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MAGNETIC RESULTS, 1948-1961

J. F. Clark

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Introduction

This report summarizes the values obtained by field work during the fourteen seasons from 1948 to 1961 inclusive.

An account of the work of the magnetic survey of Canada may be found in *Pub. Dom. Obs.* Vol. XXVIII, No. 1 and previous volumes of magnetic results.

In 1948 the India survey pattern magnetometers were replaced by the portable fluxgate magnetometers (Serson's model, 1947). Although dip-circles and suspended-magnet type magnetometers were used for several years thereafter at a few locations, most survey parties were using the fluxgate type to obtain data in all parts of Canada, especially the remote northern districts, from 1949 to the present time.

In 1957 the first transistorized version was used in the field and was followed by refined models in succeeding years.

Travel was by aircraft in the north and by motor vehicle in the highways districts. Also, several surveys were made on the east coast using marine vessel transport.

The summary of values is presented in tabular form in the same format as that in *Pub. Dom. Obs.* Vol. XXVIII, No. 1 (1). Declination, inclination and horizontal intensity values are listed wherever available. At those northern stations where horizontal intensity is less than 1000 gammas (0.1 oersteds) the value of vertical intensity is also included. At all other stations the vertical intensity may be calculated from the equation $Z = H \text{ tangent } I$.

Instrumental Equipment

Magnetometers—

Fluxgate induction magnetometer (Serson pattern) Nos. 1 to 12.
Transistorized fluxgates (Serson and Nichols) Nos. T1 to T4.
Gurley transit compass No. 9300.
P.I.C. No. 104 (Carnegie Institution, Washington).
C.I.W. No. 20 magnetometer.
Dover dip circle No. 212.

Chronometers—

Nardin half-seconds chronometer No. 19726.
Nardin half-seconds chronometer No. 19728.
Longines stop-watch serial No. 603,9482.
Longines stop-watch serial No. 604,0959.
Kittel pocket watch No. 261.

Field equipment—

Hallicrafter portable short-wave receivers.
Dominion Observatory bronze tablets.
Lufkin steel measuring tapes, 100 ft.
Camping gear, tools and eiderdown robes, as supplied by Equipment Depot.

Standardization

Intercomparison of standards was carried out at the magnetic observatories when field parties were in the vicinity. Station difference from a pier in the Observatory absolute room to a field station bench mark was determined. The constants for each instrument coil and standard cell were checked before and after each observational season. Considerable drift in the coefficients for each coil was detected, and corrections applied assuming a linear rate of drift during the season. The change of the coefficients with time is described in *Contr. Dom. Obs.*, Vol. 1, No. 18, p. 238. (Serson and Hannaford, 1956) (2).

The latest version of the fluxgate type instrument employs a temperature compensated standard cell, so that only the saturable-core coil must be standardized semi-annually, and the amount of drift has been reduced considerably. (Whitham, 1960). (3).

Reduction of Data

The usual practice was followed of reducing observations to the mean of the day using diurnal variation curves for the area, whenever available. Corrections to the mean of the month are then applied. Observatory magnetograms are examined for the times of observation and disturbance errors eliminated in so far as possible. The disturbance errors may become large at stations more than 100 miles from an observatory.

Probable errors due to observational mistakes, standardization determinations, drift of constants at non-linear rate, diurnal, and transient fluctuations have been considered. For declination the error ranges from zero to two minutes of arc south of latitude 60°, and increases to a maximum of about five minutes of arc north of 60° N. For inclination measurements the error

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seldom exceeds 0.5 minutes of arc. The horizontal intensity values are correct to the nearest fifteen gammas (15×10^{-5} oersted) at the majority of stations. Near the north magnetic dip pole all measurements are subject to much greater errors; Resolute Bay magnetic observatory supplies records for correction of these data. For relevant material see *Pubs. Dom. Obs.* Vol. XXIII, No. 3, Ross, W. E. (1959), (4), and Vol. XXVI No. 2, Loomer, E. I., 1961, (5).

Geographical Positions

The most accurate charts available from aerial photography mapping were used to determine positions of stations. Wherever possible, bench marks were located near geodetic monuments of precisely known latitude and longitude. Occasionally, station co-ordinates were found from astronomical piers or monuments. (*Pub. Dom. Obs.* Vol. V, No. 6) (6). It is general practice to locate geomagnetic stations close to those of other survey divisions wherever practicable, to enable more accurate plotting of charts. Where new magnetic stations were established away from known control points, astronomical observations were taken at the site, by the methods described in U.S. Department of Commerce *Magnetic Manual* (Hazard, 1938), (7) or using the position-line method adapted to the surveys' requirements. All the latitudes are north of the equator, and all of the longitudes listed are west of Greenwich meridian.

The Cooke transits in use by the Division have a horizontal circle accurate to one-fifth of a minute of arc, and positions determined with it are usually accurate to 0.2′ of latitude and to approximately 0.5′ of longitude, or better.

Azimuths of the reference objects or marks are correct to the same order of accuracy. The azimuths are determined from observations on the sun or Polaris at most points. The abridged *Nautical Almanac* is the authority for the necessary information. Other pertinent facts appear in *Measurement of the Geomagnetic Elements*, Whitham (1960), pp. 108–147, (3).

Selection of Stations

The original magnetic stations were established with a view to permanency and ease of re-occupation. Where the primary station (Station A) becomes unavailable, another one, B, is established some distance away but in the same area, perhaps a quarter-mile or less removed from A. Should B also become unavailable a third station C is established in the same locality. A 'repeat' station is one which has been successfully re-occupied at least once.

Stations farther than one mile away from the original one are referred to by another name. (Whitham and Hoge, 1961), (8). The station name is usually the same as that of the nearest town or city but is occasionally taken from a geographical feature, or from other surveys nomenclature. Occasionally stations A, B, C . . . all have the same latitude and longitude but are not close enough together to be considered 'repeat' stations. Station descriptions will be furnished upon request to anyone who requires them.

Acknowledgments

L. Christensen and G. E. Sanders of the Observatory staff assisted greatly with the design and construction of non-magnetic fittings for the theodolite detector coils. H. F. Nichols assisted P. H. Serson and W. Hannaford in designing circuits and computing the calibration tables and instrumental constants.

Miss A. B. Cook of the Dominion Observatory Research Station, Meanook, and W. E. Ross of the Agincourt Ontario Magnetic Observatory, supplied data for the intercomparison and exchange of international magnetic standards. E. Dawson and E. Garland tabulated annual summaries of results from preliminary field notes and records.

Observers in the field included F. Andersen, W. R. Darker, L. C. Dalgetty, E. Dawson, J. T. Eisinger, W. Hannaford, R. D. Hutchison, E. I. Loomer, E. R. Niblett, M. H. and A. A. Onhauser, J. L. Roy, P. H. Serson, K. Whitham and a number of summer assistants. Dr. M. J. S. Innes kindly assisted staff members on several northern expeditions.

Polar Continental Shelf Project personnel secured some magnetic data as did staff of the Geodetic Survey of Canada and the Topographical Survey in the course of their other duties across the country.

R. G. Madill, Chief of the Division during this period, supervised the survey work and assisted in its completion. Dr. C. S. Beals, Dominion Astronomer, supported and encouraged the field program. Grateful acknowledgement is made of the cooperation of all others concerned with the many procedures necessary for publication of the results.

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Magnetic Observations

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Old Perlican	48	05.9	52	34.4	1950.6	30	23.6	72	49.5	15806
St. John's	47	31.8	52	45.0	1950.6	28	43.5	72	19.4	16193
St. John's	47	31.8	52	45.0	1960.5	28	13.9	71	42.1	16793
Cape Race	46	39.4	53	04.2	1950.7	27	45.2	71	57.6	16524
Bonavista	48	38.5	53	06.5	1950.6	30	23.6	73	18.5	15595
Carbonear	47	44.7	53	13.6	1950.6	28	53.2	72	35.8	16000
Spanish Room B	47	12.1	55	07.7	1950.7	28	37.5	72	40.4	15997
Battle Harbour	52	16.4	55	35.4	1951.6	32	27.0	75	10.5	13929
Battle Harbour (E)	52	16.4	55	35.4	1960.6	31	37.8	74	48.3	14302
Grand Banks	47	05.6	55	49.9	1950.7	27	15.9	73	07.4	15647
Millertown Junction	49	00.5	56	19.1	1951.5	29	47.8	74	04.7	15089
Burgeo	47	36.6	57	36.0	1951.5	28	34.9	73	23.1	15734
Bonne Bay	49	30.8	57	55.4	1951.5	29	12.4	74	35.1	14814
No. 12	53	19.0	58	01.5	1951.6	33	22.7	76	41.3	12840
No. 10	52	17.6	58	19.2	1951.6	33	17.1	72	33.8	16604
Tuchialik Bay	54	47.3	58	26.2	1951.5	34	04.3	77	04.9	12726
St. George's Harbour	48	25.9	58	29.4	1951.5	30	00.9	74	40.8	14644
Stephenville	48	26.8	58	29.4	1960.6	29	13.8	74	12.3	15080
Port-aux-Basques A	47	34.6	59	08.4	1950.7	27	50.7	73	51.8	15392
Port-aux-Basques A	47	34.4	59	08.4	1957.6	27	16.4	73	43.5	15481
Port-aux-Basques B	47	34.4	59	09.2	1960.6	26	40.8	73	21.4	15838
West Turnavik	55	15.8	59	19.9	1960.6	33	27.8	77	54.9	11790
Sable Island East	43	58.3	59	45.8	1955.7	24	20.9	71	46.9	17075
Sable Island Centre	43	56.4	59	53.0	1955.7	24	19.4	71	45.9	17082
Louisburg Lighthouse	45	54.2	59	57.9	1951.6	26	39.2	73	21.7	15769
Louisburg Lighthouse	45	54.2	59	57.9	1960.6	26	11.6	72	48.4	16271
Sable Island West	43	56.4	60	02.8	1955.7	24	19.7	71	43.5	17114
Northwest River	53	31.2	60	08.1	1951.5	34	01.7	77	04.8	12440
Hopedale	55	27.1	60	12.0	1960.7	34	56.1	77	36.6	12154
Sydney	46	04.9	60	16.0	1957.6	25	42.0	72	58.4	16045
Ingonish	46	38.8	60	24.4	1951.6	27	04.4	73	31.1	15789
Goose Bay Airport	53	20.0	60	26.5	1851.5	35	44.7	77	17.4	12394
Goose Bay	53	19.7	60	26.5	1960.7	36	11.5	76	59.5	12710
Canso	45	20.0	60	59.5	1951.6	24	39.6	72	46.4	16360
Lac Bastille	51	46.9	61	13.5	1951.6	29	18.0	77	04.7	12812
Inverness	46	14.5	61	16.7	1951.6	26	04.1	73	36.3	15902
Gros Ile	47	36.9	61	30.8	1955.6	26	55.2	74	19.5	15058
Nain	56	32.2	61	41.0	1960.7	38	54.0	78	01.3	11809
Alert, N.W.T.	82	31.0	61	44.0	1959.6	83	10.0	86	02.9	03821
Dominion Lake	52	40.8	61	45.3	1951.7	34	26.4	77	17.7	12364
Amherst	47	14.2	61	49.9	1955.6	26	43.3	74	13.5	15165
Grindstone Island	47	23.5	61	52.1	1955.6	26	18.4	74	15.3	15156
Seal Lake	54	19.4	61	56.0	1951.7	34	05.6	77	37.1	12211
Etang du Nord	47	22.5	61	57.6	1955.6	26	21.5	74	25.2	14995
Millerond	47	13.7	61	59.3	1955.6	26	21.5	74	29.2	14948
Ecum Secum	44	57.8	62	07.4	1951.6	24	13.3	73	02.6	16136
Souris	46	21.1	62	13.9	1951.7	24	52.6	73	50.2	15573
Winokapau Lake	53	09.2	62	38.9	1951.7	33	08.9	77	15.4	12095
Dumbell Bay	82	30.7	62	38.9	1948.6	80	45.3	86	07.3	04032
Padloping	66	57.5	62	47.1	1949.6	55	41.4	82	38.4	04398
Charlottetown	46	14.0	63	07.4	1951.6	24	53.6	74	09.6	15301
Charlottetown B	46	14.0	63	07.4	1957.6	24	33.4	73	50.0	15594
Station No. 44	55	13.2	63	09.6	1951.7	37	05.6	76	18.5	11586
Truro B	45	21.3	63	16.6	1951.6	23	33.8	73	09.3	16207
Truro C	45	21.3	63	16.6	1957.7	23	00.8	72	52.5	16354
Halifax	44	37.3	63	34.2	1951.6	22	33.7	73	13.6	16062
Halifax (Pt. Pleasant)	44	37.3	63	34.2	1957.6	22	26.7	72	54.4	16217
Halifax (Pt. Pleasant)	44	37.3	63	34.2	1960.6	23	03.6	72	42.0	16498
Bedford Basin	44	41.0	63	36.7	1960.6	22	45.9	72	40.0	16529
Summerside	46	24.4	63	46.8	1951.6	24	09.4	74	25.8	15040
Lake Marc	52	29.6	63	52.0	1951.7	29	56.0	76	00.0	14254
Tignish	46	56.4	64	02.1	1951.6	24	56.3	74	59.4	14562
Amherst	45	46.2	64	04.7	1951.5	23	32.5	73	53.5	15584
Zeni Lake	54	53.3	64	07.9	1951.7	35	49.6	78	30.6	11421
Grand Falls	53	37.1	64	16.1	1951.5	27	47.6	77	24.7	12618

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Acadia University	45	06.0	64	22.0	1951.6	22	36.6	73	27.1	15953
Kingsport	45	11.2	64	23.5	1960.7	22	21.6	72	58.1	16425
Gaspé	48	49.9	64	29.5	1951.7	25	44.5	75	35.2	14064
Unknown River	53	28.2	64	38.9	1951.7	29	59.5	77	35.5	12218
Henrietta Lake	57	09.3	64	42.0	1951.6	36	07.3	79	26.6	10491
Indian House Lake	56	14.3	64	44.2	1951.5	36	40.8	79	08.3	10784
Resolution Island	61	18.5	64	44.2	1951.5	44	44.9	81	21.9	08616
Port Burwell	60	24.7	64	51.2	1948.7	39	29.6	80	50.0	09100
Moncton C	46	08.7	64	53.9	1951.5	23	26.8	74	28.7	15142
Fundy Park	45	35.6	64	57.2	1957.6	23	15.4	73	31.2	15989
Shelburne	43	44.8	65	19.8	1957.7	21	14.0	72	54.9	16359
Ossko Manuan Lake	53	25.4	65	20.0	1951.7	33	56.0	78	33.5	11056
Cap Madeleine	49	15.6	65	20.5	1952.6	26	43.4	75	57.0	13921
Annapolis	44	45.0	65	31.2	1951.6	22	08.2	73	31.4	15879
Annapolis Royal	44	45.0	65	31.2	1957.7	21	59.0	73	11.6	16152
Annapolis Royal	44	45.0	65	31.2	1960.7	21	56.6	73	02.0	16352
Dillon Lake	55	05.6	65	39.5	1951.6	34	20.6	78	52.5	11014
Lac Champ Doré	56	05.2	65	42.0	1951.6	32	40.1	79	28.9	10460
Korok River	58	46.0	65	44.0	1951.6	38	46.5	80	27.0	09500
Pangnirtung	66	08.7	65	44.6	1951.6	53	31.4	83	24.1	06622
Lac Girardin	57	58.8	65	59.4	1953.7	36	00.7	80	06.4	10000
McNeil Lake	55	05.6	66	00.0	1951.6	40	20.8	79	03.1	11008
Retty Lake	55	15.0	66	05.0	1951.7	34	12.0	78	57.3	10899
Doaktown	46	33.7	66	07.3	1953.6	23	11.7	74	52.3	14746
St. John, N.W.	45	14.5	66	08.0	1957.7	22	25.4	73	36.0	15870
Marian Lake	56	43.9	66	11.4	1951.6	36	56.0	79	50.1	10133
Marbrella Lake	55	04.6	66	11.5	1951.7	44	14.0	78	53.8	10916
Walsh Lake	55	10.0	66	21.0	1951.7	.....		79	11.9	10698
Seven Islands	50	11.2	66	22.0	1951.7	26	30.8	77	01.2	12974
Walsh Lake	55	12.0	66	22.0	1951.7	20	40.0	79	45.7	10311
Menihek Lake	53	48.7	66	24.5	1951.5	31	48.3	78	37.0	11371
Tonguay Lake	55	03.0	66	25.0	1951.7	.....		79	04.4	10855
Fowler Lake	46	47.0	66	25.0	1957.6	23	25.6	74	44.7	14952
House Lake	56	06.6	66	28.0	1951.6	31	22.7	79	00.2	10955
Montreal Bay	54	56.4	66	31.5	1951.7	34	26.0	79	35.2	10268
Iron Arm Lake	54	54.0	66	36.3	1951.7	24	20.0	78	22.6	11358
Cap-Chat	49	05.9	66	42.0	1952.6	25	07.4	76	17.2	13654
Knob Lake Airport	54	50.5	66	42.5	1951.7	34	23.0	79	05.6	10645
Fredericton	45	59.4	66	44.6	1951.5	22	25.1	74	35.6	15078
Fredericton	45	59.2	66	44.6	1957.6	22	10.2	74	17.4	15321
Dolly Ridge	54	49.2	66	45.4	1951.7	30	27.6	78	49.0	11038
Dolly Ridge B	54	49.2	66	45.4	1951.7	21	00.0	79	47.8	10767
Grand Manan	44	39.7	66	48.4	1953.5	21	24.2	73	26.8	16066
Knob Lake	54	48.4	66	49.4	1951.5	30	26.9	78	22.8	11773
Knob Lake	54	48.4	66	49.4	1953.5	31	00.2	78	14.8	12007
Slimy Beacon	54	48.3	66	51.3	1951.7	25	05.0	77	45.0	11788
Edith Lake	54	46.2	66	52.6	1951.6	24	12.5	76	35.8	12967
Ruth Beacon	54	47.4	66	52.8	1951.7	37	15.0	78	22.0	11325
Matapédia	47	58.5	66	57.8	1951.7	24	03.6	75	50.8	13878
St. Andrews	45	04.0	67	02.5	1953.6	20	52.1	74	07.9	15515
Lac le Prévost	53	25.4	67	12.6	1951.6	30	43.5	78	26.6	11522
Mt. Wright	52	46.0	67	20.0	1951.6	23	30.0	79	52.4	09920
Kedgwick	47	38.5	67	21.0	1953.6	23	17.0	75	34.5	14215
Ste-Croix	45	34.1	67	25.4	1953.6	20	51.1	74	32.1	15087
Matane	48	50.8	67	32.3	1952.6	25	02.3	76	15.1	13755
Wakuach Lake	55	35.6	67	34.6	1951.6	32	32.5	79	45.0	10383
Woodstock C	46	09.2	67	34.7	1951.5	21	17.5	74	55.3	14755
Woodstock	46	09.2	67	34.7	1953.6	21	18.9	74	49.9	14856
Perth	46	43.9	67	42.1	1953.6	22	02.7	75	09.0	14589
Lac Romanat	56	14.4	67	46.0	1951.6	35	55.1	79	44.9	10293
Little Manicouagan Lake	52	01.2	67	46.5	1951.6	27	54.5	78	03.2	11918
Otelnuk Lake	56	01.3	68	03.0	1951.6	34	57.9	79	53.2	10222
Baie-Comeau	49	13.0	68	09.5	1951.6	26	21.6	76	16.3	13712
Beacon Point	58	32.2	68	12.1	1951.6	38	54.9	80	52.1	09238
Eaton Canyon	55	33.6	68	13.0	1951.6	34	23.2	79	34.5	10444

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Station No. 7	53	46.4	68	13.0	1951.5	31	41.7	79	07.0	10932
Otelnuk Lake	56	07.8	68	16.4	1951.5	33	51.6	80	00.8	09976
Fort-Chimo	58	08.6	68	18.1	1951.5	39	14.4	80	36.3	09463
Edmundston	47	22.0	68	20.2	1957.6	22	23.9	75	19.5	14462
Edmundston	47	21.9	68	20.3	1953.6	22	26.2	75	37.3	14202
Lac St-Pierre	50	09.0	68	23.0	1951.6	24	50.3	77	20.4	12576
Chimo	58	06.6	68	25.2	1953.6	40	11.8	80	41.3	09436
Frobisher Bay Airport	63	45.0	68	32.8	1951.7	48	18.5	82	30.4	07559
River Clyde A	70	27.3	68	33.7	1951.6	59	46.9	84	35.8	05397
River Clyde B	70	27.2	68	33.8	1949.7	.....		84	25.6	05477
River Clyde B	70	27.2	68	33.8	1951.6	61	18.0	84	24.5	05599
Bersimis	48	56.1	68	39.2	1952.5	21	41.9	77	13.2	12927
Thule	76	31.8	68	45.0	1948.6	76	32.8	85	32.9	04590
Fort McKenzie	56	49.8	68	57.6	1951.6	38	00.7	80	32.7	09514
Station No. 6	54	43.1	69	02.4	1951.5	30	03.9	79	11.5	10866
Rivière-du-Loup B	47	51.6	69	34.0	1951.7	21	57.2	75	59.7	13962
Forbes Lake	57	17.4	69	50.0	1951.7	36	52.6	80	24.6	09776
Lake Harbour	62	50.7	69	53.4	1951.6	46	55.3	82	49.5	07270
Methy Lake	55	57.8	69	54.8	1951.6	32	49.4	79	53.2	09885
Payne Bay	60	00.8	70	02.1	1953.5	44	03.5	82	05.5	08040
Murray Bay B	47	38.4	70	08.0	1952.6	21	06.1	75	59.3	14010
Murray Bay B	47	38.4	70	08.0	1957.6	20	54.2	75	47.3	14191
Bagotville B	48	20.4	70	52.9	1952.5	21	45.2	77	21.7	12719
Lake Megantic	45	34.1	70	53.2	1951.4	18	27.9	75	12.1	14655
Number Thirteen	59	18.1	70	56.1	1953.6	25	51.0	83	36.3	06544
Larch Lake	57	37.9	71	11.0	1953.6	29	17.6	81	37.3	08645
Quebec B	46	48.0	71	13.2	1951.5	19	29.9	75	31.4	14477
Quebec City B	46	48.0	71	13.2	1957.5	19	11.4	75	19.6	14646
Lac Snafu	60	43.2	71	24.7	1953.6	42	49.1	82	31.8	07673
Wakeham Bay A	61	41.8	71	54.8	1948.7	43	45.7	82	59.0	07078
Wakeham Bay B	61	36.0	71	56.3	1953.6	43	04.7	82	49.0	07305
Ayer's Cliff	45	09.6	72	01.5	1951.4	17	09.6	74	53.6	14969
Ayer's Cliff	45	09.6	72	01.5	1957.5	17	01.5	74	38.6	15172
Roberval B	48	23.1	72	13.6	1952.5	19	49.3	76	47.4	13436
Roberval C	48	31.6	72	12.8	1953.5	19	58.3	76	47.6	13426
Shawinigan Falls B	46	33.8	72	44.9	1951.7	15	55.3	75	52.2	14231
Lac Becard	60	03.0	73	20.5	1953.5	41	37.8	82	28.8	07762
New Quebec Crater No. 2	61	17.3	73	38.3	1953.6	41	49.5	83	21.0	06848
New Quebec Crater No. 3	61	16.0	73	39.4	1953.6	40	17.2	83	47.8	06401
New Quebec Crater No. 1	61	17.8	73	40.4	1953.6	40	09.2	83	18.7	06852
Museum Lake	61	19.3	73	41.1	1953.6	43	35.2	83	21.7	06836
Dune Lake	58	31.2	73	45.0	1953.6	31	43.7	82	13.2	08029
Mistassini Lake	50	27.4	73	53.5	1952.6	20	45.4	78	15.2	11968
Echo L.	45	52.8	74	01.0	1954.6	14	48.6	76	23.4	13657
Huntingdon	45	05.6	74	10.0	1951.4	14	12.8	75	41.7	14511
Huntingdon	45	05.6	74	10.0	1954.6	14	08.3	75	33.7	14635
Huntingdon	45	05.6	74	10.0	1957.5	14	06.3	75	23.7	14785
Huntingdon	45	05.6	74	10.0	1961.9	14	19.7	75	20.0	14824
Pt. au Baudet	45	12.1	74	19.4	1954.5	15	21.1	75	23.7	14664
Lachute	45	40.0	74	20.0	1951.4	15	20.5	75	29.5	14716
Lachute A	45	40.0	74	20.0	1954.5	15	18.8	75	23.1	14819
Lachute A	45	40.0	74	20.0	1957.5	15	14.2	75	17.8	14884
Lachute B	45	39.3	74	20.0	1958.4	15	14.1	75	10.5	15054
Lachute B	45	39.3	74	20.0	1961.9	15	26.5	74	57.7	15212
Chibougamau	49	44.5	74	23.9	1952.5	18	11.9	77	52.1	12408
Alexandria	45	18.3	74	38.0	1954.5	13	55.2	75	12.1	14866
Alexandria	45	18.3	74	38.0	1957.5	13	48.7	.....		15049
Lac à la Culotte	47	21.4	74	38.5	1950.8	15	48.8	76	40.0	13590
Cornwall	45	01.4	74	47.0	1957.5	14	19.2	74	50.4	15338
Pine Lake Depot	47	02.8	74	54.5	1950.8	16	48.1	76	20.8	13772
Carrière Depot	47	28.0	74	57.5	1950.8	16	55.4	76	51.6	13500
Casselman, Ont.	45	19.1	75	04.9	1954.5	14	25.9	75	36.0	14802
Menjo Depot	47	08.2	75	06.7	1950.8	16	01.1	76	21.1	13969
Thurso	45	36.0	75	14.5	1955.7	10	58.1	75	28.4	14637
Lac Couture	60	13.2	75	17.4	1953.6	38	29.2	82	56.5	07298

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Sugluk	62	12.6	75	18.1	1951.5	41	38.9	83	41.0	06484
New Iroquois	44	51.5	75	19.2	1958.4	13	24.7	74	48.0	15216
New Iroquois	44	51.5	75	19.2	1961.9	13	27.0	74	44.8	15245
Ste-Anne-du-Lac A	46	52.7	75	19.7	1950.8	13	13.9	75	24.4	15788
Ste-Anne-du-Lac B	46	52.7	75	19.8	1950.8	14	46.3	75	12.2	15070
Ste-Anne-du-Lac C	46	52.6	75	20.1	1950.8	14	44.4	77	52.6	12540
Mont-Laurier	46	33.5	75	31.1	1950.8	11	22.9	76	19.0	14030
Mont-Laurier	46	33.5	75	31.1	1955.7	11	22.3	76	07.5	14227
Sloe Depot	47	22.5	75	37.3	1950.8	15	01.3	76	58.7	13313
Notre-Dame-du-Laus	46	05.2	75	38.3	1955.7	14	27.3	75	28.0	14523
Ottawa Laboratory	45	23.4	75	42.0	1959.4	13	35.7	75	07.4	14892
Long Island Huts	45	15.2	75	42.8	1958.4	13	08.1	75	22.5	14645
Long Island Huts	45	15.2	75	42.8	1959.4	13	11.3	75	17.5	14640
Long Island Huts	45	15.2	75	42.8	1960.6	13	15.4	75	17.0	14720
Long Island Huts	45	15.2	75	42.8	1961.5	13	10.5	75	13.5	14774
Ottawa Dom. Obs	45	23.7	75	43.0	1952.4	14	21.7	75	24.5	14612
Poltimore	45	47.2	75	43.2	1955.7	13	48.1	75	50.3	14287
Alexandra Fiord	78	53.8	75	45.9	1954.6	101	39.0	86	38.4	03291
Chukotat L.	61	22.0	75	49.2	1953.6	38	15.7	83	19.8	06835
Maniwaki	46	22.7	75	58.8	1950.8	13	45.2	75	58.8	13948
Kazabazua	45	57.0	76	01.0	1950.8	12	43.7	75	43.4	14441
La Croix Depot	46	43.1	76	01.2	1950.8	14	29.9	76	15.2	13980
Richmond Gulf	56	06.6	76	04.0	1952.5	27	10.6	81	39.1	08654
Trout Depot	47	23.6	76	06.8	1950.8	14	36.7	76	51.0	13381
Twin Glaciers	78	49.7	76	13.0	1953.6	103	54.5	86	36.7	03315
Denbigh	45	08.1	76	16.5	1955.6	10	42.9	75	14.4	14839
Christie Lake	44	48.7	76	26.1	1954.7	12	09.8	74	49.7	15169
Perth Road	44	27.8	76	30.0	1955.6	07	18.3	75	58.5	13901
O'Connell Lodge	47	03.1	76	31.8	1950.9	14	06.1	76	41.8	13539
Cape Dorset B	64	14.0	76	32.5	1951.6	47	23.9	84	41.1	05425
Sydenham Lake	44	25.1	76	32.9	1955.6	08	06.6	76	11.1	13894
Cape Dorset A	64	13.6	76	34.0	1950.6	49	12.0	84	41.9	05422
Holleford Crater	44	28.0	76	37.0	1960.5	12	20.5	74	29.2	15475
Holleford Jct	44	28.3	76	37.5	1956.8	12	16.1	74	41.5	
Beachburg	45	44.8	76	51.6	1955.6	11	51.9	75	52.4	14341
Kirk Cove	44	48.4	76	58.5	1954.7	10	20.9	75	31.3	14648
Tweed B	44	30.1	77	18.6	1955.6	12	41.7	75	11.1	14809
Belleville B	44	07.1	77	22.6	1953.5	10	20.1	74	44.8	15137
Wolstenholme	62	31.9	77	23.9	1948.7	.....		84	12.0	
Combermere	45	21.0	77	36.6	1954.5	10	39.3	75	30.6	14696
Great Whale River	55	16.6	77	46.2	1952.5	20	48.5	81	08.6	09204
Bancroft B	45	04.7	77	52.4	1955.6	09	35.3	75	59.8	14190
Bancroft B	45	04.7	77	52.4	1958.4	09	34.6	75	54.4	14315
Ivugivik	62	25.6	77	53.5	1951.5	42	48.9	85	03.1	05103
Pond Inlet	72	41.7	77	58.3	1948.6	.....		86	25.0	03619
Pond Inlet	72	41.7	77	58.3	1951.7	79	10.7	86	26.6	03554
Mount Julian	44	33.8	78	06.0	1954.6	10	37.6	75	05.7	15108
Port Harrison	58	26.5	78	08.3	1951.6	31	08.0	82	59.1	07681
Whitney	45	29.5	78	14.3	1954.6	10	19.9	75	27.3	14587
Cape Smith	60	44.3	78	28.2	1951.6	34	09.3	83	43.7	06433
Brent	46	01.8	78	28.4	1956.5	10	29.7	76	00.0	14192
Source Lake	45	34.1	78	38.3	1954.6	06	47.9	76	33.0	13823
Taschereau	48	40.2	78	41.1	1950.9	13	10.0	77	45.4	12575
Mattawa C	46	19.5	78	42.7	1950.9	10	27.1	76	30.3	13764
Rupert's House	51	29.2	78	44.9	1952.6	16	53.3	79	29.3	10882
Belcher Islands	56	12.1	78	52.5	1952.5	21	37.5	81	49.1	08516
Fort George	53	49.8	78	59.5	1952.5	20	14.6	80	58.0	09571
Fox Point	45	15.7	78	59.8	1954.6	08	50.5	75	28.6	14655
Fox Point	45	15.7	78	59.8	1956.5	08	52.2	75	23.4	14788
Huntsville	45	21.5	79	13.0	1956.5	09	48.5	75	33.7	14502
Agincourt	43	47.0	79	16.0	1948.5	07	22.8	74	44.7	15355
Agincourt	43	47.0	79	16.0	1949.5	07	21.1	74	43.4	15362
Agincourt	43	47.0	79	16.0	1950.5	07	22.0	74	41.1	15430
Agincourt	43	47.0	79	16.0	1951.5	07	17.2	74	40.0	15419
Agincourt	43	47.0	79	16.0	1952.5	07	15.7	74	38.2	15445

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Agincourt	43	47.0	79	16.0	1953.5	07	15.2	74	35.9	15487
Agincourt	43	47.0	79	16.0	1954.5	07	16.0	74	33.8	15522
Agincourt	43	47.0	79	16.0	1955.5	07	16.4	74	31.3	15562
Agincourt	43	47.0	79	16.0	1956.5	07	16.8	74	29.4	15601
Agincourt	43	47.0	79	16.0	1957.5	07	19.1	74	26.8	15642
Agincourt	43	47.0	79	16.0	1958.5	07	19.7	74	24.2	15686
Agincourt	43	47.0	79	16.0	1959.5	07	18.8	74	21.2	15739
Agincourt	43	47.0	79	16.0	1960.5	07	19.7	74	18.1	15797
Agincourt	43	47.0	79	16.0	1961.5	07	19.7	74	13.8	15864
Kashi Lake	44	51.2	79	18.1	1954.6	06	55.8	76	40.4	14288
Sundridge	45	44.0	79	24.2	1954.6	09	24.0	75	59.0	14283
North Bay B	46	19.8	79	24.7	1954.9	12	17.3	76	42.4	13765
North Bay C	46	19.8	79	24.7	1956.5	09	40.7	76	39.3	
Minett	45	09.9	79	38.9	1954.6	08	28.9	75	23.0	14773
New Liskeard C	47	28.0	79	39.0	1956.5	09	50.7	77	02.2	13260
New Liskeard A	47	30.6	79	40.4	1950.9	10	09.1	77	14.3	13068
New Liskeard B	47	30.6	79	40.8	1954.9	10	01.4	77	06.5	13180
Larder Lake	48	06.0	79	43.0	1950.7	12	40.9	77	54.5	12386
Restoule	46	02.9	79	43.7	1954.6	09	32.0	75	52.6	14375
Burlington	43	20.5	79	50.0	1953.5	07	01.1	74	18.1	15840
Wasaga Beach	44	31.9	80	00.8	1954.6	07	53.9	75	12.3	15006
Wasaga Beach	44	31.9	80	00.8	1956.8	07	58.7	75	08.3	
Wasaga Beach	44	31.9	80	00.8	1958.7	07	52.4	75	01.8	15140
Moose Factory	51	15.0	80	36.6	1952.6	17	49.8	80	09.0	10551
Owen Sound	44	33.8	80	56.0	1953.5	07	10.8	75	04.6	15105
Sudbury E	46	30.0	80	57.2	1956.5	.....				14013
Sudbury C	46	30.9	80	58.6	1958.6	08	23.5	75	57.0	14372
Sudbury D	46	31.0	80	59.0	1956.5	08	35.8	76	05.0	14270
Craig Harbour	76	11.9	81	01.8	1951.7	90	21.6	87	49.6	02220
Craig Harbour	76	11.8	81	01.8	1953.6	.....		87	50.6	02195
Craig Harbour	76	11.9	81	01.8	1954.6	86	30.0	87	47.8	02238
Cochrane B	49	04.2	81	01.9	1950.7	10	28.4	78	05.6	12303
Cochrane B	49	04.2	81	01.9	1952.7	10	21.7	78	01.8	12399
Cochrane B	49	04.2	81	01.9	1954.9	10	21.6	77	57.5	12423
Cochrane B	49	04.2	81	01.9	1956.5	10	11.5	77	52.8	12546
Timmins B	48	28.6	81	19.8	1954.9	.....		77	43.7	12660
Fort Albany	52	14.3	81	36.7	1952.6	12	33.6	79	48.4	10672
Tobermory	45	15.4	81	40.5	1953.5	08	21.2	75	26.0	14928
Tobermory	45	15.4	81	40.5	1961.7	8	39.5	75	07.5	15204
Goderich B	43	44.9	81	42.9	1953.5	05	39.4	74	27.2	15749
Igloolik	69	22.5	81	48.1	1949.6	61	12.4	86	49.1	03238
Ten-Mile Point	45	52.5	81	51.5	1953.5	06	20.7	76	20.3	13976
Ten-Mile Point	45	52.5	81	51.5	1956.5	06	09.9	76	15.8	14029
Attawapiskat	52	55.2	82	25.9	1952.6	12	46.0	80	25.2	10051
Dundas Harbour	74	31.2	82	36.0	1951.7	95	59.0	86	55.6	03098
Dundas Harbour	74	31.2	82	36.0	1954.6	90	42.0	87	01.0	03000
Essex B	42	10.4	82	49.4	1953.5	02	51.3	73	18.5	16761
Cape Joy	73	38.5	82	57.6	1954.6	81	36.0	87	20.0	02610
Meldrum Bay	45	55.6	83	07.2	1953.5	04	43.9	76	26.3	13815
Meldrum Bay	45	55.6	83	07.2	1956.5	04	44.5	76	20.7	13887
Southampton Island	64	07.8	83	10.9	1948.7	40	06.6	80	49.9	04449
Southampton Island	64	07.8	83	10.9	1951.6	37	42.6	85	33.5	04639
Coral Harbour Airport	64	11.4	83	21.5	1950.6	28	46.1	86	09.8	03957
Croker Bay	74	38.5	83	22.8	1954.6	83	36.0	87	17.0	02700
Hearst C	49	41.1	83	40.1	1950.7	08	18.5	78	31.4	11954
Hearst C	49	41.1	83	40.1	1952.7	08	10.2	78	28.9	12008
Hearst C	49	41.4	83	40.1	1954.9	8	14.1	78	27.0	11964
Hearst C	49	41.1	83	40.1	1956.6	08	04.7	78	22.1	12111
Sault Ste. Marie B	46	30.0	84	18.0	1952.6	04	37.1	76	41.8	13782
Sault Ste. Marie B	46	30.0	84	18.0	1956.8	04	28.4	76	35.0	
Sault Ste. Marie C	46	30.0	84	18.0	1961.7	4	33.3	76	22.5	14051
Big Lake	53	01.4	84	49.2	1952.6	09	00.1	80	39.8	09864
Arctic Bay	73	02.4	85	11.9	1951.7	84	16.0	87	29.4	02533
Weenusk (HBC Post)	55	15.7	85	12.0	1952.6	12	02.8	82	15.0	08180
Ogoki Trading Post	51	38.4	85	56.2	1952.6	05	49.5	80	03.1	10439

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Repulse Bay	66	33.0	86	12.7	1949.6	40	19.4	.....		03170
Repulse Bay B	66	32.8	86	12.7	1949.6	40	17.2	86	56.7	03168
Hobhouse Inlet	74	27.1	86	15.0	1949.6	85	40.4	87	55.4	02089
Berlinguette Inlet	71	02.8	86	28.0	1949.6	67	21.2	87	26.5	02613
Longlac B	49	45.8	86	33.0	1952.6	02	59.7	78	23.5	12172
Nakina	50	10.3	86	43.0	1952.6	03	36.7	78	56.8	11554
Schreiber B	48	49.0	87	15.5	1952.6	02	37.5	77	55.3	12551
Fort Severn (HBC)	56	00.0	87	37.0	1952.6	06	56.3	82	42.6	07771
Lansdowne House	52	13.5	87	52.6	1952.6	04	15.4	80	06.1	10433
Fort Hope	51	33.6	87	59.6	1952.6	05	38.7	80	35.1	09854
Nipigon	49	00.6	88	16.0	1952.6	00	17.9	78	01.6	12545
Silver Islet	48	20.0	88	49.5	1956.6	01	02.6	77	36.2	12949
Armstrong	50	18.0	89	02.0	1952.6	01	00.3	79	08.0	11532
						East				
Twin City Jct. C	48	22.3	89	25.0	1950.7	01	18.3	77	33.3	12998
Twin City Jct. C	48	22.3	89	25.0	1952.6	01	19.7	77	28.6	13123
Twin City Junction	48	22.3	89	25.0	1956.6	01	22.4	77	21.6	13194
Twin City Junction	48	22.3	89	25.0	1958.5	01	24.0	77	18.5	13260
Twin City Junction	48	22.3	89	25.0	1961.5	01	20.5	77	10.0	13375
Pigeon River	48	00.8	89	42.1	1956.8	04	01.0	77	58.5	
Pigeon River	48	00.8	89	42.1	1961.7	03	58.5	77	49.5	12548
						West				
Pelly Bay	68	32.1	89	48.8	1949.6	45	23.9	87	51.7	02226
Big Trout Lake	53	8.9	89	53.2	1952.6	03	46.7	81	05.7	09354
						East				
Upsala	49	02.2	90	27.7	1952.6	02	32.3	77	40.7	12958
Savant Lake	50	14.0	90	42.8	1952.6	02	13.0	78	23.8	12247
						West				
Wager Bay	65	55.6	90	48.6	1949.6	19	48.5	87	19.4	02803
						East				
Ignace B	49	25.1	91	40.7	1952.6	04	06.3	78	00.9	12626
Ignace B	49	25.1	91	40.7	1956.6	04	08.0	77	52.2	12762
						West				
Beechy Island	74	42.9	91	47.5	1949.6	94	51.1	88	35.4	01442
Beechy Island	74	42.9	91	47.5	1954.6	90	24.0	88	35.8	01411
Union Bay	74	44.5	91	50.8	1949.6	93	42.9	88	37.3	01387
						East				
Sioux Lookout C	50	04.8	91	55.4	1952.6	01	49.5	78	01.0	12491
Dryden	49	47.4	92	49.4	1950.7	06	22.9	78	49.3	11629
Dryden A	49	47.4	92	49.4	1952.6	06	22.4	78	46.3	11711
Dryden B	49	47.4	92	49.4	1956.6	06	20.5	78	37.0	11825
Fort Frances B	48	37.5	93	21.0	1956.8	04	54.0	76	58.3	
						West				
Spence Bay	69	32.5	93	32.0	1949.6	46	38.3	88	53.9	01137
Cunningham Inlet	74	06.0	93	45.0	1949.6	90	57.9	88	52.1	01138
Union River	72	46.6	93	57.0	1949.6	73	23.4	88	59.9	01019
						East				
Eskimo Point	61	07.2	94	02.0	1950.5	00	42.3	85	00.2	05332
Churchill Airport	58	45.2	94	04.5	1950.6	02	26.5	83	59.1	06385
Churchill Airport	58	45.2	94	04.5	1951.6	02	55.0	83	57.3	06444
Churchill C	58	47.2	94	11.4	1948.7	02	43.7	83	57.4	06431
Churchill C	58	47.2	94	11.4	1950.6	02	57.6	83	50.5	06519
Churchill C	58	47.2	94	11.4	1951.6	03	42.1	83	47.9	06603
Churchill (Cape Merry)	58	47.2	94	11.4	1958.6	02	15.0	83	40.3	06732
Churchill (Cape Merry)	58	47.2	94	11.4	1959.4	03	43.0	83	32.8	06860
Churchill B	58	44.7	94	14.5	1950.6	03	44.8	83	52.3	06520
Kenora C	49	46.2	94	28.0	1956.6	06	42.0	77	40.3	12982
Rainy River B	48	43.3	94	35.0	1956.8	07	09.6	76	58.6	

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						West				
Resolute Bay	74	41.4	94	53.4	1954.6	96	48.1	89	07.6	00879 (57712)*
Resolute Bay B	74	41.4	94	53.4	1958.6	94	32.2	89	10.3	00839 (58078)*
Barrow Harbout	76	36.4	95	37.0	1949.6	118	53.4	88	51.3	01148
Pasley Bay	70	42.0	95	53.1	1948.6	24	49.7	88	59.1	01046
Lake Franklin	66	52.9	96	05.7	1949.6	07	08.0	88	01.0	02075
						East				
Padlei	61	54.5	96	40.0	1950.5	07	30.8	85	18.9	04941
Selkirk A	50	08.8	96	52.7	1950.7	08	36.5	77	50.8	12763
Selkirk B	50	08.7	96	52.7	1956.7	08	39.9	77	42.3	13054
Selkirk B	50	08.7	96	52.7	1961.5	08	42.8	77	31.5	13074
Emerson C	49	00.2	97	12.0	1950.7	08	53.5	76	56.4	13646
Emerson C	49	00.2	97	12.0	1956.7	08	49.2	76	45.7	
Norway House	53	59.0	97	50.2	1961.5	09	45.7	80	14.6	10442
Cape Svene Decca	78	48.1	98	10.2	1960.6	121	23.0			
Gladstone	50	13.3	98	57.2	1950.7	11	26.0	77	43.2	12898
Nueltin Lake	60	02.2	99	49.6	1949.5	13	18.2	83	50.6	03804
Brandon B	49	52.0	99	58.8	1950.7	12	16.7	77	15.3	13412
Brandon A	49	52.0	99	58.8	1953.6	12	13.6	77	08.5	13526
Brandon A	49	52.0	99	58.8	1956.7	12	15.5	77	04.3	13532
Brandon B	49	52.0	99	58.8	1958.7	12	08.1	76	59.6	13611
Brandon B	49	52.0	99	53.8	1961.5	12	11.5	76	54.0	13757
						West				
Meighen Island	80	00.2	100	00.2	1960.4	152	30.4	88	53.7	01094
						East				
Peace Gardens	49	00.0	100	03.5	1953.6	12	16.8	76	29.5	14151
Peace Gardens	49	00.0	100	03.5	1959.7	12	00.0	76	22.7	
Dauphin	51	09.0	100	04.0	1950.7	12	12.6	78	03.7	12697
Ommaney Bay	73	15.7	100	21.0	1949.6	46	26.7	89	46.0	00238
Pelly Lake	65	54.7	100	45.6	1949.6	18	10.7	87	02.3	03122
Lynn Lake	56	51.4	101	02.5	1961.5	13	37.6	81	12.0	09337
The Pas Airport	53	58.0	101	05.6	1949.5	14	13.5	79	53.4	10911
The Pas B	53	50.0	101	14.0	1961.5	14	48.4	79	23.0	11246
Swan River B	52	06.8	101	15.5	1950.7	15	06.0	78	47.5	11914
Swan River C	52	06.8	101	15.6	1961.6	15	07.2	78	25.5	12280
Internat. Boundary No. 672A	49	00.0	101	17.9	1953.6	13	40.7	76	09.8	14433
Dubawnt Lake	62	42.7	101	23.3	1949.5	17	54.9	85	18.1	05013
Pell Inlet	75	54.4	102	15.4	1948.6	168	20.0	89	41.1	00386
Estevan	49	08.8	102	59.2	1950.4	15	03.2	76	03.7	14520
Estevan	49	08.8	102	59.2	1953.6	15	00.1	75	58.5	14549
Estevan	49	08.8	102	59.2	1956.7	14	48.6	75	54.3	14675
Sherwood Lake	60	53.7	103	21.5	1950.5	21	14.9	83	50.7	06585
						West				
Isachsen, Deer Bay	78	46.8	103	32.5	1959.4	166	00.0	89	20.0	00700 (57104)**
Isachsen, Base Camp	78	47.3	103	39.3	1960.5	165	45.0	89	20.4	00554 (57150)
Shoran Hill	78	46.4	103	40.4	1960.5	167	41.2	89	30.2	00521 (59425)
						East				
Internat. Boundary No. 565	49	00.0	104	34.1	1953.6	15	56.2	75	27.6	15125
Melfort B	52	51.5	104	37.7	1950.7	17	24.1	78	41.0	11967
Lac la Ronge	55	06.2	105	17.5	1956.7	19	24.1	79	48.5	10812
Watrous	51	43.5	105	28.0	1953.6	17	09.4	77	25.5	13254
Watrous	51	43.5	105	28.0	1956.6	17	02.3	77	22.4	13375
Prince Albert B	53	11.7	105	48.8	1950.7	19	40.6	78	56.8	11716
Prince Albert	53	11.7	105	48.8	1956.6	19	14.2	78	47.5	11877
Prince Albert	53	11.7	105	48.8	1959.7	19	09.5	78	46.1	
Internat. Boundary No. 522	49	00.0	105	56.6	1953.6	16	39.6	75	11.0	15286
Assiniboia	49	38.2	105	59.1	1956.7	16	32.6	75	29.0	15300
Waskesiu	53	55.6	106	05.0	1956.7	19	02.4	78	48.4	11822
King Game Lake	72	27.0	106	15.0	1948.6	48	30.0	88	36.8	01414
Saskatoon (Campus)	52	08.1	106	38.3	1953.5	20	10.7	77	11.5	13418

*Z. See last para. of Introduction.
**Vertical intensity.

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						East				
Saskatoon (Campus)	52	08.1	106	38.3	1956.6	20	01.4	77	08.0	13512
Chaplin C	50	27.5	106	39.2	1950.7	18	21.4	76	25.6	14171
Spitfire Lake	63	52.5	107	44.5	1950.5	27	30.6	83	02.5	07349
Swift Current	50	16.3	107	48.0	1950.7	18	36.3	76	06.9	14520
Swift Current	50	16.3	107	48.0	1956.7	18	16.4	75	53.5	14555
Swift Current	50	16.3	107	48.0	1959.5	18	10.4	75	47.0	14712
Internat. Boundary No. 463	49	00.0	107	50.7	1953.6	18	26.9	77	54.1	15532
Bathurst Inlet	66	50.0	107	56.4	1948.6	26	24.0	86	06.7	04108
Rosetown	51	33.8	107	59.7	1950.7	20	02.7	76	49.6	13811
Rosetown C	51	33.7	108	00.2	1958.5	19	43.7	76	36.0	13954
Battleford	52	43.6	108	18.0	1950.7	20	06.8	77	27.8	13142
Bridport Inlet	74	58.5	108	29.2	1954.7	70	30.0	88	53.6	01118
Cypress Hills	49	39.6	109	31.5	1953.6	19	36.0	74	59.7	15450
Mantario	51	13.8	109	43.1	1956.7	20	09.1	76	18.3	14223
Mantario	51	13.8	109	43.1	1958.7	20	02.4	76	16.8	14227
Willow Creek	49	00.0	109	45.3	1953.6	18	54.4	74	27.4	15893
Lloydminster A	53	17.4	110	00.0	1950.7	22	07.1	77	52.5	12714
Cape Malloch	78	45.8	110	24.3	1960.4	111	55.8	89	18.8	00688 (57421)†
Mackenzie King Island	77	32.5	110	27.5	1960.6	104	22.5	89	05.2	00915 (57760)†
Dunmore	49	58.5	110	35.6	1950.6	19	34.5	75	09.7	15337
Bonnyville	54	16.1	110	44.6	1952.7	22	44.3	78	00.5	
Liddon Gulf	75	16.9	111	05.8	1948.6	79	36.7	88	46.8	01328
Coronation	52	06.5	111	26.8	1950.6	21	34.5	76	20.9	14237
Coutts No. 335	49	00.0	111	56.1	1953.6	20	01.8	73	43.4	16540
Coutts No. 335	49	00.0	111	56.1	1961.7	20	08.0	73	31.0	16725
Prince Albert Sound	70	17.3	111	56.5	1949.6	50	01.4	86	40.4	03453
Lac la Biche B	54	49.4	112	05.0	1950.5	25	15.9	78	13.9	12346
Lac la Biche Mission	54	49.4	112	05.0	1952.7	24	56.4	78	18.0	
Boyle	54	35.8	112	48.0	1950.5	25	01.1	77	59.7	12505
Boyle	54	35.8	112	48.0	1954.8	24	41.3	77	55.0	12554
Donatville	54	44.9	112	48.5	1950.5	24	30.2	77	00.4	12576
Bruderheim	53	48.6	112	55.8	1950.6	23	54.3	77	22.7	13158
Newbrook	54	20.1	112	56.6	1950.5	24	26.9	77	46.4	12797
Newbrook	54	20.1	112	56.6	1954.7	24	04.5	77	42.8	12859
Gleichen	50	52.2	113	03.3	1950.6	22	03.4	75	16.7	15271
Gleichen	50	52.2	113	03.3	1953.7	21	49.6	75	13.3	15263
Gleichen	50	52.2	113	03.3	1959.6	21	32.4	75	07.0	
R.C. Church (Boyle)	54	35.1	113	07.2	1950.5	24	45.3	77	40.7	12876
Thorhild	54	09.7	113	07.6	1950.5	24	44.4	77	39.9	12910
Athabasca	54	44.3	113	13.2	1950.5	24	55.6	77	50.6	12699
Athabasca	54	44.3	113	13.2	1952.5	24	45.1	77	47.9	12752
Athabasca B	54	44.3	113	13.2	1953.5	24	46.2	77	47.3	12736
Athabasca B	54	44.3	113	13.2	1958.5	24	21.4	77	42.2	12790
Colinton	54	37.2	113	14.7	1950.6	25	07.2	77	45.2	12761
Big Coulee School	54	52.8	113	16.7	1950.6	24	42.3	77	50.8	12688
Cardston	49	11.2	113	19.7	1950.6	21	19.7	74	12.7	16175
South Athabasca School	54	39.7	113	19.8	1950.5	24	41.8	77	46.1	12779
South Athabasca School	54	39.7	113	19.8	1954.7	24	20.9	77	43.1	12787
Meanook (Observatory)	54	37.0	113	20.0	1948.5	24	57.7	77	48.1	12811
Meanook (Observatory)	54	37.0	113	20.0	1949.5	24	52.2	77	47.5	12813
Meanook (Observatory)	54	37.0	113	20.0	1950.5	24	45.8	77	45.6	12841
Meanook (Observatory)	54	37.0	113	20.0	1951.5	24	45.7	77	44.6	12872
Meanook (Observatory)	54	37.0	113	20.0	1953.6	24	36.4	77	40.0	12855
Meanook (Observatory)	54	37.0	113	20.0	1957.5	24	23.1	77	36.4	12921
Meanook (Observatory)	54	37.0	113	20.0	1958.5	24	19.4	77	35.5	12942
Meanook (Observatory)	54	37.0	113	20.0	1959.5	24	13.0	77	34.1	12960
Meanook (Observatory)	54	37.0	113	20.0	1960.5	24	09.7	77	32.5	12985
Meanook (Observatory)	54	37.0	113	20.0	1961.5	24	06.0	77	30.1	13022
Meanook Stn. B	54	36.9	113	20.5	1958.6	24	12.3	77	34.7	12864
Meanook Stn. C	54	37.0	113	20.9	1959.6	24	07.2	77	35.1	12960
Meanook C	54	37.0	113	20.9	1961.7	24	07.6	77	31.5	13000
Perryvale A	54	28.5	113	22.5	1950.6	25	11.9	77	39.9	12850
Perryvale B	54	28.5	113	22.7	1954.7	24	52.0	77	36.0	12914

†Vertical Intensity.

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						East				
Macleod	49	42.1	113	24.0	1950.6	21	34.0	74	24.2	15991
Macleod	49	42.1	113	24.0	1953.6	21	22.0	74	18.2	16038
Macleod RCMP Stn	49	42.0	113	24.0	1958.7	21	13.3	74	13.9	16040
Bon Accord	53	49.8	113	25.0	1950.6	25	21.9	77	13.5	13284
Rochester	54	22.6	113	27.0	1950.6	25	43.8	77	32.2	12922
George Lake School	54	35.2	113	27.5	1950.5	24	51.3	77	40.3	12857
Tawatina	54	18.1	113	29.4	1950.6	25	24.0	77	40.6	12824
Lahaieville	54	49.2	113	32.2	1950.5	25	14.4	77	47.5	12738
Richard Collinson Inlet	72	38.6	113	40.0	1948.6	60	53.5	87	26.1	02636
Dapp-Rochester	54	21.2	113	40.7	1950.5	24	56.4	77	35.1	12890
Lacombe A	52	27.6	113	45.0	1950.6	23	25.5	76	16.5	14218
Lacombe B	52	27.6	113	45.0	1953.7	23	10.6	76	11.4	14257
Lacombe B	52	27.6	113	45.0	1958.7	22	48.4	76	07.5	14275
High River	50	34.4	113	53.0	1950.6	22	19.8	75	03.2	15442
High River	50	34.4	113	53.0	1954.8	21	57.4	74	57.5	15515
Waterton Park	49	03.8	113	54.4	1953.6	22	10.6	73	35.0	16731
Waterton Park	49	03.8	113	54.4	1961.7	21	49.0	73	24.0	16884
Dapp	54	20.7	113	55.4	1950.5	24	17.1	77	30.5	12980
Fawcett	54	32.3	114	02.0	1950.5	24	43.1	77	51.7	12704
Yellowknife	62	28.6	114	26.3	1958.6	32	10.0	82	27.7	07865
Wabamun B	53	33.7	114	27.2	1950.6	24	25.0	77	06.8	13406
Wabamun B	53	33.7	114	27.2	1954.8	23	51.8	77	01.9	13514
Rocky Mountain House	52	22.4	114	53.6	1950.6	24	20.2	75	53.9	14614
Russell Point	73	26.9	115	25.2	1954.7	61	57.0	87	20.0	02719
Banff C	51	10.7	115	34.2	1950.6	23	48.5	74	49.7	15547
Banff C	51	10.7	115	34.2	1953.7	23	48.6	74	45.0	15625
Banff C	51	10.7	115	34.2	1959.5	23	28.2	74	36.8	15744
Faust B	55	19.0	115	36.5	1958.6	25	49.0	77	34.3	12880
Faust	55	19.0	115	36.5	1950.5	26	21.2	77	46.0	12709
Cranbrook C	49	31.0	115	46.5	1953.7	22	24.1	73	19.0	16831
Cranbrook D	49	31.0	115	46.5	1959.5	22	10.2	73	10.0	16938
Hay River Airport	60	50.4	115	46.7	1952.7	32	03.6	81	18.3	09117
Radium	50	38.1	116	01.5	1954.8	23	10.5	74	08.4	16163
Fort Vermilion	58	23.1	116	02.0	1952.7	31	25.2	79	52.6	10728
Boffa Lake	69	39.8	116	11.2	1948.6	48	45.2	85	52.7	04284
Edson	53	35.5	116	25.4	1950.6	26	08.9	76	28.5	14031
Edson	53	35.5	116	25.4	1954.5	25	53.4	76	23.7	14104
Porthill No. 207	49	00.0	116	29.9	1953.7	21	45.2	72	45.8	17201
Porthill No. 207	49	00.0	116	29.9	1959.5	21	26.5	72	45.2	17276
Columbia Icefields	51	58.6	116	53.7	1954.5	23	49.2	75	01.3	15342
Alberta-NWT Boundary	60	00.0	116	59.7	1952.7	32	09.1	80	19.7	10198
Valleyview	55	03.4	117	15.2	1952.7	26	44.1	77	06.5	
Peace River B	56	13.8	117	15.7	1952.7	28	12.0	78	02.3	12545
Peace River Crossing	56	13.8	117	15.8	1950.5	28	23.9	78	03.4	12483
Peace River Crossing	56	13.8	117	15.8	1958.6	28	00.4	77	52.0	12750
Keg River	57	44.9	117	37.8	1952.7	29	58.6	79	01.8	11531
Upper Hay River	59	02.4	117	42.1	1952.7	32	35.4	79	42.7	10788
Jasper B	52	53.5	118	04.0	1950.6	25	04.5	75	22.2	14995
Jasper C	52	53.5	118	04.0	1954.5	24	53.9	75	16.7	15048
Dunvegan	55	55.5	118	35.2	1950.5	27	58.2	77	58.2	12625
Dunvegan	55	55.5	118	35.2	1952.7	27	42.3	77	59.6	
Grande Prairie B	55	11.4	118	47.2	1952.7	25	44.7	76	41.7	13841
Grande Prairie B	55	11.4	118	47.2	1958.6	25	28.1	76	36.2	13915
Grande Prairie A	55	11.5	118	47.4	1952.7	25	44.7	76	42.8	13841
Grande Prairie A	55	11.5	118	47.4	1950.5	26	00.9	76	42.7	13797
Midway	49	00.5	118	46.8	1953.6	22	27.6	72	06.8	17795
Midway	49	00.5	118	46.8	1959.5	22	12.3	71	59.8	17905
Sawmill Bay	65	44.2	118	55.6	1949.6	41	47.1	83	19.7	06959
Sicamous B	50	50.3	118	58.4	1954.5	23	45.2	73	38.4	16484
Castel Bay	74	08.0	119	13.0	1948.6	61	35.3	87	04.6	02981
Vernon	50	16.8	119	16.2	1954.6	23	22.0	73	09.3	16854
Kelowna	49	53.6	119	28.0	1954.7	23	16.1	72	55.7	16922
Tete Jaune	52	58.6	119	29.3	1954.5	25	34.0	75	03.1	15236
Penticton	49	29.5	119	35.5	1954.7	23	54.0	72	26.7	17520
Penticton C	49	29.5	119	35.5	1959.5	23	41.4	72	20.0	17611

Magnetic Observations—Continued

Station	Lat.		Long.		Date	Declination Value		Inclination Value North		Horizontal Intensity Value
	°	′	°	′		°	′	°	′	γ
						East				
Penticton B	49	19.0	119	37.5	1959.6	22	38.0	72	10.7	17710
Penticton Astrophysical Site	49	19.0	119	37.5	1961.6	22	32.2	72	07.1	17766
McBride	53	18.1	120	10.0	1954.6	26	08.1	75	00.6	15273
Dawson Creek, B	55	46.8	120	16.7	1958.6	28	31.3	76	45.2	13631
Kamloops C	50	40.8	120	20.0	1954.6	23	35.6	73	03.4	16795
Dawson Creek A	55	45.8	120	23.5	1952.5	29	06.1	76	47.4	13587
Bridge Lake	51	29.0	120	41.4	1954.7	23	44.5	73	44.3	16267
Fort St. John C	56	15.6	120	52.7	1952.7	28	37.7	77	15.9	13144
Fort St. John C	56	15.6	120	52.7	1958.6	28	08.3	77	08.4	13225
Fort Simpson	61	52.3	121	21.0	1958.6	34	01.8	80	39.3	09743
Hope	49	22.8	121	26.6	1954.7	23	44.0	71	57.0	17785
Hope B	49	22.8	121	26.6	1961.4	23	00.5	71	49.6	17875
Lytton	50	14.2	121	34.3	1954.7	24	55.9	72	12.4	17689
Clinton	51	05.5	121	35.4	1954.6	24	44.5	73	10.5	16772
Clinton	51	05.5	121	35.4	1959.6	24	28.4	73	06.0	16834
Little Prairie	55	41.6	121	38.0	1952.7	28	50.1	76	31.4	13931
Little Prairie	55	41.6	121	38.0	1958.6	28	33.3	76	24.8	14000
De Salis Bay	71	29.1	121	42.5	1954.7	52	58.0	85	38.7	04445
De Salis Bay B	71	30.4	121	47.8	1948.6	53	09.4	85	35.9	04515
Williams Lake	52	07.3	122	08.2	1954.6	25	18.0	73	53.0	16258
Huntingdon BC	49	00.0	122	13.7	1954.7	22	20.2	71	26.4	18401
Huntingdon BC	49	00.0	122	13.7	1961.7	21	58.5	71	18.2	18506
Quesnel B	52	58.9	122	31.5	1954.6	26	28.5	74	33.4	15640
Beatton River	57	05.1	122	34.7	1952.6	31	07.4	77	15.3	13151
Fort Nelson	58	49.8	122	35.4	1952.6	32	15.2	78	22.6	11993
Fort Nelson	58	49.8	122	35.4	1958.6	31	49.9	78	15.4	12074
Prince George South	53	54.6	122	45.0	1954.5	26	33.9	74	57.8	15179
Prince George South	53	54.6	122	45.0	1959.6	26	16.4	74	57.5	15172
Fort McLeod	54	56.9	122	59.6	1954.5	27	48.0	75	46.6	14428
North Vancouver	49	19.6	123	05.5	1954.7	23	29.4	71	43.4	18176
North Vancouver B	49	19.6	123	05.5	1961.7	22	32.3	71	35.6	18284
Alexis Creek	52	05.1	123	17.0	1954.6	25	05.4	73	51.6	16133
Victoria (Mt. Douglas)	48	29.3	123	19.9	1954.6	23	09.2	70	44.3	18690
Victoria (Mt. Douglas)	48	29.3	123	19.9	1959.5	22	49.0	70	39.5	18743
Galiano Island	48	54.3	123	20.6	1959.5	22	53.3	71	01.4	18658
Victoria (Observatory)	48	31.1	123	24.8	1954.6	22	56.0	70	47.0	18636
Victoria (Observatory)	48	31.1	123	24.8	1958.9	22	43.0	70	44.0	18717
Victoria (Observatory)	48	31.1	123	24.8	1959.5	22	46.3	70	46.5	18619
Nanaimo V.I.	49	12.8	123	56.2	1954.6	23	52.1	71	04.1	18483
Nanaimo V.I.	49	12.8	123	56.2	1959.7	24	15.4	70	59.8	18500
Vanderhoof	54	01.4	123	58.9	1954.6	26	57.1	74	47.6	15244
Mile 365—Alaska Highway	58	40.6	124	01.4	1952.6	30	55.6	77	54.8	12488
Paulatuk	69	21.7	124	05.5	1948.6	53	02.4	83	56.6	06267
Tatla Lake	52	00.2	124	23.2	1954.6	25	16.6	73	17.1	16587
Fort St. James	54	26.5	124	30.0	1954.6	27	43.5	75	04.3	15094
Courtenay B	49	42.0	124	59.2	1954.7	25	04.3	70	57.0	18563
Courtenay B	49	42.0	124	59.2	1959.6	24	18.8	70	52.2	18635
Burns Lake	54	13.6	125	48.0	1954.6	27	30.0	74	14.4	15748
Alert Bay C	50	35.6	125	55.3	1961.4	24	58.8	71	06.7	
Laird River Camp	59	24.3	126	05.6	1952.6	33	48.0	77	54.5	12388
Houston	54	24.0	126	39.9	1954.6	27	38.9	74	31.6	15531
Norman Wells Airport	65	17.3	126	47.3	1948.6	38	54.3	81	14.1	09039
Norman Wells Airport	65	17.3	126	47.3	1958.6	37	37.0	81	07.2	09100
Canso Lake	67	38.4	127	06.9	1948.5	41	09.1	82	47.2	07358
Smithers A	54	46.7	127	09.3	1954.6	27	40.7	74	48.5	15261
Smithers B	54	47.4	127	11.2	1959.6	27	08.4	74	52.3	15149
Lower Post	59	55.4	128	29.8	1952.6	33	14.9	77	45.5	12496
Lower Post	59	55.4	128	29.8	1958.6	32	51.8	77	40.3	12600
Fort Good Hope	66	15.5	128	38.3	1958.6	37	58.3	81	33.0	08727
Anderson River	69	44.0	128	58.0	1948.6	45	24.7	83	29.3	06636
B.C.–Y.T. Boundary	60	00.0	132	06.8	1952.6	32	33.0	76	58.4	13188
B.C.–Y.T. Boundary	60	00.0	132	06.8	1958.6	32	15.9	76	55.1	13168
Ross River	61	59.3	132	27.5	1952.6	34	36.4	78	11.4	12021
Carcross	60	09.9	134	42.2	1952.6	31	39.8	76	26.6	13552
Whitehorse B	60	41.8	135	03.3	1952.5	31	28.0	76	59.7	13042

Magnetic Observations—Concluded

Station	*Lat.*		*Long.*		*Date*	*Declination Value*		*Inclination Value North*		*Horizontal Intensity Value*
	°	′	°	′		°	′	°	′	γ
						East				
Whitehorse B	60	41.8	135	03.3	1958.6	31	08.5	76	55.0	13110
Mayo	63	36.0	135	53.5	1952.6	34	10.5	78	24.8	11665
Carmacks	62	05.5	136	15.8	1952.6	32	52.4	77	33.1	12457
Haines Junction	60	47.2	137	35.0	1952.5	31	50.2	76	25.9	13443
McIntosh Lodge	60	49.0	137	41.5	1952.6	31	24.4	76	25.2	13452
Klondike River	63	53.4	138	10.4	1952.6	33	23.0	78	15.9	11762
Dawson	64	03.4	139	26.0	1952.5	33	21.7	77	32.8	12582
Donjek River	61	43.4	139	50.0	1952.6	29	55.8	76	23.5	13522
Snag	62	21.4	140	24.0	1952.6	31	37.5	76	43.7	13136
Mosquito Creek	64	04.5	142	04.2	1952.6	31	22.7	77	42.5	12131
College, Alaska	64	52.0	147	50.0	1952.5	28	51.1	77	07.3	12659

DOMINION OBSERVATORY,
OTTAWA, CANADA.
August, 1963.