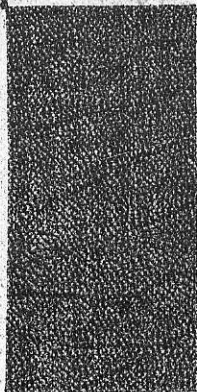
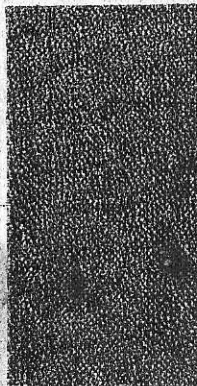


895181
Erie Creek
Field Notes



335-8360

FIELD
BOOK

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Table I.—Radii, Ordinates and Deflections.

Deg.	Rad.	Mid. Ord.	Tang. Def.	Chord Def.	Def. for 1 foot	Deg.	Rad.	Mid. Ord.	Tang. Def.	Chord Def.	Def. for 1 foot
00°10	34377.	.036	.145	.291	0.05	7°	819.0	1.528	6.105	12.21	2.10
20'	17189.	.073	.291	.582	0.10	15	790.8	1.582	6.323	12.64	2.18
30'	11459.	.109	.436	.873	0.15	30	764.5	1.637	6.540	13.08	2.25
40'	8594.4	.145	.582	1.164	0.20	45	739.9	1.691	6.758	13.50	2.33
50'	6875.5	.182	.727	1.454	0.25	8°	716.8	1.746	6.976	13.95	2.40
1°	5729.6	.218	.873	1.745	0.30	15	695.1	1.801	7.193	14.38	2.48
10	4911.2	.255	1.018	2.036	0.35	30	674.7	1.855	7.411	14.82	2.55
20'	4297.3	.291	1.164	2.327	0.40	45	655.4	1.910	7.628	15.25	2.63
30'	3819.8	.327	1.309	2.618	0.45	9°	637.3	1.965	7.846	15.69	2.70
40'	3437.9	.364	1.454	2.909	0.50	15	620.1	2.019	8.063	16.13	2.78
50'	3125.4	.400	1.600	3.200	0.55	30	603.8	2.074	8.281	16.56	2.85
2°	2864.9	.436	1.745	3.490	0.60	45	588.4	2.128	8.498	17.00	2.93
10	2644.6	.473	1.891	3.781	0.65	10°	573.7	2.183	8.716	17.43	3.00
20	2455.7	.509	2.036	4.072	0.70	30	546.4	2.293	9.150	18.30	3.15
30	2292.0	.545	2.181	4.363	0.75	11°	521.7	2.402	9.585	19.17	3.30
40	2148.8	.582	2.327	4.654	0.80	30	499.1	2.511	10.019	20.04	3.45
50	2022.4	.618	2.472	4.945	0.85	12°	478.3	2.620	10.453	20.92	3.60
3°	1910.1	.655	2.618	5.235	0.90	30	459.3	2.730	10.887	21.77	3.75
10	1809.6	.691	2.763	5.526	0.95	13°	441.7	2.839	11.320	22.64	3.90
20	1719.1	.727	2.908	5.817	1.00	30	425.4	2.949	11.754	23.51	4.05
30	1637.3	.764	3.054	6.108	1.05	14°	410.3	3.058	12.187	24.37	4.20
40	1562.9	.800	3.199	6.398	1.10	30	396.2	3.168	12.620	25.24	4.35
50	1495.0	.836	3.345	6.689	1.15	15°	383.1	3.277	13.053	26.11	4.50
4°	1432.7	.873	3.490	6.980	1.20	30	370.8	3.387	13.485	26.97	4.65
10	1375.4	.909	3.635	7.271	1.25	16°	359.3	3.496	13.917	27.83	4.80
20	1322.5	.945	3.718	7.561	1.30	30	348.5	3.606	14.349	28.70	4.95
30	1273.6	.982	3.926	7.852	1.35	17°	338.3	3.716	14.781	29.56	5.10
40	1228.1	1.018	4.071	8.143	1.40	18°	319.6	3.935	15.643	31.29	5.40
50	1185.8	1.055	4.217	8.433	1.45	19°	302.9	4.155	16.505	33.01	5.70
5°	1146.3	1.091	4.362	8.724	1.50	20°	287.9	4.374	17.365	34.73	6.00
10	1109.3	1.127	4.507	9.014	1.55	21°	274.4	4.594	18.224	36.45	6.30
20	1074.7	1.164	4.653	9.305	1.60	22°	262.0	4.814	19.081	38.16	6.60
30	1042.1	1.200	4.798	9.596	1.65	23°	250.8	5.035	19.937	39.87	6.90
40	1011.5	1.237	4.943	9.886	1.70	24°	240.5	5.255	20.791	41.58	7.20
50	982.6	1.273	5.088	10.18	1.75	25°	231.0	5.476	21.644	43.29	7.50
6°	955.4	1.309	5.234	10.47	1.80	26°	222.3	5.697	22.495	44.99	7.80
10	929.6	1.346	5.379	10.76	1.85	27°	214.2	5.918	23.345	46.69	8.10
20	905.1	1.382	5.524	11.05	1.90	28°	206.7	6.139	24.192	48.38	8.40
30	881.9	1.418	5.669	11.34	1.95	29°	199.7	6.360	25.038	50.08	8.70
40	859.9	1.455	5.814	11.63	2.00	30°	193.2	6.583	25.882	51.76	9.00

Table II.—Minutes in Decimals of a Degree.

1	.0167	11'	.2833	21'	.3500	31'	.5167	41'	.6833	51	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

Table III.—Inches in Decimals of a Foot.

1	.0833	2	.1667	3	.2500	4	.3333	5	.4167	6	.5000	7	.5833	8	.6667	9	.7500	10	.8333	11	.9167
1-16	.0052	3-32	.0078	1-8	.0105	3-16	.0156	1-4	.0208	5-16	.0260	3-8	.0313	1-2	.0417	5-8	.0521	3-4	.0625	7-8	.0729

Table IV. — Tangents, Externals and Chords to a 1° Curve.

	Tan.	Ext.	Chord		Tan.	Ext.	Chord		Tan.	Ext.	Chord
1°	50.00	.22	100.00	11°	551.70	26.50	1098.4	21°	1061.9	97.57	2088.5
10	58.34	.30	116.67	10	560.11	27.31	1115.0	10	1070.6	99.16	2104.9
20	66.67	.39	133.34	20	568.53	28.14	1131.6	20	1079.2	100.75	2121.2
30	75.01	.49	150.00	30	576.95	28.97	1148.1	30	1087.8	102.35	2137.6
40	83.34	.61	166.67	40	585.36	29.82	1164.7	40	1096.4	103.97	2153.9
50	91.68	.73	183.34	50	593.79	30.68	1181.3	50	1105.1	105.60	2170.5
2°	100.01	.87	199.98	12°	602.21	31.56	1197.9	22°	1113.7	107.24	2186.7
10	108.35	1.02	216.64	10	610.64	32.45	1214.5	10	1122.4	108.90	2203.0
20	116.68	1.19	233.30	20	619.07	33.35	1231.0	20	1131.0	110.57	2219.4
30	125.02	1.36	249.96	30	627.50	34.26	1247.6	30	1139.7	112.25	2235.7
40	133.36	1.55	266.62	40	635.93	35.18	1264.2	40	1148.4	113.95	2252.1
50	141.70	1.75	283.29	50	644.37	36.12	1280.7	50	1157.0	115.66	2268.4
3°	150.04	1.96	299.96	13°	652.81	37.07	1297.3	23°	1165.7	117.38	2284.8
10	158.38	2.19	316.62	10	661.25	38.03	1313.8	10	1174.4	119.12	2301.1
20	166.72	2.43	333.28	20	669.70	39.01	1330.4	20	1183.1	120.87	2317.4
30	175.06	2.67	349.94	30	678.15	39.99	1346.9	30	1191.8	122.63	2333.7
40	183.40	2.93	366.60	40	686.60	40.99	1363.5	40	1200.5	124.41	2350.0
50	191.74	3.21	383.27	50	695.06	42.00	1380.0	50	1209.2	126.20	2366.3
4°	200.08	3.49	399.95	14°	703.51	43.03	1396.6	24°	1217.9	128.00	2382.6
10	208.43	3.79	416.60	10	711.97	44.07	1413.1	10	1226.6	129.82	2398.9
20	216.77	4.10	433.26	20	720.44	45.12	1429.7	20	1235.3	131.65	2415.2
30	225.12	4.42	449.91	30	728.90	46.18	1446.2	30	1244.0	133.50	2431.5
40	233.47	4.76	466.56	40	737.37	47.25	1462.8	40	1252.8	135.35	2447.8
50	241.81	5.10	483.22	50	745.85	48.34	1479.3	50	1261.5	137.23	2464.1
5°	250.16	5.46	499.88	15°	754.32	40.44	1495.8	25°	1270.2	139.11	2480.4
10	258.51	5.83	516.53	10	762.80	50.55	1512.4	10	1279.0	141.01	2496.7
20	266.86	6.21	533.18	20	771.29	51.68	1528.9	20	1287.7	142.93	2512.9
30	275.21	6.61	549.83	30	779.77	52.89	1545.4	30	1296.5	144.85	2529.2
40	283.57	7.01	566.48	40	788.26	53.97	1561.9	40	1305.3	146.79	2545.4
50	291.92	7.43	583.12	50	796.75	55.13	1578.4	50	1314.0	148.75	2561.7
6°	300.28	7.86	599.77	16°	805.25	56.31	1594.9	26°	1322.8	150.71	2577.9
10	308.64	8.31	616.41	10	813.75	57.50	1611.4	10	1331.6	152.69	2594.2
20	316.99	8.76	633.06	20	822.25	58.70	1627.9	20	1340.4	154.69	2610.4
30	325.35	9.23	649.70	30	830.76	59.91	1644.4	30	1349.2	156.70	2626.6
40	333.71	9.71	666.34	40	839.27	61.14	1660.9	40	1358.0	158.72	2642.9
50	342.08	10.20	682.98	50	847.78	62.38	1677.4	50	1366.8	160.76	2659.1
7°	350.44	10.71	699.62	17°	856.30	63.63	1693.9	27°	1375.6	162.81	2675.3
10	358.81	11.22	716.25	10	864.82	64.90	1710.4	10	1384.4	164.86	2691.5
20	367.17	11.75	732.89	20	873.35	66.18	1726.9	20	1393.2	166.95	2707.7
30	375.54	12.29	749.52	30	881.88	67.47	1743.3	30	1402.0	169.04	2723.9
40	383.91	12.85	766.15	40	890.41	68.77	1759.8	40	1410.9	171.15	2740.0
50	392.28	13.41	782.78	50	898.95	70.09	1776.2	50	1419.7	173.27	2756.2
8°	400.66	13.99	799.41	18°	907.49	71.42	1792.7	28°	1428.6	175.41	2772.4
10	409.03	14.58	816.01	10	916.03	72.76	1809.2	10	1437.4	177.55	2788.6
20	417.41	15.18	832.63	20	924.58	74.12	1825.7	20	1446.3	179.72	2804.8
30	425.79	15.80	849.25	30	933.13	75.49	1842.1	30	1455.1	181.89	2820.9
40	434.17	16.43	865.86	40	941.69	76.86	1858.6	40	1464.0	184.08	2837.1
50	442.55	17.07	882.48	50	950.25	78.26	1875.0	50	1472.9	186.29	2853.2
9°	450.93	17.72	899.10	19°	958.81	79.67	1891.5	29°	1481.8	188.51	2869.4
10	459.32	18.38	915.71	10	967.38	81.09	1907.9	10	1490.7	190.74	2885.5
20	467.71	19.06	932.33	20	975.96	82.53	1924.3	20	1499.6	192.99	2901.6
30	476.10	19.75	948.95	30	984.53	83.97	1940.8	30	1508.5	195.25	2917.7
40	484.49	20.45	965.56	40	993.12	85.43	1957.2	40	1517.4	197.53	2933.8
50	492.88	21.16	982.18	50	1001.7	86.90	1973.6	50	1526.3	199.82	2950.0
10°	501.28	21.89	998.80	20°	1010.3	88.39	1990.0	30°	1535.3	202.12	2966.0
10	509.68	22.62	1015.4	10	1018.9	89.89	2006.4	10	1544.2	204.44	2982.1
20	518.08	23.38	1032.0	20	1027.5	91.40	2022.8	20	1553.1	206.77	2998.2
30	526.48	24.14	1048.6	30	1036.1	92.92	2039.2	30	1562.1	209.12	3014.3
40	534.89	24.91	1065.2	40	1044.7	94.46	2055.7	40	1571.0	211.48	3030.4
50	543.29	25.70	1081.8	50	1053.3	96.01	2072.1	50	1580.0	213.86	3046.5

Table IV.—Tangents, External and Chords to a 1° Curve.

	Tan.	Ext.	Chord		Tan.	Ext.	Chord		Tan.	Ext.	Chord
31°	1589.0	216.3	3062.5	41°	2142.2	387.4	4013.4	51°	2732.9	618.4	4933.7
10	1598.0	218.7	3078.6	10	2151.7	390.7	4029.0	10	2743.1	622.8	4948.7
20	1606.9	221.1	3094.7	20	2161.2	394.1	4044.6	20	2753.4	627.2	4963.7
30	1615.9	223.5	3110.7	30	2170.8	397.4	4060.2	30	2763.7	631.7	4978.7
40	1624.9	226.0	3126.7	40	2180.3	400.8	4075.8	40	2773.9	636.2	4993.7
50	1633.9	228.4	3142.8	50	2189.9	404.2	4091.3	50	2784.2	640.7	5008.7
32°	1643.0	230.9	3158.8	42°	2199.4	407.6	4106.9	52°	2794.5	645.2	5023.7
10	1652.0	233.4	3174.8	10	2209.0	411.1	4122.4	10	2804.9	649.7	5038.7
20	1661.0	235.9	3190.8	20	2218.6	414.5	4138.0	20	2815.2	654.3	5053.7
30	1670.0	238.4	3206.8	30	2228.1	418.0	4153.5	30	2825.6	658.8	5068.6
40	1679.1	241.0	3222.8	40	2237.7	421.4	4169.1	40	2835.9	663.4	5083.6
50	1688.1	243.5	3238.9	50	2247.3	425.0	4184.6	50	2846.3	668.0	5098.5
33°	1697.2	246.1	3254.9	43°	2257.0	428.5	4200.1	53°	2856.7	672.7	5113.4
10	1706.3	248.7	3270.8	10	2266.6	432.0	4215.6	10	2867.1	677.3	5128.3
20	1715.3	251.3	3286.8	20	2276.2	435.6	4231.1	20	2877.5	682.0	5143.2
30	1724.4	253.9	3302.7	30	2285.9	439.2	4246.6	30	2888.0	686.7	5158.1
40	1733.5	256.5	3318.7	40	2295.6	442.8	4262.0	40	2898.4	691.4	5173.0
50	1742.6	259.1	3334.6	50	2305.2	446.4	4277.5	50	2908.9	696.1	5187.6
34°	1751.7	261.8	3350.6	44°	2314.9	450.0	4293.0	54°	2919.4	700.9	5202.7
10	1760.8	264.5	3366.5	10	2324.6	453.6	4308.4	10	2929.9	705.7	5217.6
20	1770.0	267.2	3382.4	20	2334.3	457.3	4323.9	20	2940.4	710.5	5232.4
30	1779.1	269.9	3398.4	30	2344.1	461.0	4339.3	30	2951.0	715.3	5247.2
40	1788.2	272.6	3414.3	40	2353.8	464.6	4354.7	40	2961.5	720.1	5262.0
50	1797.4	275.3	3430.2	50	2363.5	468.4	4370.2	50	2972.1	725.0	5276.8
35°	1806.6	278.1	3446.1	45°	2373.3	472.1	4385.6	55°	2982.7	729.9	5291.6
10	1815.7	280.8	3462.0	10	2383.1	475.8	4401.0	10	2993.3	734.8	5306.4
20	1824.9	283.6	3477.9	20	2392.8	479.6	4416.3	20	3003.9	739.7	5321.1
30	1834.1	286.4	3493.7	30	2402.6	483.8	4431.7	30	3014.5	744.6	5335.9
40	1843.3	289.2	3509.6	40	2412.4	487.2	4447.1	40	3025.2	749.6	5350.7
50	1852.3	292.0	3525.5	50	2422.3	491.0	4462.4	50	3035.8	754.6	5365.4
36°	1861.7	294.9	3541.3	46°	2432.1	494.8	4477.8	56°	3046.5	759.6	5380.1
10	1870.9	297.7	3557.2	10	2441.9	498.7	4493.1	10	3057.2	764.6	5394.9
20	1880.1	300.6	3573.0	20	2451.8	502.5	4508.4	20	3067.9	769.7	5409.6
30	1889.4	303.5	3588.8	30	2461.7	506.4	4523.8	30	3078.7	774.7	5424.2
40	1898.6	306.4	3604.7	40	2471.5	510.3	4539.1	40	3089.4	779.8	5438.9
50	1907.9	309.3	3620.5	50	2481.4	514.3	4554.4	50	3100.2	784.9	5453.6
37°	1917.1	312.2	3636.3	47°	2491.3	518.2	4569.7	57°	3110.9	790.1	5468.2
10	1926.4	315.2	3652.1	10	2501.2	522.2	4585.0	10	3121.7	795.2	5482.9
20	1935.7	318.1	3667.9	20	2511.2	526.1	4600.2	20	3132.6	800.4	5497.5
30	1945.0	321.1	3683.7	30	2521.1	530.1	4615.5	30	3143.4	805.6	5512.1
40	1954.3	324.1	3699.5	40	2531.1	534.2	4630.7	40	3154.2	810.9	5526.7
50	1963.6	327.1	3715.3	50	2541.0	538.2	4646.0	50	3165.1	816.1	5541.3
38°	1972.9	330.2	3731.0	48°	2551.0	542.2	4661.2	58°	3176.0	821.4	5555.9
10	1982.2	333.2	3746.8	10	2561.0	546.3	4676.4	10	3186.9	826.7	5570.5
20	1991.5	336.3	3762.5	20	2571.0	550.4	4691.6	20	3197.8	832.0	5585.0
30	2000.9	339.3	3778.3	30	2581.0	554.5	4706.8	30	3208.8	837.3	5599.6
40	2010.2	342.4	3794.0	40	2591.0	558.6	4722.0	40	3219.7	842.7	5614.1
50	2019.6	345.5	3809.7	50	2601.1	562.8	4737.2	50	3230.7	848.1	5628.7
39°	2029.0	348.6	3825.4	49°	2611.2	566.9	4752.4	59°	3241.7	853.5	5643.2
10	2038.4	351.8	3841.1	10	2621.2	571.1	4767.5	10	3252.7	858.9	5657.7
20	2047.8	354.9	3856.8	20	2631.3	575.3	4782.7	20	3263.7	864.3	5672.2
30	2057.2	358.1	3872.5	30	2641.4	579.5	4797.8	30	3274.8	869.8	5686.6
40	2066.6	361.3	3888.2	40	2651.5	583.8	4813.0	40	3285.8	875.3	5701.1
50	2076.0	364.5	3903.9	50	2661.6	588.0	4828.1	50	3296.9	880.8	5715.6
40°	2085.4	367.7	3919.6	50°	2671.8	592.3	4843.2	60°	3308.0	886.4	5730.0
10	2094.9	371.0	3935.2	10	2681.9	596.6	4858.3	10	3319.1	892.0	5744.4
20	2104.3	374.2	3950.9	20	2692.1	600.9	4873.4	20	3330.3	897.3	5758.8
30	2113.8	377.5	3966.5	30	2702.3	605.3	4888.5	30	3341.4	903.2	5773.2
40	2123.3	380.8	3982.1	40	2712.5	609.6	4903.5	40	3352.6	908.8	5787.6
50	2132.7	384.1	3997.8	50	2722.7	614.0	4918.6	50	3363.8	914.5	5802.0

Table IV. — Tangents, External and Chords to a 1° Curve.

	Tan.	Ext.	Chord		Tan.	Ext.	Chord		Tan.	Ext.	Chord
61°	3375.0	920.2	5816.4	71°	4086.9	1308.2	6654.9	81°	4893.6	1805.3	7442.7
10	3386.3	925.9	5830.7	10	4099.5	1315.2	6668.4	10	4908.0	1814.7	7455.4
20	3397.5	931.6	5845.1	20	4112.1	1322.6	6682.0	20	4922.5	1824.1	7468.0
30	3408.8	937.3	5859.4	30	4124.8	1330.3	6695.5	30	4937.0	1833.6	7480.6
40	3420.1	943.1	5873.7	40	4137.4	1337.7	6709.0	40	4951.5	1843.1	7493.2
50	3431.4	948.9	5888.0	50	4150.1	1345.1	6722.5	50	4966.1	1852.6	7505.8
62°	3442.7	954.8	5902.3	72°	4162.8	1352.6	6736.0	82°	4980.7	1862.2	7518.4
10	3454.1	960.6	5916.6	10	4175.6	1360.1	6749.5	10	4995.4	1871.8	7531.0
20	3465.4	966.5	5930.9	20	4188.5	1367.6	6763.0	20	5010.0	1881.5	7543.6
30	3476.8	972.4	5945.1	30	4201.2	1375.2	6776.4	30	5024.8	1891.2	7556.1
40	3488.3	978.3	5959.4	40	4214.0	1382.8	6789.8	40	5039.5	1900.9	7568.6
50	3499.7	984.3	5973.6	50	4226.8	1390.4	6803.3	50	5054.3	1910.7	7581.1
63°	3511.1	990.2	5987.8	73°	4239.7	1398.0	6816.7	83°	5069.2	1920.5	7593.6
10	3522.6	996.2	6002.0	10	4252.6	1405.7	6830.0	10	5084.0	1930.4	7606.1
20	3534.1	1002.3	6016.2	20	4265.6	1413.5	6843.4	20	5099.0	1940.3	7618.6
30	3545.6	1008.3	6030.4	30	4278.5	1421.2	6856.8	30	5113.9	1950.3	7631.0
40	3557.2	1014.4	6044.6	40	4291.5	1429.0	6870.2	40	5128.9	1960.2	7643.4
50	3568.7	1020.5	6058.7	50	4304.6	1436.6	6883.5	50	5143.9	1970.3	7655.8
64°	3580.3	1026.6	6072.9	74°	4317.6	1444.6	6896.8	84°	5159.0	1980.4	7668.2
10	3591.9	1032.8	6087.0	10	4330.7	1452.5	6910.1	10	5174.1	1990.5	7680.6
20	3603.5	1039.0	6101.1	20	4343.8	1460.4	6923.4	20	5189.3	2000.6	7693.0
30	3615.1	1045.2	6115.2	30	4356.9	1468.4	6936.7	30	5204.4	2010.8	7705.3
40	3626.8	1051.4	6129.3	40	4370.1	1476.4	6950.0	40	5219.7	2021.1	7717.6
50	3638.5	1057.7	6143.4	50	4383.3	1484.4	6963.2	50	5234.9	2031.4	7730.0
65°	3650.2	1063.9	6157.5	75°	4396.5	1492.4	6976.4	85°	5250.3	2041.7	7742.3
10	3661.9	1070.2	6171.5	10	4409.8	1500.5	6989.6	10	5265.6	2052.1	7754.5
20	3673.7	1076.6	6185.5	20	4423.1	1508.6	7002.8	20	5281.0	2062.5	7766.8
30	3685.4	1082.9	6199.6	30	4436.4	1516.7	7016.0	30	5296.4	2073.0	7779.0
40	3697.2	1089.3	6213.6	40	4449.7	1524.9	7029.2	40	5311.9	2083.5	7791.3
50	3709.0	1095.7	6227.6	50	4463.1	1533.1	7042.3	50	5327.4	2094.1	7803.5
66°	3720.9	1102.2	6241.6	76°	4476.5	1541.4	7055.5	86°	5343.0	2104.7	7815.7
10	3732.7	1108.6	6255.5	10	4489.9	1549.7	7068.6	10	5358.6	2115.3	7827.9
20	3744.6	1115.1	6269.5	20	4503.4	1558.0	7081.7	20	5374.2	2126.0	7840.1
30	3756.5	1121.7	6283.4	30	4516.9	1566.3	7094.8	30	5389.9	2136.7	7852.2
40	3768.5	1128.2	6297.4	40	4530.4	1574.7	7107.9	40	5405.6	2147.5	7864.3
50	3780.4	1134.8	6311.3	50	4544.0	1583.1	7121.0	50	5421.4	2158.4	7876.4
67°	3792.4	1141.4	6325.2	77°	4557.6	1591.6	7134.0	87°	5437.2	2169.2	7888.5
10	3804.4	1148.0	6339.1	10	4571.2	1600.1	7147.0	10	5453.1	2180.2	7900.6
20	3816.4	1154.7	6353.0	20	4584.8	1608.6	7160.0	20	5469.0	2191.1	7912.7
30	3828.4	1161.3	6366.8	30	4598.5	1617.1	7173.0	30	5484.9	2202.2	7924.7
40	3840.5	1168.1	6380.7	40	4612.2	1625.7	7186.0	40	5500.9	2213.2	7936.8
50	3852.6	1174.8	6394.5	50	4626.0	1634.4	7199.0	50	5517.0	2224.3	7948.8
68°	3864.7	1181.6	6408.4	78°	4639.8	1643.0	7212.0	88°	5533.1	2235.5	7960.8
10	3876.8	1188.4	6422.2	10	4653.6	1651.7	7225.0	10	5549.2	2246.7	7972.8
20	3889.0	1195.2	6436.0	20	4667.4	1660.5	7237.9	20	5565.4	2258.0	7984.7
30	3901.2	1202.0	6449.7	30	4681.3	1669.2	7250.8	30	5581.6	2269.3	7996.7
40	3913.4	1208.9	6463.5	40	4695.2	1678.1	7263.7	40	5597.8	2280.6	8008.6
50	3925.6	1215.8	6477.3	50	4709.2	1686.9	7276.6	50	5614.2	2292.0	8020.5
69°	3937.9	1222.9	6491.0	79°	4723.2	1695.8	7289.5	89°	5630.5	2303.5	8032.4
10	3950.2	1229.7	6504.7	10	4737.2	1704.7	7302.3	10	5646.9	2315.0	8044.3
20	3962.5	1236.7	6518.5	20	4751.2	1713.7	7315.1	20	5663.4	2326.6	8056.2
30	3974.8	1243.7	6532.2	30	4765.3	1722.7	7328.0	30	5679.9	2338.2	8068.0
40	3987.2	1250.8	6545.8	40	4779.4	1731.7	7340.8	40	5696.4	2349.8	8079.8
50	3999.5	1257.9	6559.5	50	4793.6	1740.8	7353.6	50	5713.0	2361.5	8091.6
70°	4011.9	1265.0	6573.2	80°	4807.7	1749.9	7366.3	90°	5729.7	2373.3	8103.4
10	4024.4	1272.1	6586.8	10	4822.0	1759.0	7379.1	10	5746.3	2385.1	8115.2
20	4036.8	1279.3	6600.5	20	4836.2	1768.2	7391.9	20	5763.1	2397.0	8127.0
30	4049.3	1286.5	6614.1	30	4850.5	1777.4	7404.6	30	5779.9	2408.9	8138.7
40	4061.8	1293.6	6627.7	40	4864.8	1786.7	7417.3	40	5796.7	2420.9	8150.4
50	4074.4	1300.9	6641.3	50	4879.2	1796.0	7430.0	50	5813.6	2432.9	8162.2

Table IV.—Tangents, Externals and Chords to a 1° Curve.

Deg	Tan.	Ext.	Chord	Deg.	Tan.	Ext.	Chord	Deg.	Tan.	Ext.	Chord
91°	5830.5	2444.9	8173.9	96°	6363.4	2833.2	8516.4	101°	6950.6	3278.1	8842.8
10'	5847.5	2457.1	8185.5	10'	6382.1	2847.0	8527.6	10'	6971.3	3294.1	8853.4
20'	5864.6	2469.3	8197.2	20'	6400.8	2861.0	8538.7	20'	6992.0	3310.1	8864.0
30'	5881.7	2481.5	8208.8	30'	6419.5	2875.0	8549.8	30'	7012.7	3326.1	8874.5
40'	5898.8	2493.8	8220.4	40'	6438.4	2889.0	8560.9	40'	7033.6	3342.3	8885.1
50'	5916.0	2506.1	8232.0	50'	6457.3	2903.1	8572.0	50'	7054.5	3358.5	8895.6
92°	5933.2	2518.5	8243.6	97°	6476.2	2917.3	8583.0	102°	7075.5	3374.9	8906.1
10'	5950.5	2531.0	8255.2	10'	6495.2	2931.6	8594.1	10'	7096.6	3391.2	8916.6
20'	5967.9	2543.5	8266.8	20'	6514.3	2945.9	8605.1	20'	7117.8	3407.7	8927.0
30'	5985.3	2556.0	8278.3	30'	6533.4	2960.3	8616.1	30'	7139.0	3424.3	8937.5
40'	6002.7	2568.6	8289.8	40'	6552.6	2974.7	8627.1	40'	7160.3	3440.9	8947.9
50'	6020.2	2581.3	8301.3	50'	6571.9	2989.2	8638.0	50'	7181.7	3457.6	8958.3
93°	6037.8	2594.0	8312.8	98°	6591.2	3003.8	8649.0	103°	7203.2	3474.4	8968.7
10'	6055.4	2606.8	8324.3	10'	6610.6	3018.4	8659.9	10'	7224.7	3491.3	8979.1
20'	6073.1	2619.7	8335.6	20'	6630.1	3033.1	8670.8	20'	7246.3	3508.2	8989.4
30'	6090.8	2632.6	8347.1	30'	6649.6	3047.9	8681.7	30'	7268.0	3525.2	8999.7
40'	6108.6	2645.5	8358.5	40'	6669.2	3062.8	8692.6	40'	7289.8	3542.4	9010.0
50'	6126.4	2658.5	8369.9	50'	6688.8	3077.7	8703.4	50'	7311.7	3559.6	9020.3
94°	6144.3	2671.6	8381.3	99°	6708.6	3092.7	8714.3	104°	7333.6	3576.8	9030.6
10'	6162.6	2684.7	8392.7	10'	6728.4	3107.7	8725.1	10'	7355.6	3594.2	9040.9
20'	6180.2	2697.9	8404.0	20'	6748.2	3122.9	8735.9	20'	7377.8	3611.7	9051.1
30'	6198.3	2711.4	8415.3	30'	6768.1	3138.1	8746.6	30'	7399.9	3629.2	9061.3
40'	6216.4	2724.5	8426.6	40'	6788.1	3153.3	8757.4	40'	7422.2	3646.8	9071.5
50'	6234.6	2737.9	8437.9	50'	6808.2	3168.7	8768.1	50'	7444.6	3664.5	9081.7
95°	6252.8	2751.3	8449.2	100°	6828.3	3184.1	8778.9	105°	7467.0	3682.3	9091.8
10'	6271.1	2764.8	8460.4	10'	6848.5	3199.6	8789.6	10'	7489.6	3700.2	9102.0
20'	6289.4	2778.3	8471.7	20'	6868.8	3215.1	8800.3	20'	7512.2	3718.2	9112.1
30'	6307.9	2792.0	8482.9	30'	6889.2	3230.8	8810.9	30'	7534.9	3736.2	9122.2
40'	6326.3	2805.6	8494.1	40'	6909.6	3246.5	8821.6	40'	7557.7	3754.4	9132.3
50'	6344.8	2819.4	8505.3	50'	6930.1	3262.3	8832.2	50'	7580.5	3772.6	9142.3

Corrections to be added to Table IV.

I	TANGENTS				EXTERNALS				CHORDS				I
	Cve.5°	10°	15°	20°	5°	10°	15°	20°	5°	10°	15°	20° Cve.	
10°	.03	06	.09	13	00	00	00	01	06	12	19	.24	10°
15°	.04	10	14	19	00	01	01	.01	.08	18	.28	.37	15°
20°	.06	13	19	26	01	01	02	02	10	.24	38	.49	20°
25°	.08	16	.24	.33	01	02	.03	.04	12	.30	.48	.61	25°
30°	.10	19	29	.39	.01	03	04	05	14	30	58	.73	30°
35°	.11	22	34	.47	02	04	05	07	17	.41	.66	.84	35°
40°	.13	26	40	.53	02	05	.07	09	20	46	75	.95	40°
45°	.15	.30	44	.60	03	.06	09	12	.23	.52	.84	1.06	45°
50°	.17	.34	.51	.68	.04	08	12	15	26	.58	.93	1.18	50°
55°	.19	.38	.57	.76	.05	09	14	19	28	.64	1.02	1.30	55°
60°	.21	42	.63	.84	.06	11	17	23	30	68	1.10	1.40	60°
65°	.23	.46	.69	.93	.07	.14	.20	.27	32	.73	1.18	1.50	65°
70°	.25	.51	.76	1.02	.08	16	.24	.32	.34	78	1.26	1.60	70°
75°	.27	.56	.83	1.12	.10	18	29	.38	36	84	1.34	1.70	75°
80°	.30	.61	.91	1.22	.11	.22	.33	.45	38	.89	1.42	1.80	80°
85°	.33	.66	1.00	1.33	.13	.26	.39	.52	.40	.93	1.49	1.90	85°
90°	.36	.72	1.09	1.45	15	.30	45	60	.42	.98	1.56	1.98	90°
95°	.39	.79	1.19	1.55	.17	.35	.52	.71	.44	1.04	1.64	2.06	95°
100°	.43	.86	1.30	1.74	.20	.40	.60	.81	.46	1.07	1.69	2.14	100°
105°	.47	.94	1.43	1.88	.23	.46	.69	.92	.48	1.10	1.74	2.22	105°

To find tangent, external or chord for any degree of curve under 21° take same for a 1° curve from table IV, divide by given degree of curve and add correction taken from correction table.

For curves sharper than 20° figure tangents etc., by formulae for simple curves. Page 8.

Table V.—Natural Sines, Cosines, Tangents and Cotangents.

	Sine	Cos.	Tan.	Cot.			Sine	Cos.	Tan.	Cot.		
0°	.0000	1	.0000	Inf.	90°	10°	.1736	.9848	.1763	5.6713	80°	
10'	.0029	.9999	.0029	343.77	50'	10'	.1765	.9843	.1793	5.5764	50'	
20'	.0058	.9999	.0058	171.88	40'	20'	.1794	.9838	.1823	5.4845	40'	
30'	.0087	.9999	.0087	114.59	30'	30'	.1822	.9832	.1853	5.3955	30'	
40'	.0116	.9999	.0116	85.949	20'	40'	.1851	.9827	.1884	5.3093	20'	
50'	.0145	.9999	.0145	68.750	10'	50'	.1880	.9822	.1914	5.2257	10'	
1°	.0175	.9998	.0175	57.290	89°	11°	.1908	.9816	.1944	5.1445	79°	
10'	.0204	.9998	.0204	49.104	50'	10'	.1937	.9811	.1974	5.0658	50'	
20'	.0233	.9997	.0233	42.964	40'	20'	.1965	.9805	.2004	4.9894	40'	
30'	.0262	.9997	.0262	38.188	30'	30'	.1994	.9799	.2035	4.9152	30'	
40'	.0291	.9996	.0291	34.368	20'	40'	.2022	.9793	.2065	4.8430	20'	
50'	.0320	.9995	.0320	31.242	10'	50'	.2051	.9788	.2095	4.7729	10'	
2°	.0349	.9994	.0349	28.636	88°	12°	.2079	.9782	.2126	4.7046	78°	
10'	.0378	.9993	.0378	26.432	50'	10'	.2110	.9775	.2156	4.6382	50'	
20'	.0407	.9992	.0407	24.542	40'	20'	.2136	.9769	.2186	4.5736	40'	
30'	.0436	.9990	.0437	22.904	30'	30'	.2164	.9763	.2217	4.5107	30'	
40'	.0465	.9989	.0466	21.470	20'	40'	.2193	.9757	.2248	4.4494	20'	
50'	.0494	.9988	.0495	20.206	10'	50'	.2221	.9750	.2278	4.3897	10'	
3°	.0523	.9986	.0524	19.081	87°	13°	.2250	.9744	.2309	4.3315	77°	
10'	.0552	.9985	.0553	18.075	50'	10'	.2278	.9737	.2339	4.2747	50'	
20'	.0581	.9983	.0582	17.169	40'	20'	.2306	.9730	.2370	4.2193	40'	
30'	.0610	.9981	.0612	16.350	30'	30'	.2334	.9724	.2400	4.1653	30'	
40'	.0640	.9980	.0641	15.605	20'	40'	.2363	.9717	.2432	4.1126	20'	
50'	.0668	.9978	.0670	14.924	10'	50'	.2391	.9710	.2462	4.0611	10'	
4°	.0698	.9976	.0699	14.300	86°	14°	.2419	.9703	.2493	4.0108	76°	
10'	.0727	.9974	.0728	13.727	50'	10'	.2450	.9695	.2524	3.9616	50'	
20'	.0756	.9971	.0758	13.197	40'	20'	.2476	.9689	.2555	3.9136	40'	
30'	.0785	.9969	.0787	12.706	30'	30'	.2504	.9682	.2586	3.8667	30'	
40'	.0814	.9967	.0816	12.250	20'	40'	.2532	.9674	.2617	3.8208	20'	
50'	.0843	.9964	.0846	11.826	10'	50'	.2560	.9667	.2648	3.7760	10'	
5°	.0872	.9962	.0875	11.430	85°	15°	.2588	.9660	.2680	3.7320	75°	
10'	.0900	.9960	.0904	11.024	50'	10'	.2616	.9652	.2711	3.6891	50'	
20'	.0930	.9957	.0934	10.712	40'	20'	.2644	.9644	.2742	3.6471	40'	
30'	.0959	.9954	.0963	10.385	30'	30'	.2672	.9636	.2773	3.6059	30'	
40'	.0987	.9951	.0992	10.078	20'	40'	.2700	.9628	.2805	3.5656	20'	
50'	.1016	.9948	.1022	9.7782	10'	50'	.2728	.9620	.2836	3.5261	10'	
6°	.1045	.9945	.1051	9.5144	84°	16°	.2756	.9613	.2868	3.4874	74°	
10'	.1074	.9942	.1080	9.2553	50'	10'	.2787	.9604	.2899	3.4495	50'	
20'	.1103	.9939	.1110	9.0098	40'	20'	.2812	.9596	.2931	3.4124	40'	
30'	.1132	.9936	.1139	8.7769	30'	30'	.2840	.9588	.2962	3.3759	30'	
40'	.1161	.9932	.1169	8.5555	20'	40'	.2868	.9580	.2994	3.3402	20'	
50'	.1190	.9929	.1198	8.3450	10'	50'	.2896	.9572	.3025	3.3052	10'	
7°	.1219	.9925	.1228	8.1443	83°	17°	.2924	.9563	.3057	3.2708	73°	
10'	.1248	.9922	.1257	7.9530	50'	10'	.2954	.9554	.3089	3.2371	50'	
20'	.1276	.9918	.1287	7.7704	40'	20'	.2980	.9546	.3121	3.2041	40'	
30'	.1305	.9914	.1316	7.5958	30'	30'	.3007	.9537	.3153	3.1716	30'	
40'	.1334	.9910	.1346	7.4287	20'	40'	.3035	.9528	.3185	3.1397	20'	
50'	.1363	.9907	.1376	7.2687	10'	50'	.3062	.9520	.3217	3.1084	10'	
8°	.1392	.9903	.1405	7.1154	82°	18°	.3090	.9511	.3249	3.0777	72°	
10'	.1420	.9899	.1435	6.9682	50'	10'	.3121	.9500	.3281	3.0475	50'	
20'	.1449	.9894	.1465	6.8269	40'	20'	.3145	.9492	.3314	3.0178	40'	
30'	.1478	.9890	.1495	6.6912	30'	30'	.3173	.9483	.3346	2.9887	30'	
40'	.1507	.9886	.1524	6.5605	20'	40'	.3200	.9474	.3378	2.9600	20'	
50'	.1536	.9881	.1554	6.4348	10'	50'	.3228	.9464	.3411	2.9319	10'	
9°	.1564	.9877	.1584	6.3138	81°	19°	.3256	.9455	.3443	2.9042	71°	
10'	.1593	.9872	.1614	6.1970	50'	10'	.3283	.9446	.3476	2.8770	50'	
20'	.1622	.9868	.1644	6.0844	40'	20'	.3311	.9436	.3508	2.8502	40'	
30'	.1650	.9863	.1673	5.9758	30'	30'	.3338	.9426	.3541	2.8239	30'	
40'	.1679	.9858	.1703	5.8708	20'	40'	.3366	.9417	.3574	2.7980	20'	
50'	.1708	.9853	.1733	5.7694	10'	50'	.3393	.9407	.3607	2.7725	10'	
10°	.1736	.9848	.1763	5.6713	80°	20°	.3420	.9397	.3640	2.7475	70°	

Co. Sine Cot. Tan. Co. Sine Cot. Tan.

Table V. — Natural Sines, Cosines, Tangents and Cotangents.

	Sine	Cos.	Tan.	Cot.			Sine	Cos.	Tan.	Cot.	
20°	.3420	.9397	.3640	2.7475	70°	30°	.5000	.8660	.5774	1.7320	60°
10'	.3448	.9387	.3673	2.7228	50'	10'	.5025	.8646	.5812	1.7205	50'
20'	.3475	.9377	.3706	2.6975	40'	20'	.5050	.8631	.5851	1.7090	40'
30'	.3502	.9367	.3739	2.6746	30'	30'	.5075	.8616	.5891	1.6977	30'
40'	.3529	.9356	.3772	2.6511	20'	40'	.5100	.8602	.5930	1.6864	20'
50'	.3556	.9346	.3805	2.6279	10'	50'	.5125	.8587	.5969	1.6753	10'
21°	.3584	.9336	.3839	2.6051	69°	31°	.5150	.8572	.6009	1.6643	59°
10'	.3614	.9325	.3872	2.5826	50'	10'	.5175	.8557	.6048	1.6534	50'
20'	.3638	.9315	.3906	2.5605	40'	20'	.5200	.8542	.6088	1.6426	40'
30'	.3665	.9304	.3939	2.5386	30'	30'	.5225	.8526	.6128	1.6318	30'
40'	.3692	.9293	.3973	2.5172	20'	40'	.5250	.8511	.6168	1.6212	20'
50'	.3719	.9283	.4006	2.4960	10'	50'	.5275	.8495	.6208	1.6107	10'
22°	.3746	.9272	.4040	2.4751	68°	32°	.5299	.8480	.6249	1.6002	58°
10'	.3776	.9261	.4074	2.4545	50'	10'	.5328	.8463	.6289	1.5900	50'
20'	.3800	.9250	.4108	2.4342	40'	20'	.5350	.8448	.6330	1.5798	40'
30'	.3827	.9239	.4142	2.4142	30'	30'	.5373	.8434	.6371	1.5697	30'
40'	.3854	.9228	.4176	2.3945	20'	40'	.5397	.8418	.6412	1.5597	20'
50'	.3880	.9216	.4210	2.3750	10'	50'	.5422	.8402	.6453	1.5497	10'
23°	.3907	.9205	.4245	2.3558	67°	33°	.5446	.8387	.6494	1.5399	57°
10'	.3934	.9194	.4279	2.3369	50'	10'	.5471	.8371	.6536	1.5301	50'
20'	.3961	.9182	.4314	2.3183	40'	20'	.5495	.8355	.6577	1.5204	40'
30'	.3988	.9171	.4348	2.2998	30'	30'	.5519	.8339	.6619	1.5108	30'
40'	.4014	.9159	.4383	2.2817	20'	40'	.5544	.8323	.6661	1.5013	20'
50'	.4041	.9147	.4418	2.2637	10'	50'	.5568	.8307	.6703	1.4919	10'
24°	.4067	.9136	.4452	2.2460	66°	34°	.5592	.8290	.6745	1.4826	56°
10'	.4094	.9124	.4487	2.2286	50'	10'	.5616	.8274	.6788	1.4733	50'
20'	.4120	.9111	.4522	2.2113	40'	20'	.5640	.8258	.6830	1.4641	40'
30'	.4147	.9100	.4557	2.1943	30'	30'	.5664	.8241	.6873	1.4550	30'
40'	.4173	.9088	.4592	2.1775	20'	40'	.5688	.8225	.6916	1.4460	20'
50'	.4200	.9076	.4628	2.1609	10'	50'	.5712	.8208	.6959	1.4370	10'
25°	.4226	.9063	.4663	2.1445	65°	35°	.5736	.8192	.7002	1.4281	55°
10'	.4252	.9050	.4698	2.1283	50'	10'	.5760	.8175	.7046	1.4193	50'
20'	.4279	.9038	.4734	2.1123	40'	20'	.5783	.8158	.7089	1.4106	40'
30'	.4305	.9026	.4770	2.0965	30'	30'	.5807	.8141	.7133	1.4020	30'
40'	.4331	.9013	.4806	2.0809	20'	40'	.5831	.8124	.7177	1.3934	20'
50'	.4358	.9000	.4841	2.0655	10'	50'	.5854	.8107	.7221	1.3848	10'
26°	.4384	.8988	.4877	2.0503	64°	36°	.5878	.8090	.7265	1.3764	54°
10'	.4410	.8975	.4913	2.0353	50'	10'	.5901	.8073	.7310	1.3680	50'
20'	.4436	.8962	.4950	2.0204	40'	20'	.5925	.8056	.7355	1.3597	40'
30'	.4462	.8949	.4986	2.0057	30'	30'	.5948	.8039	.7400	1.3514	30'
40'	.4488	.8936	.5022	1.9912	20'	40'	.5972	.8021	.7445	1.3432	20'
50'	.4514	.8923	.5059	1.9768	10'	50'	.5995	.8004	.7490	1.3351	10'
27°	.4540	.8910	.5095	1.9626	63°	37°	.6018	.7986	.7536	1.3270	53°
10'	.4566	.8897	.5132	1.9486	50'	10'	.6041	.7969	.7581	1.3190	50'
20'	.4592	.8884	.5169	1.9347	40'	20'	.6065	.7951	.7627	1.3111	40'
30'	.4618	.8870	.5206	1.9210	30'	30'	.6088	.7935	.7673	1.3032	30'
40'	.4643	.8857	.5243	1.9074	20'	40'	.6111	.7916	.7720	1.2954	20'
50'	.4669	.8843	.5280	1.8940	10'	50'	.6134	.7898	.7766	1.2876	10'
28°	.4695	.8830	.5317	1.8807	62°	38°	.6157	.7880	.7813	1.2799	52°
10'	.4720	.8816	.5355	1.8676	50'	10'	.6180	.7862	.7860	1.2723	50'
20'	.4746	.8802	.5392	1.8546	40'	20'	.6202	.7844	.7907	1.2647	40'
30'	.4772	.8788	.5430	1.8418	30'	30'	.6225	.7826	.7954	1.2572	30'
40'	.4797	.8774	.5467	1.8291	20'	40'	.6248	.7808	.8002	1.2497	20'
50'	.4823	.8760	.5505	1.8165	10'	50'	.6271	.7790	.8050	1.2423	10'
29°	.4848	.8746	.5543	1.8040	61°	39°	.6293	.7772	.8098	1.2349	51°
10'	.4874	.8732	.5581	1.7917	50'	10'	.6316	.7753	.8146	1.2276	50'
20'	.4899	.8718	.5619	1.7796	40'	20'	.6338	.7735	.8195	1.2203	40'
30'	.4924	.8704	.5658	1.7675	30'	30'	.6361	.7716	.8243	1.2131	30'
40'	.4950	.8689	.5696	1.7556	20'	40'	.6383	.7698	.8292	1.2059	20'
50'	.4975	.8675	.5735	1.7438	10'	50'	.6406	.7679	.8341	1.1988	10'
30°	.5000	.8660	.5774	1.7320	60°	40°	.6428	.7660	.8391	1.1918	50°

Cos. Sine Cot. Tan. Coe. Sine Cot. Tan.

Table V.

	Sine	Cos.	Tan.	Cot.	
40°	.6428	.7660	.8391	1.1918	50°
10'	.6450	.7642	.8441	1.1847	50'
20'	.6472	.7623	.8491	1.1778	40'
30'	.6494	.7604	.8541	1.1708	30'
40'	.6517	.7585	.8591	1.1640	20'
50'	.6539	.7566	.8642	1.1572	10'
41°	.6561	.7547	.8693	1.1504	49°
10'	.6582	.7528	.8744	1.1436	50'
20'	.6604	.7509	.8795	1.1369	40'
30'	.6626	.7490	.8847	1.1303	30'
40'	.6648	.7470	.8899	1.1237	20'
50'	.6670	.7451	.8952	1.1171	10'
42°	.6691	.7431	.9004	1.1106	48°
10'	.6713	.7412	.9057	1.1041	50'
20'	.6734	.7392	.9110	1.0977	40'
30'	.6756	.7373	.9163	1.0913	30'
40'	.6773	.7353	.9217	1.0850	20'
50'	.6799	.7333	.9271	1.0786	10'
43°	.6820	.7313	.9325	1.0724	47°
10'	.6841	.7293	.9380	1.0661	50'
20'	.6862	.7273	.9435	1.0600	40'
30'	.6884	.7253	.9490	1.0538	30'
40'	.6905	.7233	.9545	1.0477	20'
50'	.6926	.7213	.9600	1.0416	10'
44°	.6947	.7193	.9657	1.0355	46°
10'	.6968	.7173	.9713	1.0295	50'
20'	.6988	.7153	.9770	1.0235	40'
30'	.7009	.7132	.9827	1.0176	30'
40'	.7030	.7112	.9884	1.0117	20'
50'	.7050	.7092	.9942	1.0058	10'
45°	.7071	.7071	1.0000	1.0000	45°

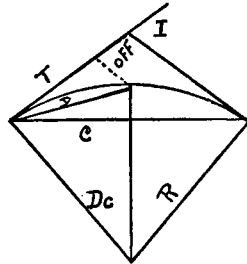
Coa. Sine Cot. Tan.

Table VI,

MIDDLE ORDINATES FOR RAILS

Curve	Lgth. of Rails			Curve	Lgth. of Rails		
	33	30	20		33	30	20
10°	¼	¼		13°	¾	¾	1¾
20°	⅓	⅓		14°	4	3½	
30°	½	½	½	15°	4½	3¾	1½
40°	⅔	1	¾	16°	4¾	3¾	1¾
50°	1	1½	1	17°	4¾	4	2
60°	1½	1¾	1½	18°	5½	4½	1¾
70°	2	1¾	1¾	20°	5½	4½	2
80°	2½	1¾	1¾	22°	6½	5½	2½
90°	2½	2½	1"	24°	7½	6	2½
100°	2½	2½	1"	26°	6¾	5½	2½
110°	3½	2½	1½	28°	7½	6½	2½
120°	3½	2½	1½	30°	8½	7	3½

Weight of Rails per mile of single track = weight per yd. x 11



CURVE FORMULAE

Let:- R—Radius. T—Tangent. I—Intersection Angle. E—External C—Long chord for Total I.

$$\begin{aligned} \text{Then } R &= \frac{50}{\sin D} \\ R &= Tx. \cot. \frac{I}{2} \\ T &= Rx. \tan. \frac{I}{2} \\ T &= 50 \times \tan. \frac{I}{2} \end{aligned}$$

$$\begin{aligned} \sin. D &= \frac{50}{R} \\ E &= Rx. \text{Exsec } \frac{I}{2} \\ E &= Tx. \tan. \frac{I}{2} \\ C &= 2 R \sin. \frac{I}{2} \end{aligned}$$

For approximate check on transit work and to run simple curves in roughly by tangent or chord deflection:-

$$\text{Sine } 1^\circ \text{ for } 1 \text{ ft.} = .0175 = 1.75 \text{ per } 100'$$

Given degree of curve and line of tangent

Offset from tan produced to any given point on curve

$$\text{Offset} = \frac{1.75 \times \text{degree of curve} \times (\text{distance in stations})^2}{2}$$

Given degree of curve and line of chord

Offset from chord produced to any given point on curve

$$= \frac{.0175 \times \text{degree} \times (\text{length of chord} + \text{given distance})^2}{2}$$

To find Middle ordinate for any curve

Middle ordinate of 1° curve for 100 ft. = .22'

Middle ordinate for any given degree of curve for 100 ft. = .22 x given degree of curve.

Middle ordinate for any given length of chord varies as the sq. of the lgh Art angle offset may be obtained from any point on a line, remembering that the sides of a rt. angle triangle are in the ratio of 3, 4 and 5.

Table VII.—Excavation and Embankments, Cu. Yds. per 100 ft.

Slope	$\frac{1}{4}$ to 1	1 to 1			$1\frac{1}{2}$ to 1				All Slopes 1 Ft. Base
		BASE			BASE				
Depth	20'	20	22	24	14	16	20	24	
1	75	78	85	93	57	65	80	94	3.7
2	152	163	178	193	126	141	170	200	7.4
3	230	256	278	300	206	228	272	316	11.1
4	311	356	385	414	296	326	385	444	14.8
5	393	463	500	537	398	435	509	583	18.5
6	477	578	622	666	511	556	644	733	22.2
7	564	700	752	804	635	687	791	894	25.9
8	652	830	889	948	770	830	948	1067	29.6
9	742	967	1033	1100	917	983	1116	1250	33.3
10	833	1111	1185	1259	1074	1148	1296	1444	37.0
11	926	1263	1344	1425	1243	1324	1487	1650	40.7
12	1022	1422	1511	1600	1422	1511	1689	1867	44.4
13	1119	1589	1685	1781	1613	1709	1902	2094	48.1
14	1219	1763	1867	1970	1815	1919	2126	2333	51.8
15	1319	1944	2055	2166	2028	2139	2361	2583	55.5
16	1422	2133	2251	2369	2252	2370	2607	2844	59.2
17	1527	2330	2456	2582	2487	2613	2865	3117	62.9
18	1633	2533	2667	2800	2733	2867	3133	3400	66.6
19	1742	2744	2885	3025	2991	3131	3413	3694	70.3
20	1852	2963	3111	3259	3259	3407	3704	4000	74.0
21	1963	3189	3344	3500	3539	3694	4005	4317	77.7
22	2078	3422	3585	3748	3830	3993	4318	4644	81.4
23	2193	3663	3833	4003	4131	4302	4642	4983	85.1
24	2310	3911	4089	4267	4444	4622	4978	5333	88.8
25	2430	4167	4352	4537	4769	4954	5324	5694	92.5
26	2551	4430	4622	4814	5104	5296	5681	6067	96.2
27	2675	4700	4900	5100	5450	5650	6050	6450	100.0
28	2800	4978	5185	5392	5807	6015	6430	6844	103.6
29	2926	5263	5477	5691	6176	6391	6820	7250	107.3
30	3055	5556	5778	6000	6556	6778	7222	7667	111.0
31	3185	5856	6085	6314	6946	7176	7635	8094	114.7
32	3318	6163	6399	6635	7348	7585	8059	8533	118.4
33	3452	6478	6722	6966	7761	8006	8494	8983	122.1
34	3589	6800	7052	7304	8185	8437	8941	9444	125.8
35	3727	7130	7389	7648	8620	8880	9398	9917	129.5
36	3866	7467	7733	8000	9067	9338	9867	10400	133.2
37	4008	7811	8084	8358	9524	9798	10346	10894	136.9
38	4051	8163	8444	8725	9993	10274	10837	11400	140.6
39	4296	8522	8811	9100	10472	10761	11339	11917	144.3
40	4444	8889	9185	9481	10963	11259	11852	12444	148.0
41	4593	9263	9567	9871	11465	11769	12376	12983	151.7
42	4744	9644	9955	10266	11978	12289	12911	13533	155.4
43	4897	10033	10351	10669	12502	12820	13457	14094	159.1
44	5052	10430	10756	11084	13037	13363	14015	14667	162.8
45	5208	10833	11166	11499	13583	13917	14583	15250	166.5
46	5366	11244	11584	11924	14141	14481	15163	15844	170.2
47	5527	11663	12011	12359	14709	15057	15754	16450	173.9
48	5688	12089	12444	12799	15289	15644	16356	17067	177.6
49	5853	12522	12884	13246	15880	16243	16968	17694	181.3
50	6018	12963	13333	13703	16481	16853	17592	18333	185.0
52	6355	13867	14251	14635	17719	18104	18874	19644	192.4
54	6700	14800	15200	15600	19000	19400	20200	21000	200.0
56	7051	15763	16177	16591	20326	20741	21570	22400	207.2
58	7410	16756	17186	17516	21696	22126	22985	23844	214.6
60	7777	17778	18222	18666	23111	23555	24444	25333	222.0
70	9722	23332	23850	24368	30852	31370	32407	33444	259.0
80	11852	29629	30221	30813	39704	40296	41480	42667	296.0
90	14167	36666	37333	38000	49667	50333	51665	53000	333.0
100	16667	44444	45184	45924	60741	61481	62962	64444	370.0



TABLE VIII.

TEMP. CORRECTION = 0.0000640(^t68°) X MEASURED DISTANCE


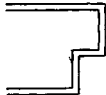

STEEL TAPE CORRECTION CHART

TEMP.	DIST.									TEMP.		
	100'	200'	300'	400'	500'	600'	700'	800'	900'			
-20°	.056	.11	.17	.23	.28	.34	.39	.45	.51			
	.055	.11	.17	.22	.28	.33	.39	.44	.50			
	.054	.11	.16	.22	.27	.32	.38	.43	.48			
	.052	.10	.16	.21	.26	.31	.37	.42	.47			
	.051	.10	.15	.20	.26	.31	.36	.41	.46			
	.050	.10	.15	.20	.25	.30	.35	.40	.45			
	.048	.10	.15	.19	.24	.29	.34	.39	.44			
	.047	.09	.14	.19	.24	.28	.33	.38	.43			
	.046	.09	.14	.18	.23	.28	.32	.37	.41			
	.045	.09	.13	.18	.22	.27	.31	.36	.40			
-8°	.044	.09	.13	.17	.22	.26	.30	.35	.39			
	.042	.08	.13	.17	.21	.25	.30	.34	.38			
	.041	.08	.12	.16	.20	.25	.29	.33	.37			
	.040	.08	.12	.16	.20	.24	.28	.32	.36			
	.038	.08	.12	.15	.19	.23	.27	.31	.35			
	.037	.07	.11	.15	.19	.22	.26	.30	.33			
	.036	.07	.11	.14	.18	.22	.25	.29	.32			
	.035	.07	.10	.14	.17	.21	.24	.28	.31			
	.033	.07	.10	.13	.17	.20	.23	.27	.30			
	.032	.06	.10	.13	.16	.19	.22	.26	.29			
+2°	.031	.06	.09	.12	.15	.18	.22	.25	.28			
	.029	.06	.09	.12	.15	.18	.21	.24	.26			
	.028	.06	.08	.11	.14	.17	.20	.23	.25			
	.027	.05	.08	.11	.13	.16	.19	.22	.24			
	.026	.05	.08	.10	.13	.15	.18	.20	.23			
	.024	.05	.07	.10	.12	.15	.17	.19	.22			
	.023	.05	.07	.09	.12	.14	.16	.18	.21			
	.022	.04	.07	.09	.11	.13	.15	.17	.20			
	.020	.04	.06	.08	.10	.12	.14	.16	.18			
	.019	.04	.06	.08	.10	.12	.13	.15	.17			
+12°	.018	.04	.05	.07	.09	.11	.13	.14	.16			
	.017	.03	.05	.07	.08	.10	.12	.13	.15			
	.015	.03	.05	.06	.08	.09	.11	.12	.14			
	.014	.03	.04	.06	.07	.08	.10	.11	.13			
	.013	.03	.04	.05	.06	.08	.09	.10	.12			
	.012	.02	.03	.05	.06	.07	.08	.09	.10			
	.010	.02	.03	.04	.05	.06	.07	.08	.09			
	.009	.02	.03	.04	.04	.05	.06	.07	.08			
	.008	.02	.02	.03	.04	.05	.05	.06	.07			
	.006	.01	.02	.03	.03	.04	.04	.05	.06			
+22°	.005	.01	.02	.02	.03	.03	.04	.04	.05			
	.004	.01	.01	.02	.02	.02	.03	.03	.03			
	.003	.01	.01	.01	.01	.02	.02	.02	.02			
	.001	.00	.00	.01	.01	.01	.01	.01	.01			
	.000	.00	.00	.00	.00	.00	.00	.00	.00			
	+32°	.000	.00	.00	.00	.00	.00	.00	.00		.00	
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+52°	.000	.00	.00	.00	.00	.00	.00	.00	.00			
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+62°	.000	.00	.00	.00	.00	.00	.00	.00	.00			
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SUBTRACT FROM MEASURED DISTANCE - ADD TO LAID OFF DISTANCE

ADD TO MEASURED DISTANCE - SUBTRACT FROM LAID OFF DISTANCE

NOTE KEEPING

B.S.	Backsight.
b.b.	Base-board of fence.
B.M.	Bench-mark.
C.B.	Catch basin.
C.	Center.
⊕	Center line.
-x-x-x	Chainline fence.
cb.	Curb.
cf	Crow-foot (mark like this or).
C.C.	Cut cross (+).
c c f	Cut crow-foot (cut into wood or stone).
dh.	Drill-hole.
-.-.-	Fence.
	Fence, showing on which side the posts are.
F.S.	Foresight.
I.B.	Iron Bar.
	Line of building; the outside line is the base-board, the cross-hatched part is the line of the stone or brick underpinning.
M.H.	Manhole.
Mon.	Monument.
na.	Nail.
	Stadia Station.
Spk.	Spike.
Stk.	Stake.
S.I.B.	Standard Iron Bar.
S B	Stone bound.
tk.	Tack.
Tel.	Telephone pole.
○	Transit Traverse Point.
△	Triangulation Station.
T.P.	Turning point.

18/7

①

#1 sample near LCP (June 5,
June 6 (5m to east fr LCP)
(float)

LCP

June 6 44296

P. Kidlark (168646) - Amax

✓ 21/3/79 (0700hr → 1700hr)

2N 3W

June 5 B.W. Kyba (168644)

✓ 21/3/79 (0700hr → 1600hr)

6N 2E
m

LCP → Burnt Cr: 4m

- Pat. Tag 170 94096 (LCP)

on - Eric cr. @ 65m w
Flat

Eric cr @ 174m w
minzn (float) at 65m w

Road: 174 m_N of LCP

2:27 PM

- June 6 2N Corner Post
94096 elev 3650'

- There is no sign of
the old claim line
CIT died out after
Burnt creek

O/C @ 2N, 412W (June 6) ³

June 6 to road

2N @ 1+45m W

June 2

451+45m W

2nd road

1+84m W

Sample #2

1+227m W

outcrop - U. rusty

sulphides in felsic →

intermed. rock

old ~~shut~~ workings

1+351m W: Erie Cr.

There is a 1/4 u-x

Erie @ this point.

old road runs // to

Erie cr ≈ 100 m N of

claim line

signs of old working

#3 from old working

above Erie Cr.

claim line crosses
road @ 178m to fence.

cut & flagged line running
 @ ~ 330° crosses over
 claim line @ 1+300m
 minzn near dyke-seds
 contact on slope ~ 150m
 W of June 6 → June 2 line
 @ ~~1+300~~
 dike near creek
 adjacent to 2N 2W
 Br. Fl - Q porph dyke
 claim line about 15m
 north of 3 Skillet Crs

- #1 Trench - along road
 on W. side of Eric
 20/17

- 2 2N (June 6) studds
 split on 2+43m W →
 2+77m W

- 2+124 m W
 - minzn (sample
 20/1
 - near old waterline

- * we need
 - 1) clipboard
 - 2) bag to cover map
 - 3) protractor
- * 4) FORESTRY MAP

- bluff a ~ 2+room

- min Zn pervasive

June 6 3W: elev 3600'

" 4W " 3800'

Spring a June 6. 1

4 P 451 W

June 6 5W: elev 4050'

" 6W " 4250'

June 6

6W, 1+ ~~7~~ 225N

- fine crosses sk at

cr.

elev: 4050'

road a

6W, 1+ 117N

June 6 6W 1A

o/eu: 4300'

old bridge over
skillet at elev =
7650, on runs at 7840

felsic dyke @ 3550'
High-fall @ 3300'

felsic dyke OK

22/7/86

Bill's slope
E of
4400' SW June 6

sample A7 - minted
float @ ~ 4700' on
N side of Skillet

Cr. Valley

minted vein (MO, ep)
8" S

in steeply dipping
vein in fault w/
well devel slickenside
loosen @ 2040'

July 23

A grocery list

butter eggs Pepper
sugar salt dish soap

$$6 / 32.8' = 10m$$

No

Date Page

sample - G-8
angular float from
root of downed tree
~ 50m N of 2N (June)
line on W. bank of Eire
~~46~~

July 24

June 3 slowing S

1000 m	=	3280'	2116=950
1050 m	=	3444	2952=900
1100	=	3608	
1150	=	3772	
1200	=	3936	
1250	=	4100	
1300	=	4264	
1350	=	4428	
1400	=	4592	
1450	=	4756	
1500	=	4920	

- old shaft found
at 3750' elev 200-300m
N of June 3 line
- minor mineral

Q-bi- fld dyke? I am not convinced that this is a dyke - may be part of Nelson batholith

sample G-9: (3 pieces) in minor py & quartz

- Small shaft ~ 4' deep at 4550' level. On it minor sulphides & strong gossan in fld-bi-~~Q~~ graph dyke

- Small (~5') deep shaft @ 4600' level, and strong gossan & apitic dyke with hornfelsic sed no signif mineral

sample apy assoc. to Terminated at in vein with trends ~ 008 & 2 sps 630

G 11, G 12 - From
upper shaft @ 4650
level -

G 11 - copy po ore

G 12 - copy w/ T-jacket

Q vein orientⁿ

750° dip (2) - 50°

- shaft is flooded
width min 2" on
this hillside

G 13

from small dig
@ 4600' level W
of main shaft

G 14

from 4300' level
to add

Extensive minz in

17 15 S area

G 13

from rd T-jacket

W of G 14

Vein STR 010°
Dip 83° E
NW

G-16

- from Adit dump at
SKillet Cr

G-17

- E of G-9 on Hillside

G-18

- Further to the East

Sample G-19

- mineralized wallrock
from Trench at 3400'
level above Erie Creek
Campground

26/7

Problem

2CP June 6 SW mine

No. 22057 (Wanda)

No. 22060 (Cindy)

No. 22058 (Little Joe)

Diane tag mi SSing

Striked by Joe Klovance

July 31 1975 - commenced

Aug 24 1975 - completed

27/7

Sampling "adITS" near
road ~ 425 m into
claim 6

Samples

28/7

LITTLE JOE (22058)

POST NO. 3

J. Klouance (133818)

24/8/75

Lindy (22060)

POST NO. 3

Joe

24/8/75

also

Norcen 22396

W.P. Klouance (134032)

31/7/76

Kayrene 3 (22381)

w.p. Klouance

3/8/76

$\frac{675}{25} = 27$ $\frac{337.5}{11} = 30.68$ $\frac{13.5}{18} = \frac{x}{25}$

No Page

Date

29/7

G-28

py ± po in fractures
 in Lular chunk - of hornfelsed
 Volcanic (?) Ta. float. Possible
 old Trench at this
 location. No o/c

G-29

20m above Trench
 #2 on old Trail

G-30

From adit to
 the south of Hole
 269-1.

The Mineralization
 occurs in white
 rhyolitic material
 which is the only
 kind of rock here
 in a miniature stock
 work of fractures
 of py ± po
 in a matrix of clay

G-31

- copy on frags in hornfelsed sets
This adit has caved in as has the G-30 adit. There is evidence of minor shearing at the mouth of this adit but it is not possible to get a good orientation

Written on page

at 260 ~ ? Larry's?

30/7

151.0
x 328

12720
3180

4770

5215.20

R-33 - from ^{south} shaft
at Ben. Hasen -
Veins (2) ~ 40 cm wide
trending N-S, and steeply

dipping. There is at least 12' of water in the bottom of the shaft, which is vertical. close inspection of veins is not possible
gal py, some cpy

G-35, from north shaft on Ben Hassen vein - 2cm wide.
Strike 195° dip: 52° W

G-34: mixed wallrock (cpy, gal) from south shaft's dump

G-36
- from adit at 4650' level, to the west of Ben Hassen R.C.G.
- minor mineralization (cpy) in volcanic from dump of partially

14

No

Date..... Page.....

caved in adit. This is a long adit, but does NOT appear to be safe to enter.

KB. evidence of calcite vein material in dump.

31/7

G-37 : cpy in purplish (hornfelsed) sets in dump from very old adit. This appears more like a trench. There are 30' high trees growing in the middle of it

G-38

Cpy & py in hnf/sets sets assoc w Q-F-B dyke.

v. old, caved in (post trench

- trees growing in trench
- hgly barren.

G-32 is ~ 19 m N of 69-1

1130
x.3.28

15 75 105

No.

Date

Page

$$\frac{18}{25} = \frac{60}{x}$$

$$18x = 1500 \text{ B}$$

$$x = 18 \sqrt{1500}$$

$$\frac{1440}{60}$$

60

C-39

mined hornfelsic sed
in Top adit ~ 3700'
level. - This is more
like a trench than an adit
C-40: from lower adit.

118

looking for shaft.

1130 m (3700' level)
veins or shear

Cpx, Py

sets → FQ B dyke contact

w of N end of 1st long
o/c on upper road.

G 43

- mined Lular float (Cpx)
Tracepy from trail
at 3500' level (below
1st switchback
F-Q-B dyke w sed xenos.

16/ Bill

G-44: old shaft
Sulphide bearing Qtz
vein in shear zone

str: 176°

dip: -45° E

pod ~ 1' wide - ~~from~~

abun py, minor cpy in
vein.

02/8

G-45: from dump
of very old working at
3550 - 3600' level, NE
of camp ground.

- STKWK Q-veining
in hornfelsed seds.

G-46

- from trench @ 3650'
level - hornfelsed seds
near contact w felsic
dyke. Evidence of Q-
veining w born & Q-
in dump.

G-48

From dump of very
old, 6' long adit.
Extremely oxidizing, (2)
Calc-sil hornfels, w/
ga associated with
narrow ≤ 1 cm veins containing
Terminated at QTZ

near felsic dyke -

gods contact

gtr of shear: $\sim 350^\circ$

dip $\sim 50^\circ$ ^{OE} NW

Elev: 4000

G 49 (arch)

adit @ 3750 level
along some creek

showing oxidation

felsic \rightarrow intruded dyke

rock w/ pods

minor

G-56

Cpy, po in silicified
int dyke rock near
Nelson bath. rock (granite)
contact
u. str. gossan
elev.

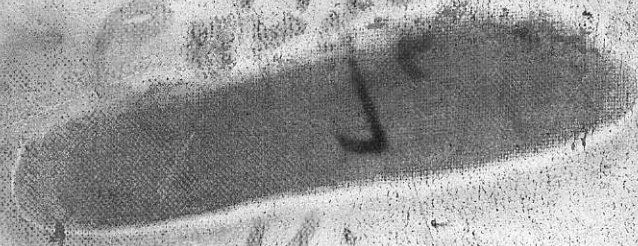
G-57

Cpy & py & po in
graphitic (?) int dyke
mat adj to bleached
granite

G-58

cylindrical shaped float.
porphyritic felsic dyke
material.

0+30
1430



King

June 1

4W corner

POST 2 June

1+175W

unmarked

POST

0+223W