersimis.....	48 56·1	68 39·2	Aug.	24	17·8	21 53·4	.....	.....	.....	.....		.....	104	....	F
			"	25	7·7 9·6 10·1 11·6	51·6	11·2	77 33·3	.....	12·2	.....	12758	104	104	F
			"	25	14·0 15·0 16·0 17·0	54·0	16·5	31·0	.....	14·4	.....	12796	104	104	F
			"	25	18·0	49·7	.....	.....	.....	15·6	.....	12760	104	....	F
			"	26	10·0 11·0 12·1 13·0	54·2	10·4	33·3	.....	11·4	.....	12755	104	104	F
			"	26	.....	.....	16·3	31·4	.....	.....		.....	....	104	F
			"	27	7·0 8·0	50·7	.....	.....	.....	.....		.....	104	....	F
					Mean.....	21 52·7	.....	77 32·3	.....	.....		12767			
Ottawa.....	45 23·6	75 43·0	July	7	13·0 to 18·0 (6)	14 05·4	15·6	75 35·0	1, 2	14·5	.....	14782	15	145	F
			"	8	7·0 " 14·0 (8)	06·5	9·6	37·0	1, 2	10·4	.....	14753	15	145	F
			"	9	.....	.....	9·7	35·6	1, 2	10·5	.....	14745	15	145	F
			"	9	.....	.....	15·0	33·3	1, 2	13·4	14·3	14787	15	145	F
			"	10	7·0 to 17·0 (11)	04·2	9·5	35·1	1, 2	10·5	.....	14746	15	145	F
			"	11	7·0 " 10·0 (4)	06·4	.....	.....	.....	.....		.....	15	....	F
			"	13	11·0 " 14·0 (4)	07·8	.....	.....	.....	.....		.....	15	....	F
			"	14	15·0 " 18·0 (4)	05·6	.....	.....	.....	.....		.....	15	....	F
					Mean.....	14 05·7		75 35·0	.....	.....		14767			

MAGNETIC OBSERVATIONS, 1926

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Moncton B.	46 05·9	64 49·4	July 6	10·4 11·4 13·4 14·3	23 16·7	15·6	74 45·1	.....	11·0	15031	104	104	F
			" 6	15·1 16·1 17·0 18·0	17·5	.....	.....	.....	14·0 14·7	15095	104	....	F
			" 7	7·0 to 14·3 (9)	16·5	10·0	48·9	.....	10·8	15036	104	104	F
				Mean.....	23 16·8	.....	74 47·0	.....	.....	15064			
St. John	45 16·8	66 03·2	July 3	15·9 16·8 17·7 18·2	21 35·6	16·5	74 07·0	.....	.....	.....	104	104	F
			" 4	7·0 to 10·0 (5)	33·8	9·9	10·0	(2)	10·9 11·5	15700	104	104	F
			" 4	11·3 " 16·0 (5)	35·4	15·4	07·1	.....	14·0 14·7	15734	104	104	F
			" 5	9·2 10·0	36·4	.....	.....	.....	.....	.....	104	....	F
				Mean.....	21 35·1	.....	74 08·5	.....	.....	15717			
Woodstock A.	46 09·6	67 34·6	July 2	7·0 7·5 8·0 8·5	21 03·1	9·9	75 14·9	.....	10·8	14711	104	104	F
			" 2	9·0 9·5 10·5 11·6	01·4	10·0	14·5	.....	11·2	14704	104	104	F
			" 2	13·0 13·5 15·0 15·5	03·1	15·9	12·6	.....	13·9	14754	104	104	F
			" 2	16·5 17·0 17·5 18·0	03·2	16·1	12·7	.....	14·5	14754	104	104	F
				Mean.....	21 02·7	.....	75 13·7	.....	.....	14731			
Woodstock B.	46 09·6	67 34·6	July 1	7·4 8·0 8·5 9·5	21 05·4	9·9	75 15·5	.....	10·8	14708	104	104	F
			" 1	10·5 11·4 12·0	04·6	10·1	15·3	.....	11·5	14720	104	104	F
			" 1	13·5 14·0 14·7	06·1	16·1	11·9	.....	14·3	14749	104	104	F
			" 1	15·3 16·5 17·0 18·0	06·4	16·2	12·3	.....	15·0	14755	104	104	F
				Mean.....	21 05·7	.....	75 13·8	.....	.....	14733			
Rivière du Loup	47 51·6	69 34·1	July 8	13·5 to 18·0 (5)	21 52·7	15·8	76 14·6	.....	14·6	13956	104	104	F
			" 9	7·0 " 12·0 (6)	52·0	10·0	18·0	.....	10·8	13920	104	104	F
			" 9	12·5 " 18·0 (6)	52·8	10·2	18·3	.....	11·5	13920	104	104	F

			"	9	.....	.....	15·3	15·9	.....	14·5	.....	13943	104	104	F
			"	10	6·5 to 11·3 (6)	52·9	.....	.....	.....	.....	.....	.....	104	.....	F
			"	10	12·5 " 18·0 (6)	50·3	.....	.....	.....	.....	.....	.....	104	.....	F
					Mean.....	21 52·1	.....	76 16·7	.....	.....		13936			
Tadoussac.....	48 08·5	69 43·7	July	12	7·2 to 11·9 (6)	21 16·7	10·4	77 00·2	(2)	11·1	11·6	13291	104	104	F
			"	12	12·8 " 18·0 (8)	13·8	15·4	76 55·2	(2)	14·0	14·5	13360	104	104	F
			"	13	7·0 " 10·0 (4)	13·9	.....	.....	.....	.....	.....	.....	104	.....	F
					Mean.....	21 14·8	.....	76 57·7	.....	.....		13326			
Quebec.....	46 48·0	71 15·0	July	14	17·9	19 21·9	.....	.....	.....	.....	.....	.....	20	.....	M
			"	15	6·5 to 12·0 (6)	20·9	9·6	75 46·0	1, 2	10·5	11·2	14493	20	212	M
			"	15	12·6 " 18·0 (6)	21·7	15·4	44·2	1, 2	13·7	14·5	14523	20	212	M
			"	16	9·0 " 11·0 (3)	21·5	.....	.....	.....	.....	.....	.....	20	.....	M
					Mean.....	19 21·4	.....	75 45·1	.....	.....		14508			
Stanstead.....	45 00·6	72 05·0	June	25	16·4 18·1	16 16·6	.....	.....	.....	.....	.....	.....	104	.....	F
			"	26	7·3 to 11·8 (6)	16·0	10·0	74 55·2	(2)	10·7	11·4	15217	104	104	F
			"	26	14·0 " 16·6 (4)	15·6	15·5	51·4	(2)	13·8	14·5	15257	104	104	F
					Mean.....	16 16·0	.....	74 53·3	.....	.....		15237			
Roberval.....	48 32·1	72 13·4	July	20	16·8 17·2 17·7 18·0	19 55·4	.....	.....	.....	.....	.....	.....	20	.....	M
			"	21	9·9 15·4 16·5 17·0	55·0	10·4	77 08·2	1, 2	.....	.....	.....	20	212	M
			"	21	.....	.....	16·0	05·1	1, 2	.....	.....	.....	.....	212	M
			"	22	10·5 11·4 12·5 13·0	57·6	.....	.....	.....	11·0	11·8	13304	20	.....	M
			"	22	13·5 14·4 15·1 16·0	56·6	.....	.....	.....	14·0	14·7	13340	20	.....	M
			"	23	8·5 9·0 9·8	54·8	.....	.....	.....	.....	.....	.....	20	.....	M
					Mean.....	19 55·9	.....	77 06·6	.....	.....		13322			
Hervey Junction.....	46 51·4	72 28·4	July	29	15·7 16·6 17·5	20 03·4	16·2	76 27·0	1, 2	.....	.....	.....	20	212	M
			"	30	6·8 to 11·5 (8)	02·7	10·0	27·8	1, 2	11·2	11·8	14012	20	212	M
			"	30	13·1 " 18·0 (10)	02·7	.....	.....	.....	13·9	14·6	14056	20	.....	M
					Mean.....	20 02·8	.....	76 27·4	.....	.....		14034			

MAGNETIC OBSERVATIONS, 1926 (continued)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.[1]		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Shawinigan Falls	46 33·9	72 47·6	Aug. 4	8·9 to 13·4 (6)	16 05·5	10·0	76 03·1	1, 2	10·9 11·6	14401	20	212	M
			" 4	14·1 " 18·0 (6)	03·4	16·0	00·3	1, 2	13·7 14·5	14419	20	212	M
			" 5	7·2 " 9·8 (8)	05·4	.....	.....	.....	.....	.....	20	....	M
				Mean.....	16 04·8	.....	76 01·7	.....	.....	14410			
La Tuque C	47 27·4	72 49·0	July 27	9·9 10·4 15·6 16·6	18 13·7	.....	.....	.....	10·3 11·1	13657	20	....	M
			" 27	17·0 17·5 18·0	13·2	16·2	76 39·8	1, 2	14·3 14·9	13723	20	212	M
			" 28	8·2 8·6 9·0 9·4	14·2	10·0	43·2	1, 2	.....	.....	20	212	M
			" 28	10·5 11·5 13·7 14·0	13·1	.....	.....	.....	.....	.....	20	....	M
				Mean.....	18 13·6	.....	76 41·5	.....	.....	13690			
Huntingdon	45 05·6	74 10·1	July 20	7·5 to 12·0 (6)	13 59·1	10·0	75 50·7	(2)	10·7 11·3	14620	104	104	F
			" 20	13·2 " 18·0 (6)	58·5	16·0	48·5	(2)	13·9 14·5	14648	104	104	F
			" 21	8·5 " 12·5 (6)	58.5	.....	.....	.....	.....	.....	104	....	F
				Mean.....	13 58·7	.....	75 49·6	.....	.....	14634			
Mont Laurier	46 33·5	75 31·1	July 1	14·1 to 18·0 (5)	10 37·8	16·0	76 26·3	1, 2	14·5	14241	20	212	M
			" 2	8·0 8·5 9·5 10·5	35·5	10·0	27·9	1, 2	10·4 11·6	14216	20	212	M
			" 2	11·2 13·5 14·5	38·3	.....	.....	.....	14·0	14254	20	....	M
				Mean.....	10 37·2	.....	76 27·1	.....	.....	14232			
Ottawa	45 23·6	75 43·0	July 24	10·0 to 18·0 (9)	14 09·7	.....	.....	.....	10·6	14737	104	....	F
			" 24	.....	.....	.....	.....	.....	13·6 14·3	14770	104	....	F
			" 26	7·0 to 12·0 (6)	10·5	15·6	75 34·0	.....	10·5	14742	104	104	F
			" 26	13·0 " 18·0 (6)	10·5	15·8	34·3	.....	13·6 14·5	14785	104	104	F
			" 27	7·0 " 15·0 (9)	10·5	9·5	34·7	.....	10·6	14724	104	104	F
			" 27	.....	.....	9·8	35·3	.....	11·3	14738	104	104	F

[1]Values of horizontal intensity given in italics, which were derived from special diurnal variation observations, were not used in deriving a mean value.

			"	28	7·0 to 12·0 (6)	11·1	15·4	35·4	.....	10·6 11·4	14736	104	104	F
			"	28	13·0 " 18·0 (6)	10·6	16·6	36·0	.....	13·0 14·5	14752	104	104	F
			"	29	7·0 8·0 9·0	09·1	9·4	38·1	.....	.....	.....	104	104	F
			"	29	16·0 17·0 18·0	10·3	9·6	38·1	.....	.....	.....	104	104	F
			"	30	.....	.....	.....	.....	.....	11·0 14·0	14752	104	....	F
			"	30	7·0 to 18·0 (12)	09·8	.....	.....	.....	7·0—18·0	*14760*	104	....	F
					Mean.....	14 10·2	.....	75 35·7	.....	.....	14749			
Doucet B.....	48 13·6	76 35·2	Aug.	12	7·7 to 11·4 (5)	14 56·3	10·1	77 31·4	1, 2	10·9 11·6	13006	20	212	M
			"	12	13·5 " 18·0 (5)	56·1	15·9	28·0	1, 2	13·8 14·6	13054	20	212	M
					Mean.....	14 56·2	.....	77 29·7	.....	.....	13030			
Belleville B.....	44 07·1	77 22·6	Aug.	20	10·2 to 13·5 (4)	10 13·3	9·3	74 57·7	(2)	10·6 11·2	15230	104	104	F
			"	20	13·7 " 17·9 (5)	12·0	16·5	53·3	(2)	13·5 14·2	15292	104	104	F
			"	21	7·5 " 11·4 (8)	13·4	.....	.....	.....	.....	.....	104	....	F
					Mean.....	10 13·0	.....	74 55·5	.....	.....	15261			
Chalk River A.....	46 00·8	77 28·0	Oct.	13	17·0 17·5 18·0	12 02·2	.....	.....	.....	.....	.....	20	....	M
			"	14	8·0 to 10·5 (6)	03·4	10·0	76 21·1	1, 2	11·0 11·6	14131	20	212	M
			"	14	11·4 " 14·4 (5)	03·9	.....	.....	.....	13·9 14·5	14208	20	....	M
			"	15	7·0 7·5 8·0	04·9	.....	.....	.....	.....	.....	20	....	M
			"	17	15·6 16·6	02·6	16·2	20·3	1, 2	.....	.....	20	212	M
					Mean.....	12 03·3	.....	76 20·7	.....	.....	14170			
Bancroft.....	45 03·1	77 52·0	June	24	13·9 15·3 16·7	10 09·2	15·9	76 13·2	1, 2	14·4	14295	20	212	M
			"	25	7·8 9·1 11·5	09·2	9·7	51·1	1, 2	10·4 11·0	14240	20	212	M
			"	25	13·5 14·5	09·5	.....	.....	.....	13·9	14294	20	....	M
					Mean.....	10 09·5	.....	76 14·2	.....	.....	14267			
Kinmount A.....	44 47·0	78 39·3	June	19	13·1 13·6 16·1 17·0	9 42·7	15·6	75 20·8	1, 2	14·1	15052	20	212	M
			"	20	7·0 to 12·0 (7)	43·1	.....	.....	.....	11·4	14992	20	....	M
			"	20	13·5 " 18·0 (7)	43·2	.....	.....	.....	14·0	15031	20	....	M
			"	21	8·6 10·9	44·0	9·2	20·8	1, 2	10·4	14998	20	212	M
					Mean.....	9 43·1	.....	75 20·8	.....	.....	15019			

MAGNETIC OBSERVATIONS, 1926 (continued)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Kinmount B.....	44 47·0	78 39·3	June 22	15·0 16·6 17·7	6 29·3	17·2	74 36·9	1, 2	15·5 16·3	15623	20	212	M
			" 23	7·6 8·7 10·0	30·1	8·1	36·9	1, 2	9·0 9·7	15578	20	212	M
				Mean.....	6 29·7	.....	74 36·9	.....	.....	15600			
Port Colborne B.....	42 52·6	79 17·6	Aug. 25	12·9 to 17·8 (7)	7 12·7	16·2	74 03·2	(2)	13·6 14·3	16249	104	104	F
			" 26	7·5 " 12·9 (9)	12·1	9·8	06·4	(2)	10·5 11·1	16199	104	104	F
				Mean.....	7 12·4	.....	74 04·8	.....	.....	16224			
New Liskeard[1]	47 30·6	79 40·4	Aug. 20	7·0 to 12·0 (8)	10 04·6	10·0	77 28·2	1, 2	10·9 11·5	13078	20	212	M
			" 20	13·0 " 18·0 (9)	04·2	16·0	25·8	1, 2	13·8 14·5	13124	20	212	M
				Mean.....	10 04·4	.....	77 27·0	.....	.....	13101			
Parry Sound.....	45 21·6	80 02·6	Sept. 16	11·5 to 17·1 (7)	8 36·1	15·9	75 39·1	(2)	14·3 15·0	14839	104	104	F
			" 17	8·2 " 17·0 (11)	36·8	9·8	42·4	(2)	10·6 11·5	14797	104	104	F
			" 18	7·8 " 17·2 (15)	36·8	.....	.....	.....	.....	.....	104	....	F
				Mean.....	8 36·7	.....	75 40·8	.....	.....	14818			
Owen Sound.....	44 33·8	80 53·8	Sept. 7	15·6 to 17·9 (6)	7 06·3	16·1	75 15·3	(2)	.....	.....	104	104	F
			" 8	7·5 " 12·0 (9)	09·0	10·4	16·7	(2)	10·4 11·1	15159	104	104	F
			" 8	13·3 " 15·4 (6)	05·6	.....	.....	.....	13·8 14·5	15217	104	....	F
				Mean.....	7 07·3	.....	75 16·0	.....	.....	15188			
Cochrane.....	49 04·0	81 01·3	Aug. 24	10·3 to 18·0 (10)	10 23·4	16·1	78 14·9	1, 2	13·9 14·7	12379	20	212	M
			" 25	7·0 " 12·0 (10)	23·4	9·9	17·7	1, 2	10·5 11·5	12347	20	212	M
				Mean.....	10 23·4	.....	78 16·3	.....	.....	12313			

[1]For reference to the designation of this station, see footnote on page 394 of this report.

Sudbury C.	46 30·9	80 59·6	Oct.	12	12·3 to 17·3 (9)	8 30·0	15·1	76 25·8	(2)	13·2 14·1	14186	104	104	F
			"	13	8·0 " 13·0 (7)	31·0	9·7	29·0	(2)	10·4 11·2	14162	104	104	F
			"	13	.....	.....	.....	.....	.....	14·0	14225	104	....	F
			"	13	13·2 to 17·2 (5)	30·5	.....	.....	.....	13·2—17·2	*14221*	104	....	F
			"	14	.....	.....	.....	.....	.....	11·0	14167	104	....	F
			"	14	7·2 to 12·2 (6)	30·0	.....	.....	.....	7·2—12·2	*14170*	104	....	F
					Mean.....	8 30·4	.....	76 27·4	.....	.....	14182			
Port Stanley A.	42 39·9	81 13·5	Aug.	28	10·3 to 13·5 (6)	3 44·4	15·9	74 14·7	.....	10·7 11·2	16068	104	104	F
			"	28	14·0 " 17·6 (7)	45·4	16·2	14·7	.....	13·8 14·3	16108	104	104	F
			"	30	.....	.....	.....	.....	.....	11·0 14·0	16092	104	....	F
			"	30	7·0 to 18·0 (12)	43·9	.....	.....	.....	7·0—18·0	*16100*	104	....	F
					Mean.....	3 44·4	....	74 15·7[1]	.....	.....	16089			
Port Stanley B.	42 40·4	81 14·5	Aug.	29	6·8 to 11·6 (8)	3 53·5	9·8	74 18·5	(2)	10·5 11·2	16060	104	104	F
			"	29	13·4 " 17·8 (7)	54·4	15·3	16·3	(2)	13·7 14·2	16075	104	104	F
					Mean.....	3 53·9	.....	74 17·4	.....	.....	16068			
Goderich B.	43 44·9	81 42·9	Aug.	4	15·6 16·6 17·0	5 40·7	16·2	74 36·7	.....	.....	.....	104	104	F
			"	5	9·7 10·6 11·8 13·2	44·2	10·2	38·2	.....	11·0	15858	104	104	F
			"	5	14·7 15·5 16·3 17·2	41·0	16·0	35·0	.....	13·6 14·4	15900	104	104	F
			"	6	7·2 to 11·6 (7)	43·5	9·2	37·6	.....	10·9	15868	104	104	F
					Mean.....	5 42·6	.....	74 36·9	.....	.....	15882			
Kingsville	42 02·2	82 44·5	Sept.	1	11·0 12·0 13·0 13·7	2 29·2	.....	.....	.....	11·4	16982	104	....	F
			"	1	14·5 15·0 16·7 17·2	25·6	16·3	73 21·3	.....	13·3 14·1	17005	104	104	F
			"	2	7·5 to 9·5 (5)	28·2	10·1	21·0	.....	10·8	16994	104	104	F
			"	2	10·5 " 14·0 (5)	28·1	.....	.....	.....	.....	.....	104	....	F
					Mean.....	2 27·8	.....	73 21·2	.....	.....	16996			
Algoma	46 11·4	82 48·8	Sept.	22	7·2 to 12·1 (6)	6 15·2	9·4	76 30·2	(2)	10·2 10·9	14071	104	104	F
			"	22	12·8 " 17·9 (6)	15·4	15·3	25·7	(2)	13·5 14·2	14135	104	104	F
			"	23	.....	.....	.....	.....	.....	11·2 14·0	14118	104	....	F
			"	23	7·0 to 18·0 (12)	17·6	.....	.....	.....	7·0—17·6	*14129*	104	....	
					Mean.....	6 16·4	.....	76 28·0	.....	.....	14108			

[1]Corrections applied to observations for diurnal change.

MAGNETIC OBSERVATIONS, 1926 (concluded)

Station	Lat.	Long.	Date	Declination		Inclination			Hor. Int.		Mag'r.	D.C.	Obs'r.
				L.M.T.	Value	L.M.T.	Value	Needle	L.M.T.	Value			
	° ′	° ′		h. h. h. h.	West ° ′	h.	° ′		h. h.	γ			
Essex	42 10·4	82 49·4	Sept. 3	8·6 to 12·5 (6)	2 56·2	10·2	73 26·7	.....	10·8 11·4	16945	104	104	F
			" 3	13·0 " 17·0 (7)	53 0	15·4	26·2	.....	13·9 14·5	16964	104	104	F
				Mean.....	2 54·5	.....	73 26·4	.....	.....	16954			
Chapleau	47 50·3	83 24·4	Oct. 8	15·1 16·2 16·8 17·2	5 35·5	15·8	77 44·0	(2)	.....	.....	104	104	F
			" 9	7·2 to 12·1 (8)	34·7	10·0	46·2	(2)	10·8 11·7	12916	104	104	F
			" 9	13·2 " 16·2 (5)	34·1	.....	.....	.....	13·6 14·3	12942	104	....	F
			" 10	8·1 9·0 9·9 10·5	35·1	.....	.....	.....	.....	.....	104	....	F
				Mean.....	5 34·8	.....	77 45·1	.....	.....	12929			
Hearst	49 40·9	83 39·7	Aug. 27	6·8 to 12·0 (9)	5 53·3	9·9	78 55·3	1, 2	10·8 11·6	11800	20	212	M
			" 27	13·0 " 18·0 (8)	54·5	16·0	53·3	1, 2	13·9 14·5	11830	20	212	M
				Mean.....	5 53·9	.....	78 54·3	.....	.....	11815			
Sault Ste. Marie	46 30·9	84 17·8	Sept. 24	14·6 to 17·6 (5)	4 22·7	16·3	76 55·6	(2)	15·0	13808	104	104	F
			" 25	7·2 " 10·9 (6)	21·4	9·8	59·2	(2)	10·6 11·4	13732	104	104	F
			" 25	11·8 " 15·0 (5)	21·1	.....	.....	.....	13·9	13769	104	....	F
				Mean.....	4 21·7	.....	76 57·4	.....	.....	13760			
White River, B	48 35·5	85 16·5	Oct. 4	15·6 16·0 17·1	5 02·8	.....	.....	.....	.....	.....	104	....	F
			" 5	7·3 to 12·0 (6)	03·0	9·8	78 13·0	(2)	10·7 11·5	12553	104	104	F
			" 5	13·5 " 17·0 (5)	02·8	15·6	11·0	(2)	14·0 14·8	12591	104	104	F
			" 6	.....	.....	.....	.....	.....	11·1 14·2	12573	104	104	F
			" 6	7·3 to 17·3 (11)	04·3	.....	.....	.....	7·3—17·3	*12592*	104	....	F
				Mean.....	5 03·5	.....	78 12·0	.....	.....	12572			

Schreiber	48 48·5	87 15·5	Oct.	2	7·9 to 12·6 (5)	2 01·0	9·0	78 23·1	(2)	10·1	11·1	12370	104	104	F
			"	2	13·2 " 17·5 (5)	01·4	16·1	20·9	(2)	13·6	14·3	12389	104	104	F
			"	3	7·5 " 15·0 (8)	01·3	.....	.....	.....	.....		.....	104	....	F
					Mean.....	2 01·2	.....	78 22·0	.....	.....		12380			
						East									
Twin City Junction	48 22·3	89 25·0	Sept.	27	16·1 16·6 17·5	1 44·9	.....	.....	.....	.....		.....	104	....	F
			"	28	7·6 to 11·2 (5)	45·6	10·0	77 49·9	.....	10·8	11·8	12980	104	104	F
			"	28	11·9 " 16·6 (5)	45·0	15·6	49·0	.....	14·1	14·8	12994	104	104	F
			"	29	7·5 8·0 8·5 8·9	45·4	10·0	50·4	.....	10·7	....	12996	104	104	F
			"	29	9·6 10·3 11·8 12·8	44·1	15·2	48·9	.....	14·0	....	13011	104	104	F
			"	29	13·4 14·3 15·6 16·2	45·2	.....	.....	.....	.....		.....	104	....	F
			"	30	7·2 to 11·0 (7)	45·7	.....	.....	.....	.....		.....	104	....	F
					Mean.....	1 45·3	.....	77 49·5	.....	.....		12992			
Atikokan	48 45·3	91 37·1	Oct.	2	15·5 16·5 17·0 18·0	4 09·2	16·0	77 34·0	1, 2	.....		.....	20	212	M
			"	3	11·4 12·5 13·0	11·2	.....	.....	.....	11·0	11·7	13240	20	....	M
			"	3	13·5 14·2	11·0	.....	.....	.....	13·9	14·6	13278	20	....	M
			"	4	7·0 to 10·5 (6)	9·2	9·8	36·4	1, 2	.....		.....	20	212	M
					Mean.....	4 09·8	.....	77 35·2	.....	.....		13259			
Sioux Lookout B	50 05·5	91 55·5	Aug.	31	15·5 16·5 17·3 18·0	4 24·6	16·0	78 45·0	1, 2	.....		.....	20	212	M
			Sept.	3	7·0 to 10·5 (6)	24·8	10·0	47·2	1, 2	10·9	11·7	12072	20	212	M
			"	3	11·2 " 15·0 (4)	26·4	.....	.....	.....	13·9	14·6	12101	20	....	M
					Mean.....	4 25·2	.....	78 46·1	.....	.....		12086			
Redditt	49 59·2	94 23·6	Sept.	10	6·8 to 18·0 (12)	7 56·8	16·0	78 35·9	1, 2	14·0	15·0	12366	20	212	M
			"	11	9·5	56·6	10·0	39·1	1, 2	11·0	11·6	12321	20	212	M
					Mean.....	7 56·8	.....	78 37·5	.....	.....		12344			
Dauphin	51 09·0	100 02·6	Sept.	14	15·5 to 18·0 (5)	13 53·8	16·0	78 15·6	1, 2	.....		.....	20	212	M
			"	16	7·5 " 9·5 (5)	14 01·5	10·0	24·0	1, 2	.....		.....	20	212	M
			"	17	10·5 " 15·5 (6)	13 57·8	.....	.....	.....	11·1	11·7	12640	20	....	M
			"	17	.....	.....	.....	.....	.....	14·0	14·6	12650	20	....	M
					Mean.....	13 57·7	.....	78 19·8	.....	.....		12645			

MAGNETIC STATIONS AND DESCRIPTIONS

Alert Bay, B.C., 1924.—The station is on the cannery property southeast of the cannery. It is on the hill near the fence between the cannery property and the Naval Reserve, and near the tram line to the wireless station. The point is 95·5 feet northerly from the fence on the north side of the tram line, this distance being measured along the north–south fence, and 17 feet westerly from the fence at this point. Observations were taken over a brass screw in a circular stake projecting 3 inches above the ground. The west side of the west dormer window on the mission bears 314° 44′·4.

Algoma, Ont., 1926.—The station is, approximately, a relocation of the C.I. station of 1906 and the D.O. station of 1916. It is 144·5 feet south of the south side of the main part of the Grand Central hotel, 11 feet east of the west end of the main part of the hotel produced, and 215 feet from the southeast corner of the Catholic church. Observations were taken over a drill-hole in a stone, the upper part of which is curved, projecting about 2 inches above the ground. The following true bearings were determined: southeast corner of Catholic church, 221° 06′·3; northwest corner of Catholic church, 228° 37′·2.

Annapolis, N.S., 1925.—The station is a relocation of the station of 1912 and 1918. It is near the south side of the grounds around the old fort, now designated Anne park. It is southwesterly from the cemetery and westerly from the vacant lot at the rear of the court-house. The point is 38·4 feet southwest of the post at the northwest corner of the lot, 35·5 feet west of a line determined by the west limit of the row of posts along the west side of the lot, and 34·9 feet east of a lamp post on the drive. Observations were taken over a drill-hole in the top of a stone set flush with the ground. The following true bearings were determined: spire of English church, 1° 50′·0; tip of tower of Methodist church, 56° 01′·0; chimney on middle of small house across flat, 179° 43′·5.

Atikokan, Ont., 1926.—The station is an approximate relocation of the D.O. station of 1918. It is on townsite property, enclosed by a wire fence, to the north of the school. It is 24 feet north from the edge of a prominent rock exposure, 41 feet east from the middle of the trail, and 105·5 feet east from the fence on the west side of the property. Observations were taken over a drill hole in a granite boulder 1 by 1·5 feet projecting 4 inches above the ground. The pole on the centre of the top of the C.N.R. water-tank bears 158° 30′·8.

Bancroft, Ont., 1926.—The D.O. station of 1921 was reoccupied. It is in the exhibition grounds about one-half mile westerly from the C.N.R depot. The station is in the clear space inside the race track, to the west of a grove of trees and to the south of the exhibition buildings, 129·5 feet southerly from the southwest corner of the main exhibit building and in line with its westerly side, 43·4 feet southerly and 43·8 feet westerly from the southwest corner of a small building, 61·7 feet southwesterly from the southwesterly corner of the same building, and 41·5 feet northeasterly from a telephone pole at a large boulder. Observations were taken over a drill-hole in a stone 3·5 by 4·5 inches set flush with the ground. The following true bearings were determined: east edge of chimney on house at entrance to grounds, 132° 38′·6; northwest edge of chimney on white house, 162° 19′·9; northeast edge of chimney on grey house, 208° 27′·0; southeast edge of chimney on house, 215° 21′·0.

Battle Harbour, Labrador, 1925.—The station is near the centre of Battle island and is close in proximity to the C.I. station C of 1905. It is about 500 feet east of the English church, about the same distance north of the wireless station, and lies in a small hollow extending northwest and southeast. The point is 24 feet easterly from a low step in the rock, 10 feet westerly from the edge of the rock at a natural ditch, 43 feet southeasterly from the perpendicular face of the large rock and 9 feet easterly from the C.I. station C of 1914. Observations were taken over a drill hole, filled with lead, in the rock. The following true bearings were determined: lighthouse on Double island, 138° 39′·4; north gable of wireless house, 157° 43′·5; west side at base of wireless mast, 163° 52′·4; west edge at base of flagstaff on hill, 182° 18′·4.

Belleville B, Ont., 1926.—The station is approximately a relocation of the station occupied first in 1920. It is situated in Prince Edward county, about three miles from Rossmore, on a farm owned by Mr. E. Salisbury, the northerly part of the farm being adjacent to the east side of the Picton–Rossmore road. The station is in the second field south from the road passing in front of Mr. Salisbury's house. It is 94·2 feet south of the north boundary fence, and 48·2 feet west of the fence along the east side of the field. Observations were taken over a drill-hole, filled with lead, in a stone set flush with the ground. The following true bearings were determined: south gable of factory, 4° 33′·5; ornament on ventilator of barn, 282° 35′·3; pole on tower of city hall, 343° 48′·3; spire of United church, 345° 51′·9; spire of church, 346° 16′·0.

Bersimis, Que., 1925.—The D.O. station of 1909 and 1920 was reoccupied. It is near the southerly edge of an irregular depression in the point of land south of the village and west of the wharf, about 125 feet east, 175 feet west, and 450 feet north of high-water mark on the west, east, and south respectively. The point is marked by a brass screw in the top of a stake 4 inches in diameter set flush with the ground. The following true bearings were determined: top of post at west end of range, 29° 37′·3; spire of Catholic church, 34° 00′·8; top of post at east end of range, 54° 05′·6.

Blanc Sablon, Quebec, 1925.—The D.O. station of 1920 was reoccupied. It is about 700 feet northwesterly from a small saw-mill, which is one of a group of buildings belonging to Job Bros. & Co.; about 80 feet east of high-water mark of the stream, and about 130 feet from high-water mark on the south; the stream changes from a southerly to an easterly course just before the outlet is reached. The lighthouse on Greenly island and the east extremity of a low rocky point (Point au Pot) are seen in line from the station. Observations were taken over the intersection of two grooves in the top of a stone about 12 inches by 14 inches set flush with the ground. The following true bearings were determined: tip of bell-tower on building of Job Bros. & Co., 134° 02′·5; east side of flagstaff in front of Job Bros. & Co's office, 139° 05′·9; base of flagstaff on Isle au Bois, 193° 38′·5; weather vane on lighthouse on Greenly island, 210° 18′·6; smoke-pipe on house on Point au Pot, 211° 37′·4.

Chalk River A, Ont., 1926.—The D.O. station of 1913 was reoccupied. It is near the south side of a large field, covered with trees and shrubs, which is owned by Mr. James Hawley. It is about 91 feet northwesterly from the C.I. station of 1906, 68·8 feet east of the east side of Elizabeth street, 15·7 feet north of the south fence, and 14·2 feet southwest of a pine tree. Observations were taken over a drill-hole in a stone 4·5 by

4·5 inches set flush with the ground. The following true bearings were determined : spire of Lutheran church, 90° 06′·2; top of pole on C.P.R. water-tank, 145° 25′·0; cross on tower of Presbyterian church, 208° 36′·8; cross on English church, 212° 50′·4.

Chapleau, Ont., 1926.—The station of 1910 was reoccupied. It is near the river bank on the east side of the town, just at the end of the street lying between the Protestant and the Catholic cemeteries. It is 60 feet southeast of the southeast corner of the Protestant cemetery and 59 feet northeast of the northeast corner of the Catholic cemetery. Observations were taken over a drill-hole in a stone set flush with the ground. The exposed portion of the stone is approximately 6 by 8 inches. The pole on the town water-tank bears 253° 21′·7.

Charlottetown, P.E.I., 1925.—The C.I. station of 1908 and D.O. station of subsequent years was reoccupied. The observations were made over the middle one of three stones marking the true meridian line established by the British Admiralty in Victoria park. The stone is 13 by 14 inches and projects 18 inches above the surface. West of and in line with the stone marking the south end of the meridian are two additional stones. The point of observation was over the east end of a groove about 2 inches long in the southwest quarter of the stone. The following true bearings were determined: spire of church seen between two chimneys, 49° 56′·4; cross on dome of building near hospital, 68° 47′·7.

Clayoquot, B.C., 1924.—The station is in the pasture field along the beach northwesterly from and directly behind Mr. Dawley's store and about 200 yards distant. It is northerly from the base of the bluff, is southerly from the beach, is close to and northerly from a large fir stump, and is southerly from another large stump. The point is 8·5 feet from the stump to the south, 25·5 feet from the stump to the north, 91 feet from the edge of the grass at the beach, measured to the west of the north stump, 52 feet east from a large boulder, and 40 feet from the base of the bluff. Observations were taken over a drill-hole in the end of a brick embedded just below the surface of the ground. The following true bearings were determined: front gable on brown house with white trim across sound, 39° 59′·5; gable of red roofed building across sound, 44° 46′·3; north edge of top of front of red and green building, 94° 10′·9; south edge of top of front of store, 109° 34′·2.

Cochrane, Ont., 1926.—The station is an approximate relocation of the D.O. station of 1913. It is on the north shore of Commando lake about one-fourth mile north of the C.N.R. tracks. The lake is almost bisected by two strips of land extending from north to south and connected by a foot bridge. The station is slightly to the east of the centre of the northerly strip of land, is east of the path and north of the band-stand. It is 16 feet north and 4 feet west of the northeast corner of the band-stand, and 10·8 feet from an elm tree. Observations were taken over a drill-hole, filled with lead, in the end of a brick set flush with the ground. The following true bearings were determined: tip of transmission tower, 55° 21′·0; pole on centre of top of C.N.R. water-tank, 146° 43′·6; pole of anemometer, 232° 08′·4; east gable of white church, 281° 40′·0; tip of transmission tower, 355° 34′·7.

Courtenay, B.C., 1924.—The station is on the east bank of Courtenay river in a pasture field owned by Mr. Duncan. It is at the bend in the river about 200 yards northerly from the bridge and is west of the ball grounds. It is in line with a snubbing

post and the first telephone pole to the northeast of the bridge, and is also in line with the northeast corner of a green house and a pole on the street. The point is 30 feet east from the bank of the river, and 72 feet northwest from the snubbing post. Observations were taken over a drill-hole on the end of a brick buried just below the surface of the ground. The following true bearings were determined: southwest gable of white building, 73° 34′·2; west edge of cap on concrete pier at east end of bridge over Courtenay river, 151° 25′·3; east edge of Vancouver Milling Company's sign on roof, 155° 26′·5; west edge at base of low red brick chimney on rear of roof, 184° 10′·0.

Dauphin, Man., 1926.—The station of 1911 was reoccupied. It is southwest of the town near the southeast corner of the exhibition grounds. It is in line with the south side of the horticultural hall and 191·6 feet west of the southwest corner, and 114 feet north of the south fence of the grounds. Observations were taken over a copper nail in the top of a stake about 3 by 3 inches set flush with the ground. The following true bearings were determined: gable of roof, 5° 44′·9; smoke-stack, 31° 19′·0; westerly gable of coal chute, 34° 20′·2; base of pole on school, 42′ 09′·4.

Dawson, Yukon, 1924.—The C.I. station of 1907 was reoccupied. It is on a tract of government land in the rear of the administration building, approximately one-half mile north of Klondike river, about 300 feet southeast of the administration building, about 200 feet nearly due south of the D.O. astronomical pier of 1907, 88 feet south of a roadway, little used, running from Sixth avenue towards Fifth avenue, and 62 feet west of the board-walk on Sixth avenue. Observations were taken over a brass screw in the top of a fir post 6 by 8 inches set flush with the ground. The following true bearings were determined: west edge of telephone pole on street to north of park, 22° 02′·0; west edge at base of iron smoke-stack on pumping station, 227° 49′·1; north edge at base of flagstaff on R.C.M.P. barracks, 272° 59′·3.

Doucet B., Que., 1926.—The station is about one mile west of the C.N.R. depot, on the location of an abandoned wye on the north side of the track. It is 132 feet north from the fence along the north side of the right-of-way, and 80·5 feet east from the base of a jackpine tree on the east edge of the west embankment of the wye. Observations were taken over a copper nail in a lead plug in the top of a grey granite boulder 1 by 1·5 feet. and projecting above the ground. The following true bearings were determined: north gable of depot, 105° 19′·5; west gable of depot, 105° 37′·3; west gable of coal chute, 110° 02′·2; ball on top of water-tank, 113° 59′·9.

Essex, Ont., 1926.—The station is on the agricultural grounds and near the south end. It is in line with the south end of the second barn from the south end of the grounds, and 236 feet west from the southwest corner, 268 feet east from the west fence, and 252 feet north from the fence along the south side of the grounds. Observations were taken over a drill-hole in a concrete block 8 by 8 inches set flush with the ground. The following true bearings were determined: ornament, near top, on house on south side of Talbot street, 26° 13′·4; base of flagstaff on centre of grandstand, 64° 00′·2; lightning rod on centre of red house, 235° 05′·4; tip of tower of United church, 347° 23′·8.

Etang du Nord, Magdalen Islands, Que., 1925.—The station is in a small open field which is the second north of the main road leading from Grindstone to Etang du Nord and adjacent to the east side of the road along the beach. It is near the southwest corner of the field, being 48·5 feet north of the south side of the field, 82·5 feet east of the fence

along the west side of the field, and near the edge of a small creek. It is almost directly across the road from a blacksmith shop. Observations were taken over a small hole in the end of a brick set flush with the ground. The following true bearings were determined: chimney on house, 43° 13′·2; Geodetic Survey triangulation station, 66° 21′·2.

Gaspe Basin, Que., 1925.—The D.O. station of 1921 was reoccupied. It is in an open field belonging to Mr. B. F. Patterson, on the hillside northeast of Mr. Patterson's house and northwest of the United church. It is about 575 feet north of the main road along the shore, 140 feet west of the fence along the east side of the property, and 78 feet west of the fence along the west side of a small cultivated field. From the station the road running over the hill south of the pulp mill across the harbour may be seen between two smokestacks on the mill. Observations were taken over a small hole in the top of a concrete block 5 by 5 inches set flush with the ground. The following true bearings were determined: base of flagstaff in front of house across harbour, 97° 19′·4; north smokestack on mill, 101° 16′·0.

Godbout A, Que., 1925.—The D.O. station of 1909 was reoccupied. It is near the northwest corner of the grounds around Mr. Eugene Comeau's house, being 141·5 feet from the northwest corner of the house, 53 feet northeast from the west post of a range, 59 feet south and 48·5 feet east from the fence on the north and west sides, respectively, of the grounds. Observations were taken over a brass screw in the top of a stake 4 inches in diameter set flush with the ground. The following true bearings were determined : north edge of middle support of east range post, 103° 02′·1; southwest corner of gate-post at entrance to Mr. Comeau's yard, 145° 16′·2; south edge of glass in window near southwest corner of house to south station, 170° 06′·6; east side at base of chimney seen over shed, 200° 37′·1.

Godbout B, Que., 1925.—The D.O. station of 1920 was reoccupied. It is 20 feet east from Station A, 139 feet from the northwest corner of Mr. Comeau's house, 70·3 feet northeast from the post at the west end of the range, 59·5 feet south and 68·5 feet east from the fence along the north and west sides, respectively, of the grounds. Observations were taken over a drill-hole in the top of a concrete block 4 by 4 inches set flush with the ground. The following true bearings were determined: east side at base of cross on mountain, 55° 21′·1; north edge at base of middle support of east range post, 102° 17′·4; west edge at base of chimney on house to south, 171° 32′·7.

Goderich B, Ont., 1926.—The station is about one mile south of the station occupied in 1910. It is on the agricultural grounds near the south end, and inside the race-track, being 124·8 feet north of the fence along the south side of the grounds, and 262 feet east of the fence along the west side. Observations were taken over a drill-hole in a stone set flush with the ground. The following true bearings were determined: spire of church 15° 26′·1; pole on centre of octagonal building in grounds, 26° 53′·6; south gable of white brick house, 358° 38′·6.

Grindstone, Magdalen Islands, Que., 1925.—The station is near the edge of the bank along the shore, in an open field belonging to Mr. McLean, the field being the third west of the one in which are located the buildings of the Eastern Canada Fisheries, Limited. The point is 365 feet west of the east side of the field, and slightly south of a line joining the inner extremities of two inlets; it is 25 feet west of the edge of the easterly one, 46 feet east of the edge of the westerly one, and 19 feet northerly from the edge of a third.

Observations were taken over a drill-hole in the top of a stone, the diagonals of which are 2 and 3 inches, set flush with the ground. The following true bearings were determined: spire of Catholic church in House Harbour, 51° 03′·3; southerly extremity of Alright island, 73° 53′·3; northerly extremity of Entry island, 124° 21′·3; Geodetic Survey of Canada triangulation station, on hill, 290° 45′·4; spire of English church, 303° 11′·2.

Halifax, N.S., 1925.—The station is approximately a relocation of the C.I. station of 1905 and an exact relocation of the D.O. station of 1918. It is in Point Pleasant park, about 2·5 miles south of the city, and is west of the old fort (Point Pleasant battery) in a small open space between the road and the beach, 65 feet from the edge of the roadway and 119·7 feet from a flagpole socket in line with the tower of the lighthouse to the southeast. It is easterly and on the continuation of a line joining two small drill-holes, 5·5 inches apart, in the top of a flat rock, the exposed portion of which is scarcely flush with the ground, and is 3 feet 3·6 inches from the easterly one of the two holes. Observations were taken over a copper nail in the top of a stake 1 by 1 inch set flush with the ground. The following true bearing was determined: top of tower of lighthouse, 126° 29′·0.

Harrington Harbour, Que., 1925.—The D.O. station of 1909 was reoccupied. It is 554 feet northwesterly and 51 feet northeasterly from the northerly corner of the English church, and 81 feet westerly from the government telegraph line, on a low piece of land, the property of the Grenfell Mission, lying to the north of the hospital and the doctor's house. Observations were taken over the centre of the top of a stone about 3 by 4 inches set flush with the ground. The following true bearings were determined: south gable of brown house, 18° 46′·2; west side of chimney on greenhouse, 138° 02′·5; cross on tower of English church, 144° 05′·8; north gable of doctor's house, 155° 18′·5; north corner at base of hospital, 180° 34′·2.

Havre St. Pierre B (Eskimo Point, B), Que., 1925.—The D.O. station of 1920 was reoccupied. It is on a sandy ridge 60·5 feet north and 106·5 feet west of the northwest corner of the cemetery, and 257 feet from the centre of the main gate on the west side of the cemetery. From the station the lighthouse and another building on a point of land on an island may be seen through an iron arch over the main gate on the west side of the cemetery. Observations were taken over the centre of the top of a stake 5 inches in diameter set flush with the ground. The following true bearings were determined : tip of bell-tower on school near east end of village, 79° 33′·3; top of large cross in cemetery, 126° 59·3; top of lighthouse, 141° 32′·3; spire of Catholic church, 197° 23′·3.

Hearst, Ont., 1926.—The D.O. station of 1914 was reoccupied. It is about one-fourth mile southeast from the C.N.R. depot, 91 feet south from the south side of Prince street, and 42 feet east from the east side of Seventh street. Observations were taken over a copper nail in the top of a stake 2 by 4 inches projecting 7 inches above the ground. The following true bearings were determined: west gable of barn, 101° 11′·3; cross on church, 239° 05′·1; west edge of store front, 295° 59′·2; south gable of coal-chute, 314° 36′·1: top of ball on C.N.R. water-tank, 336° 24′·2.

Hervey Junction, Que., 1926.—The station is on Mr. Ed. Lecuy's property, near the west bank of Tawachiche river, and on the rock opposite the head of the falls. It is about 130 feet south from the D.O. station of 1914, 63·6 feet west from the highest point

of rock at the head of the falls on the west bank, 63·2 feet south from a small spruce tree in the lane, and 35·5 feet southeast from a birch tree. Observations were taken over a drill hole, filled with lead, in the rock. The following true bearings were determined: junction of cross-arm braces on telegraph pole on railway right-of-way, 1° 38′·8; southeast corner of Mr. Lecuy's barn, 287° 15′·4; southwest edge of small building, 334° 48′·1.

Huntingdon, Que., 1926.—The D.O. station of 1921 was reoccupied. It is in the exhibition grounds southeast of and on the opposite side of Chateauguay river from the town. It is near the southwesterly corner of the grounds, in line with the westerly side of a judge's stand and also in line with the southerly side of the most northerly of two cattle sheds, 94·5 feet south of the southwest corner of the judge's stand, 188 feet west of the southwest corner of the catt'e-shed, 149 feet north of the south side of the grounds and 173·2 feet east of the sheds along the west side of the grounds. Observations were taken over a drill hole in a stone, the exposed part being 2 by 3 inches, set flush with the ground. The following true bearings were determined: tip of ornament on red brick house, 35° 14′·5; ornament on west ventilator of barn, 215° 54′·7; spire of St. Andrew's church, 273° 50′·3; spire of Catholic church, 331° 07′·5.

International Boundary, Yukon, 1924.—The C.I. station of 1907 was reoccupied. It is on the boundary line between Yukon and Alaska, and near the south bank of Yukon river. It is in line with the two boundary monuments, one on the north bank and one on the south bank of the river. The station is at a point 61 feet south of the monument on the south bank, and is marked by a brass rifle shell lettered on the end "W.R.A. Co. 32–40", and driven in the top of a wooden post 2 by 4 inches projecting about 2 inches above the ground. The apex of the monument on the north bank was used as a mark and assumed to stand due north.

Jedway A, Queen Charlotte Islands, B.C., 1924.—The station is on Pig island at the entrance to Harriet harbour, around which Jedway is built. The station is on the south end of the island and northwesterly from the long point at the southeast end of the island. It is south of a clump of trees on the gravel bank, and is on the rock above high-tide mark above the shell beach. The point is on the summit of a slight rise in the rock, 7 feet from the edge of the rock, 4 feet south from the bushes, and 14 feet west from the edge of the grass. Observations were taken over a drill hole in the rock. The west edge of the base of the west chimney on the government office bears 131° 39′·7.

Jedway B, B.C., 1924.—The station is on the point on the east side of the entrance to the harbour and across the channel and east of the south end of Pig island. It is on the rocks at the point above high-tide mark, 15 feet west of the east side of the outcrop, 5·3 feet east of a large rock, 0·8 feet south of the north end of the northwesterly rock of the outcrop, and 11 feet south of the edge of the bush. Observations were taken over the intersection of two grooves cut in the rock. The west edge of the gable on the high part of Mr. McMillan's house bears 195° 25′·9.

Jedway C, B.C., 1924.—The station is on Mr. McMillan's property and near the warehouse at the old wharf. It is on a small level spot at the base of the knoll on which the house is built, and on the summit of the grade from the board-walk along the beach. It is 45 feet southerly and 10 feet westerly from the southwesterly corner of the warehouse, 22·3 feet westerly from the intersection of the two walks from the warehouse to the house, 5 feet from the edge of the bush, and 20·3 feet west and 90 feet north from the

northeast corner of the house, the 90 feet being measured in line with the east side of the post office, which is in the east wing of the house. A temporary reference mark was used.

Keno City, Yukon, 1924.—The station is on the north side of the large rock outcrop to the northeast of the government assay office. The point is 93 feet west from the tip of the point of the outcrop, measured along the north side. Observations were taken over a drill-hole in the rock, the mark being covered by a mound of stones. The following true bearings were determined: northeast edge of front on dance hall, 187° 00′·2; north gable of Hotel Galena, 191° 20′·2; west gable of Lanning's store, 201° 47′·5.

Kingsville, Ont., 1926.—The D.O. station of 1910 was reoccupied. It is about one mile west of the town on property belonging to Mrs. Colin MacDonald, on the west side of a private lane, and about 1,275 feet north of the road (Main street produced). The station is 648 feet south of the north boundary of the field, and 149 feet east of the west fence. As the field was under cultivation, the point was not marked. The following true bearings were determined: spire of school, 96° 50′·9; spire of English church, 108° 48′·9; lightning rod on north end of barn, 156° 23′·5; lightning rod on east end of barn, 171° 16′·7.

Kinmount A., Ont., 1926.—The station of 1910 was reoccupied. It is southeast of the town on property belonging to the Dettman estate, and on the south side of a rocky hill on the northern slope of which is an abandoned iron mine. The point is 213 feet from the east side of the large gate on the north side of the road, and 214·5 feet from the intersection of the road fences at the fork of the roads. Observations were taken over a drill-hole in a triangular-shaped stone about 3 by 4 inches set flush with the ground. The following true bearings were determined: south edge of chimney on house at foot of road, 71° 56′·6; west edge of cross on Catholic church spire, 198° 03′·7; spire on Presbyterian church, 219° 53′·9; west edge at base of pole on public school, 236° 13′·5.

Kinmount B, Ont., 1926.—The D.O. station of 1920 was reoccupied. It is 53·5 feet north from station A, 266·8 feet from the east side of the large gate on the north side of the road, and 225·9 feet from the intersection of the road fences at the fork of the roads. Observations were taken over a drill-hole in a stone 2·5 by 3 inches set flush with the ground. The following true bearings were determined: south edge of chimney on house at foot of road, 80° 19′·3; west edge of cross on Catholic church spire, 197°39′·9; spire on Presbyterian church, 218° 02′·6; west edge at base of pole on public school, 232° 50′·5.

La Tuque C., Que., 1926.—The station is northeast of the town and west of the Anglican cemetery, in rear of the vault which is on the east side of the road from the town, and south of the road branching off to the cemetery. The point is in line with the north side of the vault and 80·5 feet from its northeast corner, 95 feet from a wire fence to the south, and 125·5 feet from the road fence. Observations were taken over a drill-hole in the end of a brick set flush with the ground. The following true bearings were determined: west gable of barn, 170° 58′·7; east gable of house, 197° 14′·5; west gable of house 219° 20′·8; cross on Catholic church, 222° 15′·8; east gable of house, 228° 47′·8.

Magdalen River, Que., 1925.—The D.O. station of 1921 was reoccupied. It is northwesterly from the group of houses comprising the village on a ridge lying between Magdalen river and St. Lawrence gulf. It is about 1,190 feet westerly from the westerly

fence around a field in which is located an old saw-mill, 180 feet easterly from the grassy extremity of the ridge, and near the westerly side of the roadway leading to Magdalen river. Observations were taken over a drill-hole in a concrete block 7 inches by 7 inches and projecting 3 inches above ground. The top of the block is marked "D.O. 1921". The following true bearings were determined: vertical edge of rock near village, 90° 30′·6; weather vane on lighthouse, 336° 03′·6; top of cross on point near lighthouse, 341° 53′·1.

Matane, Que., 1925.—The D.O. station of 1921 was reoccupied. It is about 350 feet north and 450 feet west of the railway depot, in an open field, which is reached by a private road passing along the north side of the Imperial Oil Company's property. It is near the upper edge of a steep incline just west of a clump of spruce trees, and 17·5 feet south of the north boundary fence. It is 5 feet east of a wire fence, which has recently been put across the field. As this was found to be magnetic, about 45 feet of the same was removed to what was considered a safe distance during the observing period. Observations were taken over a concrete block 4 by 4 inches set flush with the ground. The following true bearings were determined: spire of Catholic church, 60° 20′·8; tip of post office tower, 87° 29′·1; cross on top of dome of brick building, 90° 56′·6.

Matapedia, Que., 1925.—The station of 1907 and of subsequent years was reoccupied. It is on the north bank of Restigouche river on property belonging to the Fishing club, 497 feet south and 9 feet east of the southeast corner of the Restigouche hotel, and 39·5 feet easterly from the base of a large elm tree. A line joining the station and the cross on the tower of the Catholic church passes about 1·5 feet south of this tree. The point is marked by a concrete block 5 by 5 inches set flush with the ground. The following true bearings were determined: north gable of house on west bank of Restigouche river, 195° 41′·3; tip of cross on tower of Catholic church, 281° 16′·3; southwest corner of Restigouche hotel, 343° 49′·1; northeast corner of Restigouche hotel, 353° 13′·1.

Mayo, Yukon, 1924.—The station is just outside the northwest corner of the townsite on the police reserve. It is 7 inches south and 1 foot 1 inch west of the southwest corner of the survey stake at the northeast corner of the police reserve. It is 21 feet north and 30·9 feet west from the northwest corner of the fence around the log cabin to the east of the road, and is just to the east of the road to the hospital. Observations were taken over a brass screw in the top of a stake 6·5 inches in diameter projecting one inch above ground. The following true bearings were determined: north edge of chimney on house to east of station, 90° 10′·8; west edge of ventilator on cabin to south of station, 174° 34′·0.

Moncton A, N.B., 1925.—The station of 1907 was reoccupied. It is in an open field on the east side of Westmorland street and adjacent to the north side of Petitcodiac river, 74 feet east of the east side of Westmorland street, and 155 feet from a point determined by the intersection of the east line of the street produced and the middle of the footpath along the top of the dyke. The station is marked by a concrete block set flush with the ground. The following true bearings were determined: spire of tower on post office, 17° 00′·1; tip of lighthouse across river, 93° 17′·2; spire of church seen over Lockhart's mill (formerly Paul Lea's mill), 303° 26′·4, spire of English church, 330° 14′·7.

Moncton B, N.B., 1926.—Station B is about two miles west of station A, or original station occupied in 1907, and about one mile west of the city in the natural park. It is near the west side of the level strip of land opposite the west end of George street, being 35·5 feet north of the centre line of George street produced, and 274 feet west of the iron tile at the intersection of George street and the east side of the road along the east side of the park. Observations were taken over a drill hole in a stone which projects about 3 inches above ground. The following true bearings were determined: north mast of wireless station in Moncton, 86° 45′·4; pipe on small building near south entrance to park, 165° 19′·6; north gable of farm house, 177° 35′·3.

Mont Laurier, Que., 1926.—The D.O. station of 1921 was reoccupied. It is about one mile from the C.P.R. depot on the opposite side of the river and north from the Catholic church. It is on property owned by the Seminary, and on the summit of a hill on which is located a bandstand and a large wooden cross, these being visible from the whole town. The point is 43·8 feet westerly from the westerly side of the bandstand and 1·4 feet southerly from the northerly side produced, 39 feet easterly and 15 feet northerly from the most northerly point of the base of the cross, and 14·5 feet northerly from the base of two birch trees growing together. Observations were taken over a drill hole in a stone set flush with the ground. The following true bearings were determined: north edge of tank at railway, 75° 02′·7; east edge at base of cross on school, 141° 03′·1; west edge at base of cross on Catholic church spire, 159° 48′·3; southeast edge at top of Seminary, 168° 23′·4; east gable of red brick house, 202° 40′·9.

Mulgrave A, N.S., 1925.—The station is approximately a relocation of the station of 1907. It is approximately on the centre line of the street, extended, which passes the south side of the Seaside hotel and is 850 feet west of the front of same. The station is about 180 feet north of station C, which was occupied first in 1912 and estimated at that time to be the approximate location of station A. Observations were taken over a drill hole in the top of a stone 3 by 4 inches and projecting 2 inches above ground. The following true bearings were determined: tip of cross on Catholic church, 6° 46′·0; spire of church in Hawkesbury, 62° 30′·0; spire of United church, 71° 41′·8; spire of Presbyterian church, 83° 37′·6.

Nain, Labrador, 1925.—The station is on the summit of the rocky hill directly south and across the river from the village. It is 25 feet south from a large boulder, 23 feet north from a step in the rock, and 34 feet west from another boulder. Observations were taken over a drill hole in the rock. The following true bearings were determined: south gable of house in southwest corner of village, 347° 46′·9; east gable of store on west end of wharf, 355° 41′·2; cross on church, 357° 34′·2; east gable of mission residence, 359° 04′·5.

Nanaimo, B.C., 1924.—The D.O. station of 1919 was reoccupied. It is on the southwesterly side of Jesse island, about 480 feet southeasterly from a cliff which is east of the fish sheds at the northwesterly corner of the island, about 135 feet from the edge of the bank on the south, 67 feet south and 202 feet east of the southeast corner of a cottage. Observations were taken over a drill-hole in a sandstone block. The following true bearings were determined: west gable of west herring shed across narrows, 184° 04′·6; west gable of metal-sided building to west, 211° 33′·6.

Natashkwan, Que., 1925.—The D.O. station of 1909 was reoccupied. It is about 100 feet from the high-water mark near the northwestern extremity of Wood island, being opposite a small peninsula on the west side of which is the western harbour. It is about 1,150 feet northeast of the lighthouse, which is also on Wood island and 125 feet north of east from a granite monument lettered "C.R.C. 1886". This monument is not visible from the station owing to the presence of a rocky ridge. Observations were taken over the west angle of a triangle cut in the rock. The following true bearings were determined: south gable of shed seen over middle of shed at east end of wharf, 0° 00′·0; spire of Catholic church, 81° 39′·9; tip of lighthouse on Wood island, 220° 30′·9; base of cross on beacon islet, 299° 14′·9; east gable of shed at west end of wharf, 349° 16′·0.

New Liskeard[1] *A, Ont., 1926.*—The D.O. station of 1913 was reoccupied. It is in the grounds around the public school, 166·3 feet east of the northeast corner and in line with the north end of the building, and 15 feet west of the fence along the east side of the grounds. Observations were taken over a drill-hole in the end of a concrete block 2 by 3 inches set flush with the ground. The following true bearings were determined: tip of ornament on Mr. Hartman's summer house, 100° 39′·1; spire of Presbyterian church, 139° 22′·2; chimney on east side of hospital, 245° 44′·5; east gable of barn, 309° 46′·5; south gable of barn, 357° 47′·3.

Ocean Falls, B.C., 1924.—The station is east of the town, east of the dam, and on the lake shore opposite the dam. It is south of the plank drive from the boat houses to the second part of the lake and is opposite the walk to the trap grounds. The station is on the southwesterly rock of the grey granite outcrop at this point. It is about 200 yards from the lake shore, 77·5 feet southerly from the southerly side of the plank drive opposite the walk to the trap grounds, and 9 feet south from a small clump of elms. A water tower can be seen midway between a cedar stump to the right and a cedar tree at the shore to the left. Observations were taken over a drill-hole in the rock. The south corner of the erection on top of the water tower bears 297° 40′·1.

Ottawa, Ont., 1924–1926.—Observations were taken in the magnetic hut which is in the Observatory grounds.

Owen Sound, Ont., 1926.—The station is approximately a relocation of the station of 1910. It is on the agricultural grounds, being 158·8 feet from the northeast corner of the new cement-block building, 164·5 feet from the southeast corner, and 104·6 feet from the southwest corner of the grandstand. Observations were taken over a drill-hole in a concrete block set flush with the ground. The following true bearings were determined: left ornament on tower of Catholic church, 12° 04′·3; spire of Catholic church, 12° 24′·0; tip of ventilator on Catholic church, 13° 44′·7; north gable of red brick house, 99° 17′·2.

Parry Sound, Ont., 1926.—The station is approximately a relocation of the station of 1916. It is on the north side of the town near the northwest corner of the agricultural and athletic grounds, 77 feet east of the fence along the west side of the grounds, and 83 feet south of the fence along the north side. Observations were taken over a drill-hole in a stone set flush with the ground. The following true bearings were determined:

[1] This station was designated "Liskeard" in Publications of the Dominion Observatory, Vol. V, No. 5, pp. 155, 165 and 213. This was in accordance with the decision of the Geographic Board of Canada, see Fifteenth Report, 1917, p. 148. Locally the original designation, New Liskeard, has been retained; furthermore, in the Eighteenth Report of the Geographic Board, 1924, the decision with respect to this station is not included.

northeast corner of exhibit building, 87° 43′·6; bottom of pole on centre of exhibit building 91° 41′·5; bottom of pole on tower on southwest corner of exhibit building, 95° 22′·8; chimney on house near C.P.R. water tank, 172° 58′·4; pole on C.P.R. water tank, 173° 14′·8.

Pemberton, B.C., 1924.—The station is near the east edge of the clearing east of the P.G.E. depot and east of the tracks. It is in line with the north side of the freight shed and 200·8 feet from the northeast corner of the platform of the freight shed. Observations were taken over the centre of the top of a fir stake set flush with the ground. The north edge of the white part of the sign on the Pemberton hotel bears 282° 19′·7.

Point Amour, Labrador, 1925.—The station is on the plateau to the north of the lighthouse and is 171 feet from the edge of the bluff, measured in line with the lighthouse which can be seen from the station to the left of the centre of the roof of the keeper's house. The point is on a red granite boulder 4·5 by 4·5 feet projecting one foot above ground. Observations were taken over a drill hole filled with lead. The following true bearings were determined: spire on lighthouse, 161° 47′·3; west edge of signal flagstaff at splice, 165° 13′·3; west edge at base of wireless mast, 141° 54′·9.

Port Colborne B, Ont., 1926.—As the station of 1910 was not available a new station was selected about two miles southwest of the town on the top of Sugar Loaf hill. It is approximately on the centre line, produced, of that part of the "cement" road lying between the east edge of the paved strip and the east limit of the road. Observations were taken over a drill-hole in a stone about 6 by 6 inches set flush with the ground. The following true bearings were determined: spire of church in Port Colborne, 39° 06′·9; tip of water tank in Port Colborne, 53° 42′·9; spire of church in Port Colborne, 56° 45′·2; pole on water-tank, seen over elevator, 90° 22′·6; tip of lighthouse on break-water, 105° 38′·7.

Port Stanley A, Ont., 1926.—The station of 1910 was reoccupied. It is on the road leading west from the town in a field belonging to Mr. Snowdon and just west of the lot on which his dwelling house stands. The field is the second west of the second road leading up to Fraser Heights and about one-half mile west of the town. The point is 116·5 feet east of the fence along the west side of the field and 109·5 feet south of the north side of the field. Observations were taken over a brick set flush with the ground. The following true bearings were determined: spire of Anglican church, 55° 51′·9; pipe on roof of cottage on Fraser Heights, 162° 54′·7; gable of red brick house, 354° 38′·1.

Port Stanley B, Ont., 1926.—Station B is about one-quarter of a mile northwest of station A, on property leased by Mr. Gilliard. It is near the northwest corner of a pasture field, at the top of a steep incline and on the most northerly ridge in the field. It is about 155 feet south of the north boundary fence, 200 feet east of the west boundary of the field, and 25 feet distant in an easterly direction from a beech tree. Observations were taken over a hole in a concrete block 7 by 9 inches set flush with the ground. The following true bearings were determined: spire of Anglican church, 76° 08′·7; top of water tank on Fraser Heights, 149° 28′·9; ornament on tower of cottage on Fraser Heights, 178° 44′·6.

Prince Rupert, B.C., 1924.—The D.O. station of 1915 was reoccupied. It is about one-half mile south of the wharf near the agricultural hall and the athletic field. It is 120 feet southerly from the southeasterly corner of the reservoir, 77 feet southerly and

350 feet westerly from the southwesterly corner of the agricultural hall, and 50·8 feet northerly and 138 feet westerly from the northeasterly corner of the grandstand. Observations were taken over a drill-hole in a concrete block set flush with the ground. The following true bearings were determined: centre of base of north pole on agricultural hall, 25° 25′·0; centre of base of south pole on agricultural hall, 30° 24′·4; east corner at base of agricultural hall, 34° 03′·1; north edge at base of chimney at dry dock, 36° 59′.0; front west gable on new school, 42° 35′·6; west gable of white church in distance, 43° 30′·1; tip of ornament on centre of building, 47° 50′·2.

Quebec, Que., 1926.—The D.O. station of 1918, which was first occupied in 1906 by the Carnegie Institution, was reoccupied. It is on the Plains of Abraham, west of the jail and in line with the rear wall, inside the main drive and also the cinder course. It is 163 feet northwesterly from the top of a stone which was formerly at the intersection of two fences and 89 feet from the third lamp post from Wolfe's monument on the westerly side of the drive. A line joining the station with the southwesterly corner of the jail passes 12 feet south of the base of the second lamp post from Wolfe's monument on the east side of the drive. Observations were taken over a copper nail in a lead-filled drill hole in a stone about 4 by 4 inches set flush with the ground. The following true bearings were determined: tip of steel tank near Ross Rifle factory, 59° 01′·4; spire of church south of river, 141° 27′·9; spire of church south of river, 190° 56′·0; spire of church north of river, 207° 52·6; spire on tower, 218° 03′·0.

Redditt, Ont., 1926.—The D.O. station of 1914 was reoccupied. It is about 1,600 feet north of the C.N.R depot on townsite property, on a street allowance, being 85·5 feet west from the southeast corner post of the cemetery, the measurement being made along the fence, and 18·5 feet south from the fence. The southeast corner post of the cemetery is on the northwest corner of the intersection of the first street north and the first street west of the school. Observations were taken over a drill-hole in a rock 4 by 6 inches set flush with the ground. A temporary reference mark was used.

Rivière du Loup B, Que., 1926.—Station B, which was selected for the eclipse observations in June, 1918, was reoccupied. It is 429 feet from station A on a line bearing N. 33° 23′·0 E. It is near the northerly side of a clearing lying between the main road leading to the wharf and the road along the westerly side of the point. It is almost in line with the southerly end of the garage which is south of the cottage "Villa de Sillery"; is 126 feet easterly from the iron fence in front of the cottage and 148 feet from the board fence along the southerly side of the lot in which the station is located. Observations were taken over a drill-hole in a stone 4 by 4 inches set flush with the ground. The following true bearings were determined: pole on easterly end of building on easterly side of road leading to wharf, 195° 29′·5; pole on westerly end of building, 198° 47′·8; north gable of small building in northeast corner of government grounds, 200° 45′·0; top of lighthouse on wharf, 238° 14′·9; extreme right edge of northerly chimney on shed at wharf, 239° 26′·0.

Roberval B, Que., 1926.—The station is to the north of the town, in the exhibition grounds, between the main exhibition building and the main entrance to the grounds. It is in line with the east side of the main building and 169·2 feet south of its southeast corner, 91·6 feet from the northeasterly corner and in line with the easterly side of a building in the southwest corner of the enclosure, and 39·2 feet westerly from the base of the fourth spruce tree from the south fence. Observations were taken over a shallow drill-

hole in a rock 2 by 3·5 inches set flush with the ground. The following true bearings were determined: southeast corner of barn, 26° 08′·3; southwest gable on house, 36° 54′·9; pole on northeast cupola on factory, 43° 57′·0; southeast edge of smokestack on mill, 47° 46′·4; westerly edge of smokestack on mill, 180° 20′·4.

St. Anthony, Newfoundland, 1925.—The station is on Moore's point and is almost in line with the front, or easterly side of the signal hut. It is 185 feet southerly from the southerly corner of the hut and 113·5 feet easterly from the edge of the rock forming the top of the cliff. Observations were taken over a drill-hole in the rock. The following true bearings were determined: weather vane on lighthouse, 143° 39′·9; west edge of Mr. Budge's house, 250° 03′·5; south gable of Orange Hall, 265° 31′·3; spire of church, 276° 28′·1; north corner of orphanage, 287° 00′·4.

St. John, N.B., 1926.—The station of 1918, which is an approximate relocation of the station of 1908 and 1912, was reoccupied. It is on Gilbert's property facing Gilbert's lane, about one mile northeast of the railway depot and about 750 feet northerly from the railway tracks. It is 68·5 feet south of the fence on the north side of the field, 223 feet easterly from the northerly side of the gateway, which is at the southeast corner of the horticultural section of Rockwood park, 181 feet from the fence along the westerly side of the field, and 38 feet north of the northerly side of Seely street or the south limit of the park produced. From the station the cathedral spire may been seen over the east chimney of the house farthest east on the north side of Pine street, and the tall brick chimney at Peter's tannery and the one at the cotton mill are seen in line. The point is marked by a drill-hole in a stone 5 by 3·5 inches projecting slightly above the ground. The following true bearings were determined: pole on centre of railway water-tank, 62° 36′·0; pole on water-tank at Peter's tannery, 150° 18′·8; pole on Leinster Baptist church, 179° 11′·2; spire on centre dome of hospital, 181° 59′·7.

Ste. Anne des Monts, Que., 1925.—The station is in an open field to the south of the Grand Union hotel, both field and hotel being the property of Mr. A. Pelletier. It is near the southeast corner of the field on an uncultivated ridge composed mainly of shale, being about 1,000 feet south of the hotel, 60 feet west of the fence on the east, and 65 feet north of the fence on the south side of the field. Observations were taken over the intersection of two grooves in a stone set flush with the ground. The following true bearings were determined: cross on west tower of Catholic church, 33° 48′·9; cross on east tower of Catholic church, 35° 02′·3; ornament on centre of church, 36° 51′·8; spire of church in Anse a Jean, 56° 58′·8; smokestack on saw-mill, 265° 21′·9.

Salmon Bay, Que., 1925.—The D.O. station of 1909 was reoccupied. It is near the west side of a depression in an irregular terrace on the east slope of a hill which is opposite Caribou island and south of Salmon bay, about 200 feet west of and in line with the south end of Mr. Jeremiah Dunn's house and about 300 feet north of Mr. Edward Dunn's house. The point is marked by a stake 3 inches in diameter set flush with the ground. The following true bearings were determned: cairn on hill to east, 40° 42′·2; south gable of Mr. McAllister's house, 78° 45′·7; east gable of Catholic church, 159° 17′·4; cairn on point of land seen to left of pipe on church, 160° 09′·2; cross on tower of church 161° 53′·0.

Sault Ste. Marie, Ont., 1926.—The station, which is a relocation of the station of 1916, is about one-half mile northeasterly from the C.P.R. depot on the east side of Great Northern road, which is a continuation of Pym street, and south of McDonald street, which runs east from Great Northern road to the wireless station. It is 125 feet west of the wire fence along the east side of the second street east of Great Northern road and 97 feet south of the row of telephone poles along the south side of MacDonald street. Observations were taken over a drill-hole in a stone set flush with the ground. The following true bearings were determined: flagstaff, 134° 23′·0; pipe on white house, 178° 14′·6; flagstaff on high school, 268° 51′·7; tip of tower of public school, 312° 42′·7.

Schreiber, Ont., 1926.—The D.O. station of 1910, which is the C.I. station of 1906, was reoccupied. It is 99·5 feet from the southwest corner of the cemetery and in line with the picket fence on the south side. Observations were taken over a drill-hole in a stone set flush with the ground. The upper face of the stone is about 3 by 4 inches. The following true bearings were determined: tip of ventilator on C.P.R. car shops, 192° 33′·4; pole on C.P.R. water-tank, 211° 03′·0; spire of United church, 256° 49′·9; spire of English church, 261° 55′·3.

Selkirk, Yukon, 1924.—The C.I. station of 1907 was reoccupied. It is on the low ridge south of the old government telegraph station and about 300 feet south 21° west (true) from the astronomical pier erected in 1907. The old stake was replaced by one 4 inches in diameter projecting 2 inches above the ground. Observations were taken over a brass screw in the top of this stake. The following true bearings were determined: west edge at base of flagstaff on old telegraph office, 13° 46′·3; southeast edge of astronomical pier, 20° 49′·1; northwest edge of old barracks, 74° 25′·7; cross on Catholic church, 301° 44′·1.

Seven Islands (Pointe aux Basques), Que., 1925.—The station of 1920 was reoccupied. It is located on Pointe aux Basques and about 2 miles south of the village of Seven Islands. It is in line with the western extremities of Basque island and Manowin island and a line joining the station and a prominence on the peninsula across the harbour passes over a low rock, which is at a short distance from Basque island. It is about 275 feet southeast from a house with shingled sides and 116 northerly from a fence (partially removed), measured in the direction of the westerly extremity of Basque island. Observations were taken over a cartridge shell in the top of a stake 5·5 inches in diameter set flush with the ground. The following true bearings were determined: cairn on highest point of Boule island, 114° 44′·0; gable over window of log house, 335° 19′·6; east gable of house with shingled sides, 357° 33′·9.

Shawinigan Falls, Que., 1926.—The station is in the northeast part of the town on land owned by the Shawinigan Water and Power Company and used as an athletic field. It is on the rough ground inside the race track and to the east of the ball field, in line with the southerly goal post at the west side of the field and the northerly post at the east side of the field, and 170·5 feet northeasterly from the latter post Observations were taken over a lead-filled drill hole in the top of a sandstone post set flush with the ground. The following true bearings were determined: southwest corner of red brick house, 15° 44′·9; centre of top of transmission tower seen over chimney, 76° 13′·8; base of pole on fire station, 143° 03′·5; base of pole on school, 164° 09′·7; easterly gable of white house, 291° 23′·2.

Sioux Lookout B, Ont., 1926.—The D.O. station of 1918 was reoccupied. It is slightly west of the summit of a rocky hill which is the first one southerly from that on which the C.N.R. water tower stands. The point is 26 feet north and 237 feet east of the northeast corner of the second from the south end of a row of five houses owned by the railway. Observations were taken over a drill-hole in a stone set flush with the ground. The following true bearings were determined: east gable of coal chute, 10° 57′·7; observing tower on hill across lake, 259° 43′·3; east end of railway bridge across narrows, 281° 27′·7; cross on tower of Catholic church, 329° 22′·7; tip of pole on water-tower, 348° 15′·8.

Squamish, B.C., 1924.—The station is near the road to the power house and across the bridge from the town. It is southwesterly from the southerly end of the bridge and is on the summit of the rock outcrop at this point. The point is 5·5 feet from the edge of the bluff at the water's edge, 45·5 feet southwest from the edge of the plank at the bridge, and 18 feet northwesterly from the edge of the outcrop. Observations were taken over a drill-hole in the rock. A temporary reference mark was used.

Stanstead, Que., 1926.—The D.O. station of 1921 was reoccupied. It is on the exhibition grounds and inside the race course. It is 80 feet southerly from the inner edge of the race course and 254 feet easterly from the judge's stand, which is opposite the site where once was located a grandstand. Observations were taken over a drill-hole in a boulder, triangular in shape, projecting 6 inches above the ground. The following true bearings were determined: pole on Stanstead College, 249° 19′·0; tip of spire of United church, 267° 07′·0; cross on Catholic school, 276° 02′·2; cross on Catholic church, 314° 20′·2.

Stewart, B.C., 1924.—The station is about one-half mile northeast of the centre of the town and is about one-quarter mile north from the railway crossing along the road leading to the bridge. It is in a partially clear space to the east of the waggon road and is screened from the road by a fringe of bushes. It is 82 feet east of the east edge of the waggon road, 66 feet east of the east side of the path which is on the east side of the road, and 322 feet north of the junction of the waggon road to the bridge and the road running northwesterly to the old depot, this distance being measured along the waggon road to a point opposite the station. Observations were taken over the centre of the top of a grey granite rock 4 by 4 inches projecting 3 inches above the ground. This is the only grey granite rock in this neighbourhood. A temporary reference mark was used.

Stewart, Yukon, 1924.—The station is in the vicinity of the C.I. station of 1907. It is northeast of the Stewart hotel and behind the hotel garden. It is 26·2 feet northerly from the garden fence, 62·8 feet easterly from the northwest corner of the fence, and in a clearing between the fence and the bush. Observations were taken over the centre of a stake 3 inches in diameter projecting 4 inches above the ground. The following true bearings were determined; west edge at the base of chimney on shack to south, 225° 22′·4; st edge at base of chimney on Stewart hotel, 268° 12′·5.

Sudbury C, Ont., 1926.—The station is approximately a relocation of station C, which was occupied first in 1916. It is in the first large field north of St. Joseph's hospital and east of the Catholic school grounds. It is 292 feet east and 38 feet north of the northeast corner of the school built in 1914, 104 feet east and 79·5 feet north of the

northeast corner of the school built at a later date, and 69·5 feet east and 62·5 feet north of the southwest corner of the field. Observations were taken over a drill-hole in a stone set flush with the ground. The following true bearings were determined: cross on tower of Catholic church, 158° 56′·9; tip of cross on hospital in line with flagstaff on front of hospital, 181° 14′·5; top of flagstaff on tower of town hall, 183° 25′·8; cross on separate school, 252° 58′·3.

Sydney B, N.S., 1925.—Station B, which was first occupied in 1918 and again in 1921, was reoccupied. It is northwest of the town in Victoria park, near the foot of the slope on the northwestern side of the highest point of ground in the western portion of the park. It is near the inner edge of the race course, 220 feet easterly from an electric light post on which is a reflector, 278 feet southerly from the iron house near the signal mast, and 131 feet southeasterly from a row of willow trees along the northerly edge of the race-track. Observations were taken over a drill-hole in the top of a granite post 4 by 4 inches set flush with the ground. The following true bearings were determined: tip of pole near iron works, 69° 36′·3; spire of Catholic church, 126° 33′·7; spire of old stone church on esplanade, 147° 26′·4.

Tadoussac, Que., 1926.—The station is approximately a relocation of the station of 1909. It is near the summit of a rocky slope on the westerly side of the road leading from the wharf to the village, about 390 feet northerly from the freight shed at the wharf, 48·2 feet southerly from a wire fence, 146 feet westerly from a house, and 31·8 feet easterly from the instersection of two grooves chiselled in the rock near the base of the cliff. Observations were taken over a drill-hole in a rock set flush with the ground. The following true bearings were determined: pole on house, 40° 50′·7; tip of outer light-house across Saguenay river, 159° 26°·1; tip of inner lighthouse across Saguenay river, 171° 45′·1; bottom of pole on freight shed at wharf, 178° 29′·2.

Tantalus, Yukon, 1924.—The C.I. station of 1907 was reoccupied. It is in a clearing in front of the old R.N.W.M.P. barracks, about one-half mile below the Tantalus coal mine and one-quarter mile above Taylor and Drury's store at Carmacks. It is 48 feet south of the bank of Lewes river, 60 feet east of the old flagstaff, and 128 feet south 78° east (true) from the astronomical pier of 1907. Observations were taken over a brass screw in the top of a fir stake 4 by 4 inches projecting 2 inches above the ground. The following true bearings were determined: northwest gable of highest shed at old coal mine, 65° 09′·4; northeast edge at centre of astronomical pier, 282° 16′·0; northeast gable of Taylor and Drury's warehouse, 294° 29′·0.

Terrebonne, Que., 1926.—The D.O. station of 1918 was reoccupied. It is opposite the Happy Home hotel on an island belonging to the Masson estate. It is about 630 feet northwesterly from a saw-mill, 269·5 feet northwesterly from the northwesterly corner of a stone building, and 69·8 feet southwesterly from the D.O. station of 1912. Observations were taken over a copper nail in a stake set flush with the ground. The following true bearings were determined: northwest corner of Happy Home hotel, 111° 00′·5; base of spire on Catholic seminary, 119° 44′·2; north corner at top of mill, 131° 51′·8; south edge of ventilator on stone building, 141° 12′·0.

Tignish, P.E.I., 1925.—The station of 1921 was reoccupied. It is in a small opening in the grove of trees along the north side of the grounds around the Presbyterian church about a quarter of a mile south of the railway tracks. It is 124 feet east and 26 feet

north of the northeast corner of the church, 69·5 feet north of the fence along the south side of the grounds, and 47·5 feet west of the fence along the east side. Observations were taken over a drill-hole in the top of a brick set flush with the ground. The following true bearings were determined: right edge of chimney on north end of house, 232° 51′·8; southeast corner of church, 233° 28′·0; northwest corner of church, 251° 01′·6; chimney on main part of house, 150° 00′·0.

Truro, N.S., 1925.—The station of 1912 was reoccupied. It is near the entrance to Victoria park and is about 200 feet east and 615 feet south of the southeast corner of the intersection of Brunswick street and Outram street and is 128 feet east of the retaining wall along the front of the property facing the park, and 217 feet southwest of the southwest corner of a bridge over a creek. Observations were taken over a hole in a stone, the diagonals of which are 4 inches and 6 inches, set flush with the ground. The following true bearings were determined: chimney on house on hill, 194° 55′·0; tip of church spire seen over house at southwest corner of intersection of Brunswick street and Outram street, 319° 44′·1; pole on C.N.R. depot, 325° 13′·2; tip of tower of Learmont hotel, 336° 19′·2.

Twin City Junction, Ont., 1926.—The D.O. station of 1916 was reoccupied. It is in the City of Fort William park, the west limit of which is about 1,600 feet east of the C.N.R. depot and the south limit is adjacent to the north side of the government road allowance which is along the north side of the C.N.R. right-of-way. It is 408 feet north of the fence along the south side of the enclosure and 235 feet east of the fence along the west side. Observations were taken over a drill-hole in a triangular-shaped stone 3·5 by 4 by 4·5 inches, set flush with the ground. The first white post east of the depot on the south side of the railway tracks bears 245° 17′·9.

Vancouver, B.C., 1924.—The D.O. station of 1908 was reoccupied. It is on the government lighthouse reserve, on which is also the Dominion Observatory astronomic station, which is used as a reference station for longitudes in British Columbia. It is 43 feet southerly from the southwest corner of the observatory building (office part) and 8 feet due west from the produced line of the west side of the building. Observations were taken over a brass screw in a fir log set flush with the ground. The following true bearings were determined: north spire of church across harbour, 50° 18′·2; south spire of church across harbour, 50° 26′·4; base of flagstaff across harbour, 51° 00′·2; spire across harbour, 104° 32′·8.

Victoria, B.C., 1924.—The D.O. station of 1919, which is an approximate relocation of the C.I. station of 1907, was reoccupied. It is on an open strip of land between Dallas road and the seashore, and between Dallas avenue and Government street extended, 3·5 feet from the edge of the bluff and 42 feet east of the line produced of a row of poles which are on the east side of Government street and seen over the shrubbery on the south side of Dallas road. The point is marked by a copper nail in the top of a stake 4 by 4 inches set flush with the ground. The following true bearings were determined: flagstaff in Dr. Milne's yard, 64° 50′·5; Race Rocks lighthouse, 223° 14′·6; top of buoy on Brotchy ledge, 252° 19′·2; top of lighthouse on outer wharf, 288° 12′·9.

Victoria (Mount Douglas), B.C., 1924.—The station is in Mount Douglas park, about five miles from the centre of the city, in an open space at the base of the mountain on the northwesterly side of a motor road, and about a quarter of a mile southwesterly

from the intersection of this road with Shelburne street. The station is in line with and 54 feet from the nearer of two fir trees, the farther of which is near the speed limit sign at the side of the motor road. It is 91 feet from the northwesterly side of the motor road, 58 feet from a road through the park in line with a small oak tree to the southwest of the station, 102 feet from the sign on the south side of another road, or trail, and 69 feet from a fir tree to the northwest of the station. Observations were taken over a drill-hole in the end of a brick set flush with the ground. The following true bearings were determined: southerly gable of house with red roof on horizon, 78° 21′·0; northerly edge at base of red brick chimney on red-roofed house, 100° 12′·8; west gable of small white house at north end of greenhouse, 115° 23′·9; west gable of yellow house in valley, 136° 59′·8; west gable of iron-roofed barn, 157° 13′·6.

West Turnavik, Labrador, 1925.—The U.S. Coast and Geodetic Survey station of 1881 and 1896, which is also the C.I. station of 1905 and 1908, was reoccupied. It is a little east from the centre of the smallest of the islands called Offer Turnavik, on the summit of a low rock approximately half way between Mr. Bartlett's house and the bunk house. It is 50·9 feet from the northwesterly corner and 45·5 feet from the southwesterly corner and almost in line with the southerly side of Mr. Bartlett's house, and is 55 feet from the easterly corner and 51·9 feet from the southerly corner of the bunk house. Observations were taken over a deep drill-hole 1·75 inches in diameter in the rock. A temporary reference mark was used.

Whitehorse, Yukon, 1924.—The station is in close proximity to the C.I. station of 1907. It is in the R.C.M.P. grounds in the cultivated field in the enclosure formed by the barracks, is southwesterly from the flagstaff and near the northwest roadway. The point is 110 feet southeasterly from the southerly corner of the verandah of the third house from the entrance to the grounds at the northerly corner, this measurement being in line with the southwest side of the house, and 4·5 feet northeasterly from this line. It is 156·3 feet easterly from the southeasterly corner of the verandah on the men's barracks and 89 feet southeast from the southeast edge of the road to the northwest. The station is in line with the southerly corner of the verandah of the third house from the northerly entrance and the west door in the building to the west of the old barracks. Observations were taken over a brass screw in the top of a stake 4·5 inches in diameter projecting 2 inches above the ground. The following true bearings were determined: spire on Catholic church, 1° 32′·6; base of flagstaff on post office, 69° 57′·6; base of police flagstaff, north edge, 79° 39′·2; north corner of old barracks, 119° 27′·9; east corner of Sergt. Head's house, 187° 51′·0.

White River B, Ont., 1926.—The D.O. station of 1918 was reoccupied. It is about a quarter of a mile north of the original station, station A, and a short distance southeast of the Catholic church. It is 60·5 feet southerly and 151 feet easterly from the southeast corner of the church. Observations were taken over a copper nail in the top of a stake 3 inches in diameter set flush with the ground. The following true bearings were determined: tip of spire on tower of United church, 170° 04′·3; tip of pole on ventilator of car shops, 203° 35′·4; pole on C.P.R. water tank, 209° 14′·0; cross on English church, 209° 35′·6; southwest corner of Catholic church, 264° 14′·0.

Woodstock A, N.B., 1926.—The D.O. station of 1912 was reoccupied. It is near the southeast angle formed by the instersection of Orange street and St. John street,

being 73 feet south of the north side of St. John street, 88 feet east of the west side of Orange street, and 144 feet north of the north end of the lot at the northeast corner of the intersection of Orange street and Elm street. Observations were taken over a copper nail in the top of a stake 3 by 3 inches set flush with the ground. The following true bearings were determined: spire of Presbyterian church, 141° 17′·0; south gable of club house, 334° 37′·6; south gable of dwelling house (formerly club house), 347° 02′·6.

Woodstock B, N.B., 1926.—Station B is about 302 feet northwest of station A, in an open pasture field belonging to the Fisher estate. It is opposite the club house in the golf grounds and is 131 feet north and 133 feet west of the northwest angle formed by the intersection of Orange street and St. John street. Observations were taken over a drill-hole near the south end of a flat boulder, triangular in shape, the distance from the south angle to the opposite base being about 3 feet. The following true bearings were determined: east gable of club house, 0° 38′·4; spire of Reformed Baptist church, 127° 40′·0; spire of United Baptist church, 133° 43′·8; spire of Presbyterian church, 136° 43′·6.

Yarmouth, N.S., 1925.—The station is approximately a relocation of the station of 1912. It is in the athletic field, being 51·6 feet south of the fence along the north side of the grounds and 133·2 feet west of the fence along the east side. Observations were taken over a stone, the diagonals of which are 4 inches and 8 inches, set flush with the ground. The spire of Temple Baptist church bears 199° 46′·8.

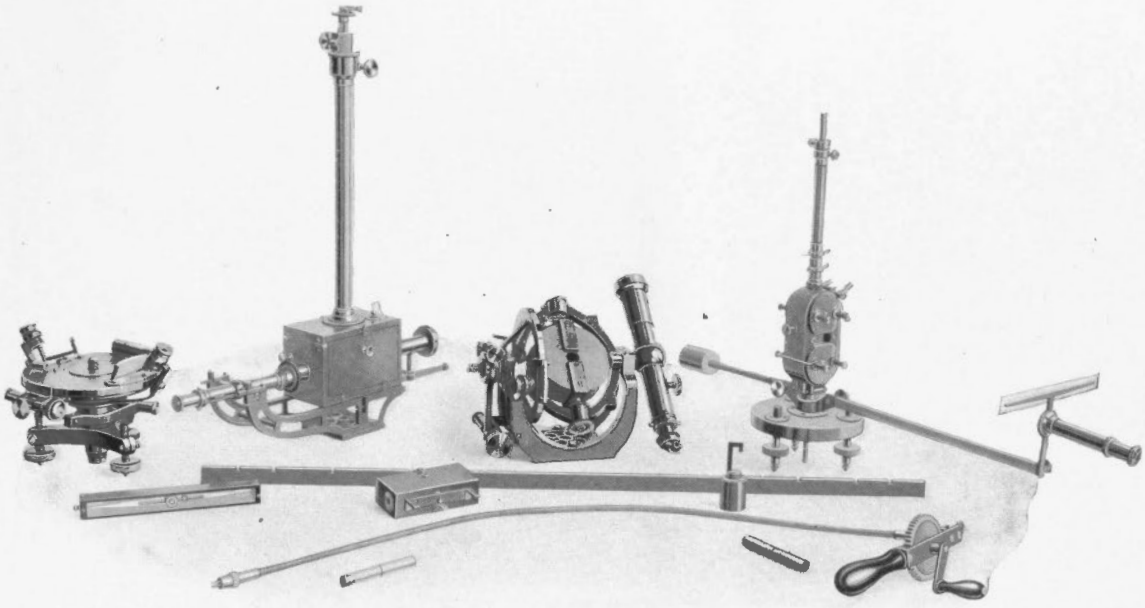

FIG. 1. COMBINED MAGNETOMETER EARTH INDUCTOR NO. 104
A type of magnetic instrument designed by the Carnegie Institution, Washington, D.C. The view shows the base of the instrument, magnetometer attachment, theodolite-earth inductor attachment and galvanometer, as well as various accessories.

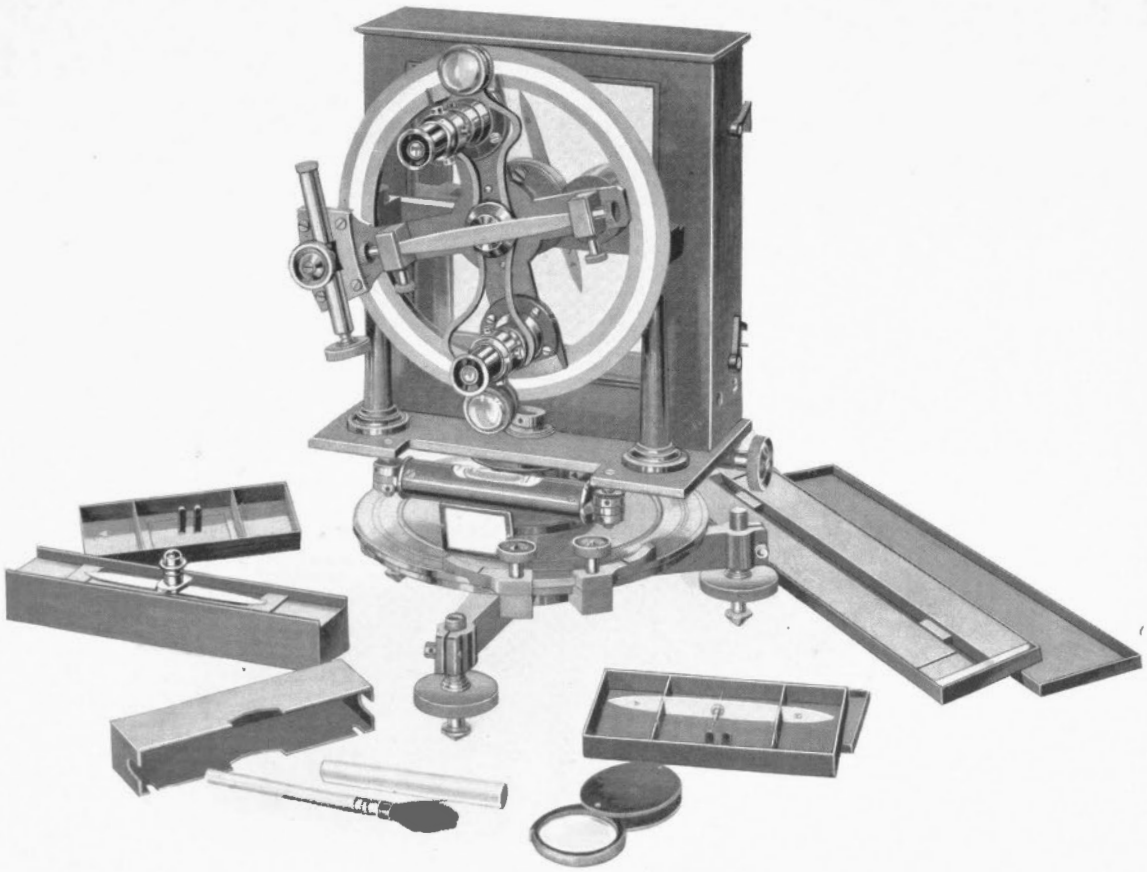

FIG. 2. DOVER DIP CIRCLE NO. 212
View to show intensity needles mounted for deflections, and accessories.

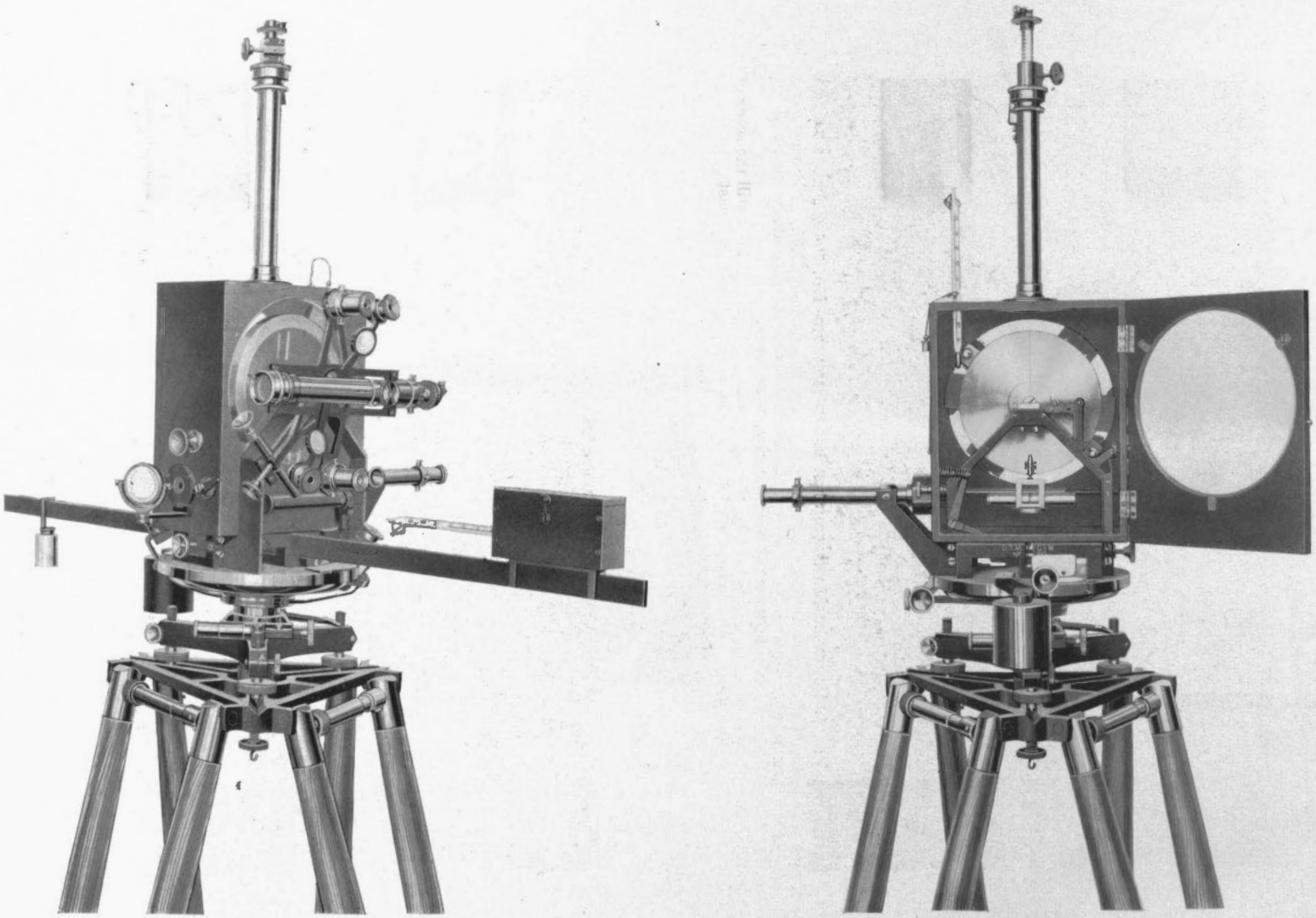

FIG. 3. COMBINED MAGNETOMETER DIP CIRCLE NO. 20

A type of instrument designed and constructed by the Carnegie Institution, Washington, D.C. One view shows the instrument, with the eccentrically mounted theodolite, on tripod, with deflection bar and magnet house in position; the other shows the interior of the instrument with magnet in position for observing.

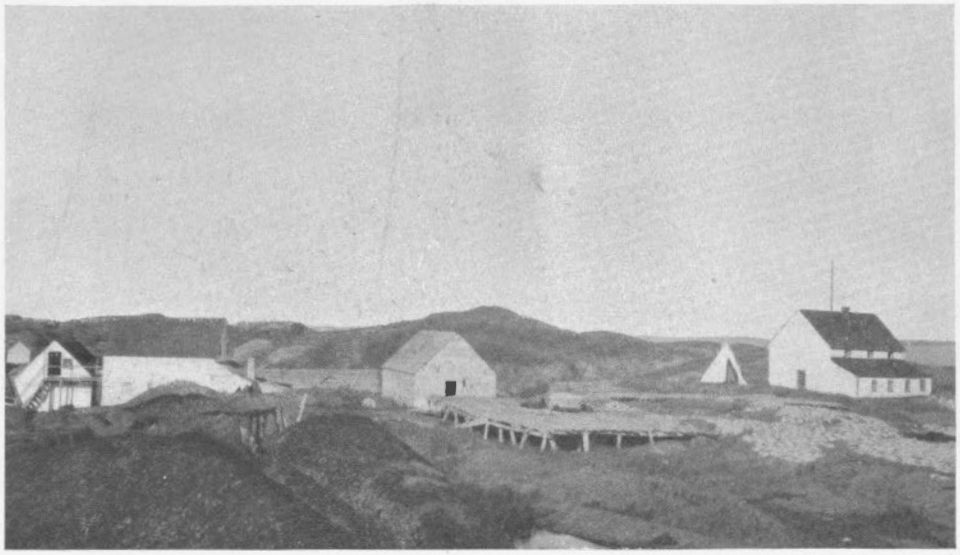

FIG. 4. STATION AT WEST TURNAVIK, LABRADOR

Formerly the island domain of the Bartletts of Arctic fame, West Turnavik is still the scene of cod fishing. The magnetic station was established by the U.S. Coast and Geodetic Survey in 1881.

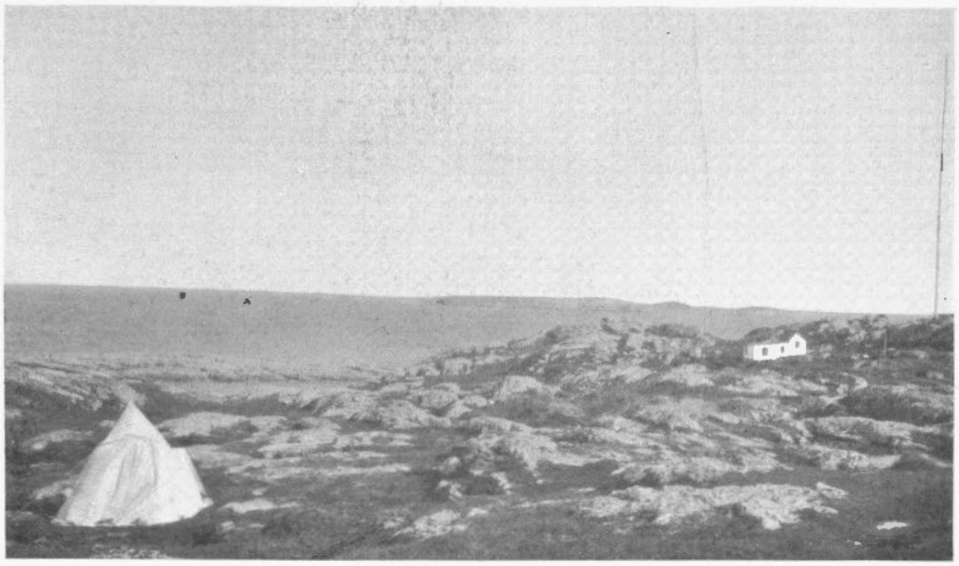

FIG. 5. STATION AT BATTLE HARBOUR, LABRADOR

The station was established by the Carnegie Institution of Washington in 1905. It is near the centre of Battle island, east of the Grenfell Hospital, and north of the Marconi wireless station which appears at the right of the picture.

FIG. 6. STATION AT WHITEHORSE, YUKON
The site of this station, which was first occupied by the Carnegie Institution in 1907, is on the grounds of the R.C.M. Police.

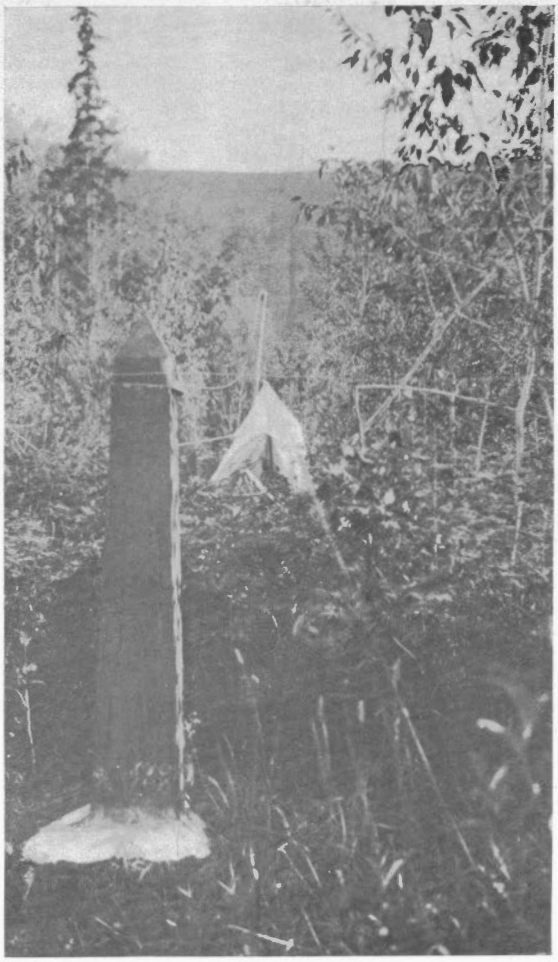

FIG. 7. STATION AT INTERNATIONAL BOUNDARY, YUKON
The monument in the foreground is on the south bank of Yukon river. The magnetic station was established by the Carnegie Institution in 1907.