Bench Work

2

F.B.725

showing the difference of latitude and departure in running 80 chains at any course from 1 to 60 minutes.

Minutes.	Lks.	Minutes.	Lks.	Minutes.	Lks.
1	2⅓	21	49	41	95⅔
2	4⅔	22	51⅓	42	98
3	7	23	53⅔	43	100⅓
4	9⅓	24	56	44	102⅔
5	11⅔	25	58⅓	45	105
6	14	26	60⅔	46	107⅓
7	16⅓	27	63	47	109⅔
8	18⅔	28	65⅓	48	112
9	21	29	67⅔	49	114⅓
10	23⅓	30	70	50	116⅔
11	25⅔	31	72⅓	51	119
12	28	32	74⅔	52	121⅓
13	30⅓	33	77	53	123⅔
14	32⅔	34	79⅓	54	126
15	35	35	81⅔	55	128⅓
16	37⅓	36	84	56	130⅓
17	39⅔	37	86⅓	57	133
18	42	38	88⅔	58	135⅓
19	44⅓	39	91	59	137⅔
20	46⅔	40	93⅓	60	140

Table for Running on Slopes.

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.
°		°		°		°	
4	0·24	11	1·88	18	5·14	25	10·54
5	0 38	12	2·24	19	5·76	26	11·26
6	0·55	13	2·63	20	6·42	27	12·24
7	0·76	14	3·06	21	7·11	28	13·37
8	0·98	15	3·53	22	7·85	29	14·34
9	1·24	16	4·02	23	8·64	30	15·47
10	1·55	17	4·56	24	9·47	35	22·07

Check of Benches

July 26th/89.

+	H.I	−	Elev	B.M.	
3.080	43.080			40.000	Initial B.M.
0.420	34.985	8.515		34.565 ✓	3rd + E
1.420	29.385	7.020	27.965		
		3.840		25.545 ✓	3rd + F
2.530	23.115	8.800	20.585		
		4.415		18.700 ✓	3rd + G
2.265	15.805	9.575	13.340		
		2.230		13.575 ✓	3rd + H
5.030	14.710	6.125	9.680		
		3.155		11.555 ✓	2nd +
		2.085		12.625 ✓	1 + - Hydrant
4.780	16.185	3.305		11.405 ✓	1 + - Spike on Tel Post
2.975	15.295	3.865		12.320 ✓	Front +
2.285	13.400	4.180		11.115 ✓	Union +
2.195	10.815	4.780		8.620 ✓	State +
1.705	7.345	5.155		5.660 ✓	Columbia
2.650	4.750	5.265		2.100	Erie
3.010	3.785	3.975		0.995	Arctic
		4.755		−.970	California + H

+	H.el	H.I	Elev	B.M.	
2.475	8.135			5.660 ✓	Columbia & H.
3.275	5.385	6.025		2.110 ✓	Intia " "
3.760	4.555	4.590		0.795 ✓	Arctic " "
4.755	3.980	5.330	-0.775		
		4.932		-0.952 ✓	California " "
5.465	6.260			0.795 ✓	Arctic & H
6.300	9.230	3.330	2.930		
		4.290		4.940 ✓	" " G North end Hydrant Hinge. S.W.
5.710	10.455	4.185	5.045		
		3.205		7.550 ✓	" " F North end " " N.E.
5.655	13.360	3.650	7.705		
		5.271		8.089 ✓	" E Spk in Tel Pole N.W.
6.360	16.072	3.653	9.712		
		5.773		10.299 ✓	" D

July 26th & 27th

+	H.I	-	Elev.	B.M.	
2.200	25.272			23.072	✓
1.410	23.462	3.220		22.052	✓
1.965	20.055	5.372		18.090	✓
		7.035		13.020	
0.755	16.510	4.300		15.755	✓
		7.880		8.630	✓
2.562	16.169			13.607	✓
2.800	13.264	5.705		10.464	✓
3.630	11.784	5.110		8.154	✓
1.705	9.547	3.942		7.842	✓
		7.435		7.112	✓
7.550	13.210			5.660	✓
6.990	17.075	3.125		10.085	✓
4.420	18.710	2.785		14.290	✓
7.675	22.455	3.930		14.780	✓
		2.850		19.605	✓

Copied

State sw D
" E
" F
" G old B.M.
" G Spike Cor. Bldg — N.E.
" H

July 27th

India sw D
" E
" F
" G
" H

Columbia sw H
" G Spk in Tel Post — S.W.
" F " " " — S.E.
" E " " " — N.W.
D

Check of Benches

July 27th 89.

+	H.I	−	Elev	B.M
2.460	34.116			31.656
7.345	38.436	8.025	26.091	
		1.045		27.391
1.095	30.791	8.740	19.696	
		4.345		16.446
3.685	19.695	5.381	15.410	
		4.615		14.480
		7.240		11.855
7.240	18.645			11.405 ✓
6.485	20.515	4.615		14.030 ✓
11.725	28.165	4.075		16.440 ✓
5.690	33.086	0.769		27.396 ✓
		1.420		31.666

First on D

" " E

" " F Spk in Tel Pole S.E

" " G

First on H

" " G

" " F Spk in Tel Pole S.E

" " E

" " D

Check of Benches.

July 30th/89.

+	H.I	−	Elev	B.M.	
1.640	38.839			37.199	✓
1.435	32.764	7.510		31.329	✓
1.225	24.379	9.610	23.154		
		4.880		19.499	✓
1.163	18.017	7.525	16.854		
		1.120		16.897	✓
3.630	14.127	7.520	10.497		
		2.565		11.562	
7.265	47.265			40.000	
4.755	47.690	4.330	42.935		
2.735	47.840	2.585		45.105	✓
8.650	55.200	1.790		46.550	✓
10.415	63.255	2.360	52.840		
10.130	71.228	2.157		61.098	✓
11.970	82.173	1.025		70.203	✓
11.415	92.8.8	0.700	81.473		
		3.735		89.153	
		0.720	92.158		

Second D

E

F

G

H

Third D Initial B.M.

C

B

A

Ash

Beech N end Hydrant Flange. S 17

Check of Benches

+	H.I	−	Elev	B.M	
11.660	103.818		92.158		
11.345	114.421	0.742	103.076		
		7.505	106.916	106.916	
		4.506		109.921	✓
1.065	110.986			109.921	✓
1.320	101.516	10.790		100.196	
0.295	90.046	11.765	89.751		
		1.830		88.216	
0.800	81.996	8.850		81.196 (286)	
0.330	70.921	11.405		70.591	
0.210	63.541	7.590		63.331	
0.210	52.806	10.945	52.596		
4.889	52.475	5.220		47.586	
1.815	47.260	7.030		45.445	
0.199	36.974	10.485	36.775		
		6.235		30.739	
0.225	25.449	11.750	25.224		
		8.455		16.994	

Cedar & 3rd
Date

Third & Date
Second . . Collar of Hydrant. S.E.

First
Front . . Spike in ground N Cor. N E.
Union .
State - - N Hinge of Hydrant. S. E

Columbia .
India

Arctic

California .

Check of Benches.

+	H.I	−	Elev.	B.M.	
3.055	20.049			16.994	
4.395	20.434	4.010		16.039	
1.750	16.909	5.275		15.159	
3.475	14.824	5.560		11.349	
2.935	12.359	5.400		9.424	
5.875	11.514	6.720		5.639	
4.515	10.759	5.270	6.244		
		3.115		7.644	
3.100	10.744			7.644	✓
4.605	11.229	4.120	6.624		
6.735	12.359	5.605		5.624	✓
		2.955		9.404	✓
5.930	15.159	3.130	9.229		
		3.835		11.324	✓
6.030	17.479	3.710	11.449		
		2.360		15.119	✓
5.671	19.972	3.178	14.301		
		3.980		15.992	✓
5.385	21.217	4.140	15.832		
		4.275		16.942	✓

994
942
52

July 30th/89.

California St Date
" " Cedar
" " Beech
" " Ash
" " A
" " B
" " D

California St D
" " B
" " A
" " Ash
" " Beech
" " Cedar
" " Date

August 2nd

Checks

Check of Benches

July 31st/89.

+	H.I.	−	Elev.	B.M.	
0.035	45.140			45.105	
3.190	41.465	6.865		38.275	
2.470	38.195	5.740		35.725	
2.290	34.640	5.845		32.350	
2.705	31.610	5.235		29.405	
3.280	28.265	6.625		24.985	
1.345	23.588	6.022		22.243	
0.600	18.868	5.320		18.268	
4.320	16.726	6.462		12.406	
		6.460		10.266	
6.460	16.754			10.294	✓
6.710	19.144	4.320		12.434	✓
5.880	24.179	0.845		18.299	✓
6.145	28.419	1.905		22.274	✓
6.680	31.694	3.405		25.014	✓
6.050	35.484	2.260		29.434	✓
5.455	37.834	3.105		32.379	✓
5.660	41.419	2.075		35.759	✓
7.000	45.307	3.112		38.307	✓
		0.200		45.107	✓
				105	

C ... ant Third
" " Second
" " First
" " Front
" " Main
" " State
" " Columbia
" " India Hydrant nozzle N E
" " Arctic
D " Arctic

D " Arctic
C " "
" " India Hydrant nozzle N E
" " Columbia
" " State
" " Union
" " Front
" " First
" " Secont
" " Third

Check of Benches.

+	H.I	−	Elev	B.M.	
1.570	48.115			46.545	
3.225	44.495	6.845		41.270	
3.337	40.702	7.130		37.365	
3.367	43.019	1.050		39.652	
1.798	39.892	4.925		38.094	
0.470	31.082	9.780		30.612	
1.525	23.852	8.755	22.327		
		6.550	17.302		
0.800	19.412	5.240		18.612	
1.705	14.057	7.060		12.352	
		8.510		5.547	
8.510	14.134			5.624	✓
7.620	20.040	1.710		12.424	✓
6.085	24.715	1.410		18.630	✓
8.575	30.920	2.370		22.345	✓
9.080	39.705	0.295		30.625	✓
4.500	42.634	1.590		38.115	✓
~~1.370~~	~~41.004~~	~~2.950~~		~~39.684~~	
~~7.220~~	~~44.634~~	~~3.600~~		~~37.404~~	
~~6.605~~	~~47.914~~	~~3.315~~		~~41.309~~	
		~~1.340~~		~~46.574~~	

July 31st/89.

B at Third
" " Second
" " First
" " Front
" " Union
" " State
" " Columbia
" " India Hydrant Nozzle NE
" " Arctic
" " California

B at California
" " Arctic
" " India Hydrant Nozzle NE
Columbia
State
Union
~~Front~~
~~First~~
~~Second~~

	+	H.I	−	Elev	B.m.	
	3.635	41.750			38.115	✓
			7.090		39.660	✓
	6.140	41.520	6.370	35.380		
			4.147		37.373	✓
	6.160	44.332	3.348	38.172		
			3.060		41.272	✓
	6.220	48.737	1.830	42.502		
			2.195		46.552	✓
	1.870	62.968			61.098	✓
	1.730	56.323	8.375		54.593	✓
	3.368	53.501	6.190		50.133	✓
	0.275	50.592	3.185		50.316	✓
			7.535		43.056	✓
	1.245	43.841	7.965	42.626		
	0.432	39.558	4.745		39.126	✓
	2.205	32.063	9.700	29.858		
			7.990		29.073	✓
	2.205	25.893	8.375	23.688		
			6.910		18.983	✓
			6.655	16.328		

B on Union
Front
First
Second
Third
Check 46.550

A on Third
Second
First
Front
Union
State
Columbia
India Spk in Elec Pole 20 from S.W.

+	H.I	−	Elev.	B.M.
3.745	19.973		16.228	
2.820	16.643	6.450		13.823 ✓
		7.240		9.403 ✓
7.238	16.662			9.424
8.215	22.057	2.820		13.842
		3.050		19.007
10.985	31.757	1.285	20.772	
		2.660		29.097
10.402	40.387	1.800	29.957	
		5.245		39.142
7.530	47.127	0.790	39.597	
		4.060		43.067
7.815	52.317	2.725	44.402	
		1.885		50.332
5.705	55.137	2.790	49.427	
		4.980		50.157
9.270	62.057	2.345	52.787	
		7.445		54.612
		0.925		61.132

098
74

A + Arctic
" ✓ California

A + California
" Arctic
" India
" Columbia
" State
" Union
" Front
" First
" Second
" Third

Aug. 1st 2nd 89.

+	H.I.	−	Elev.	B.M.	
0.985	71.188			70.203	✓
		5.255		65.933	
1.500	65.678	7.010	64.178		
		7.050		58.628	
6.190	52.740			46.550	✓
10.235	62.033	0.942	51.798		
		0.935		61.098	✓
9.525	70.723	0.835	61.198		
1.543	71.744	0.512		70.201	✓
1.025	66.959	5.810		65.934	✓
1.065	59.699	8.365		58.634	✓
		3.995		55.704	✓
		5.902		53.797	✓
0.048	49.987	9.760	49.939		
		7.490		42.497	✓
4.350	44.612	9.725	40.262		
		3.715		40.897	✓
1.375	38.357	7.620	36.982		
		5.875		32.482	✓
		8.930	29.427		

Ash at Third
" Sec
" First

Third at B

" A

" Ash

Ash Second
" First

Check on B.M.

Front Hydrant Nozzle SE

Union

State

Columbia

+	H. I	−	Elev	B.m
0.835	30.262		29.427	
		7.005		23.257 ✓
1.731	21.923	10.070	20.192	
		4.725		17.198 ✓
1.820	15.903	7.840	14.083	
		4.580		11.323 ✓
				24 9
1.885	44.382			42.497
		3.490		40.892
1.750	37.672	7.960	36.422	
		5.195		32.477
1.140	31.722	7.590	30.082	
		7.957		23.765
1.815	22.007	11.030	20.192	
		4.812		17.195
2.055	16.137	7.925	14.082	
		4.810		11.327
				24 7

Ash and Indio

" Arctic dark

" California

Ash and Union

Ash and State

" Columbia

" Indio

" Arctic

" California

106.96

+	H.I	−	Elev	B.M.	
11.910	82.111			70.301 ✓	Third & Ash
9.705	91.056	0.760	81.351		
		1.910		89.146 ✓	Beech & Third
0.290	80.521	10.825	80.231		
0.700	69.536	11.655	68.836		
		6.490		63.046 ✓	" First S.E Spk in ground 5' fr corner
4.255	62.441	11.350	58.186		
		7.610		54.831 ✓	" Front S.W. Spk " " 5' fr cor
3.110	55.951	9.600	52.841		
		3.020		52.931 ✓	" Union
3.185	49.336	9.800	46.151		
		2.940		46.396 ✓	" State
1.870	43.166	8.040	41.296		
		2.267		40.899 ✓	" Columbia
1.575	35.483	9.258	33.908		
		4.710		30.773 ✓	" India
1.153	25.536	11.100	24.383		
		5.882		19.654 ✓	" Arctic
1.750	18.871	8.415	17.121		
		3.752		15.119 ✓	" California

Check

+	H. I	−	Elev	B.M.
11.116	27.108			15.992 ✓
9.635	35.928	0.815	26.293	
		7.405		28.523 ✓
11.756	46.664	1.026		34.908 ✓
11.850	57.539	0.995	45.689	
		8.910		48.629 ✓
10.265	67.749	0.855		57.484 ✓
6.410	68.379	5.830	61.919	
		7.225		61.094 ✓
11.960	79.259	1.030	67.299	
		7.355		71.904
11.635	89.963	0.931	78.328	
11.745	100.718	0.990	88.973	
		8.925		91.793
11.660	111.368	1.010	99.708	
		11.430		106.938
0.981	100.374	11.975	99.393	
		11.205		89.169

		old B.M.
Cedar	California	16.029
"	Arctic NE. Stk in Tel Pole	25.535
"	Indiá	34.949
"	Columbia	48.639
"	Slate	57.492
	Union Horn	
"	Front	61.166
"	First	
"	Second	
"	Third	
Birch	Third	

Aug^t 3^d

+	H.I.	−	Elev	B.M.			old B.M.
9.905	99.051			89.146	✓	Beech and Third	
10.700	108.856	0.895	98.156				
		1.935		106.921	✓	Cedar + Third	106.931
0.455	97.786	11.525	97.331				
		6.010		91.776	✓	" Second	91.781
0.015	86.056	11.745	86.041				
1.715	75.851	11.920	74.136				
		3.955		71.896	✓	" First	71.896
						Aug^t 8^th	
7.710	114.631			106.921	✓	Cedar and Third	
7.445	112.366	4.710		109.921	✓	Date " Third	109.936
1.825	103.451	10.740	101.626				
		3.257		100.194	✓	" Second Col Hyd^t S.E	
0.615	92.991	11.075	92.376				
		4.770		88.221	✓	" First	88.219
1.525	86.266	8.350	84.941				
0.815	82.001	4.980		81.186	✓	Front Ste ground W cor N.E.	
		11.420		70.581	✓	Union	70.604
1.120	73.226	9.905	72.096				
		11.110	62.116				

Aug. 8th

+	H.I.	−	Elev.	B.M.	
1.818	63.934		62.116		
		0.620		63.314	✓
2.373	55.447	10.860	53.074		
		7.880		47.567	✓
1.032	48.339	8.140	47.307		
		2.925		45.414	✓
1.217	38.041	11.515	36.824		
		7.346		30.695	✓
0.525	27.956	10.610	27.431		
		11.014		16.942	✓
5.920	23.001	10.875	17.081		
		5.280		17.721	✓
3.825	22.596	4.230	18.771		
		5.785		16.811	✓
4.300	22.004	4.892	17.704		
		0.430		21.574	✓
4.113	21.132	4.985	17.019		
		3.625		17.507	✓
4.410	20.197	5.345	15.787		
		2.240		17.957	✓
		5.746		14.451	✓

	Old B.M.
Date 2nd State N end Hyd bridge S.E.	
" " Columbia	47.578
" " India	45.477
" " Arctic	Check 30.726
" California	16.994 / 52
California & Fir	17.780 / 61
" Grape	16.865 / 54
" Hawthorne	21.631 / 574 / .57
Ivy	17.576 / 69
" Juniper	18.025 / 68
Kalmia	14.499

+	H.I.	−	Elev	B.M.	
11.190	121.111			109.921	✓
11.060	131.823	0.848	120.263		
11.840	142.304	0.859	130.464		
		3.725		138.579	✓
11.865	152.859	1.310	140.994		
		10.275		142.584	✓
11.748	163.675	0.932	151.927		
10.765	174.762	0.178		163.497	✓163.502
11.265	184.417	1.110	173.152		
		0.620		183.797	✓
~~6.795~~	~~190.037~~	~~+195~~	~~183.242~~		
~~11.662~~	~~200.804~~	~~0.895~~	~~189.142~~		
~~9.013~~	~~208.892~~	~~0.925~~	~~199.879~~		
~~2.113~~	~~209.790~~	~~1.215~~		~~207.677~~	
~~11.690~~	~~220.695~~	~~0.785~~	~~209.005~~		
		8.725		211.970	
~~1.975~~	~~214.735~~	~~2.935~~	~~211.760~~		
		~~2.495~~		~~211.240~~	
~~4.555~~	~~215.569~~			~~207.699~~	
		4.507		211.055	
		1.065	214.497		

Third and Date

" Elm S.E. Hyd. nozzle

" Elm old B.M.

" Fir

" Grape

Hawthorn old B.M. gone

" Ivy. Tin Tack on SE cor of 2nd Step NW

August 10th

Fourth + Ivy

~~Fifth + Ivy~~

~~Third + Ivy~~

~~Fourth + Ivy~~

Aug^t 10^th

+	H.I	−	Elev^n	B.M.
5.172	219.669		214.497	
		3.325		216.344
1.421	209.379	11.711	207.958	
		10.565		198.814
1.331	198.950	11.760	197.619	
0.012	187.172	11.790	187.160	
		8.720		178.452
1.945	177.167	11.950	175.222	
0.225	166.118	11.274	165.893	
		5.730		160.388
1.340	155.463	11.995	154.123	
0.987	144.700	11.750	143.713	
		4.450		140.250
2.525	138.195	9.030	135.670	
		4.315		133.880
0.875	127.555	11.515	126.680	
		10.455		117.100

Fifth av. Ivy	216.277
" Hawthorne	198.759
" Grape	178.419
" Fir	160.346
" Elm	140.078
" Grape. NE Hyd^t nozzle	
" Cedar	

+	H.I	−	Elev	B.M.
0.310	160.698			160.388
0.795	149.983	11.510	149.188	
		9.846		140.137
1.079	139.942	11.120	138.863	
		6.185		133.757
0.145	130.952	9.655	130.307	
6.965	126.292	11.125	119.327	
		9.304		116.988
3.160	127.392	2.060	124.232	
		2.036		125.356
0.490	118.592	7.490	118.102	
		2.855		115.737
0.868	107.630	11.830	106.762	
		8.051		99.579
0.677	97.060	11.240	96.390	
1.120	86.810	11.370	85.690	
		7.950		78.860
0.940	75.467	11.883	74.927	
1.205	65.176	11.496	63.971	
		6.690		58.486
		8.190	56.986	

Fifth and Fir — ~~140.078~~

" Elm — 140.078

~~Grade~~ Datt NE 4th st nozzle

" Cedar — 116.954

Sixth + Cedar — 125.333

" Beech — 115.712

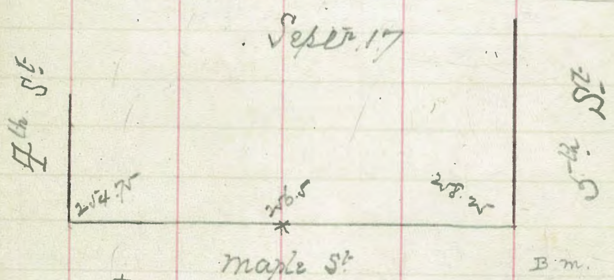
" Ash — 99.588

" A — 78.814

" B — 58.463

+	H.I	−		Elev.	B.M
4.295	61.281			56.986	
		3.803			57.478
2.380	57.526	6.135		55.146	
		6.881			50.645

Sept 17



+	H.I				B.M.
2.805	261.250				258.445

	Rod.
258 W	3.000
256.50	4.75
254.75	6.50

6.38 254.870 254.860

Sixth St C. SE Hydrant Nozzle

D 50.590

254.860

Septr 5th/89.

+	H.I	−	Elev	B.M	
2.230	165.727			163.497	✓
3.190	157.627	11.290	154.437		
		4.155		153.472	✓
0.498	146.315	11.810	145.817		
		8.475		137.840	✓
0.255	134.620	11.950	134.365		
0.097	123.035	11.682	122.938		
0.385	111.821	11.799	111.436		
		9.031		102.790	✓
0.735	100.766	11.790	100.031		
		3.320		99.446	
0.140	92.356	8.550	92.216		
		0.805		91.551	✓
1.225	82.126	11.455	80.901		
		2.485		79.641	✓
9.960	70.316	11.870	70.256		
		9.270		61.046	
		4.540		65.776	✓
7.200	68.751	11.765	58.551		
1.690	50.891	11.550	49.201		

Fir and 3rd St

" " 2nd St

" " 1st

" Bruns. NE Spk in ground 6" fr cor

old B.M 99.958

" Union

" State S.E. nozzle of Hydrant

old B.M 61.049

" Columbia S.E Spk in cor Fence

+	H.I	−	Elev	B.M.	
	50.891				
		3.675		47.216	✓
0.730	40.009	11.612	39.279		
		4.670		35.339	
		7.235		32.774	✓
0.900	28.953	11.956	28.053		
		11.200		17.753	
3.855	21.896	10.912	18.041		
		4.925		16.971	
11.525	59.092			47.567	✓
11.423	69.765	1.350	57.742		
		6.420		62.745	✓
9.870	78.675	0.360	68.805		
		8.625		70.050	✓
10.700	86.965	7.410	76.265		
		9.525		77.440	✓
10.885	97.260	0.590	86.375		
		11.370		85.890	✓
11.810	108.185	0.885	96.375		

Indian & Fir — 47.235

B.M. — 35.353

Fir & Arctic — SW. Spk in cor Fence

California & Fir — 17.780 / 17.721

Data on Columbia

Elev & " NE. Spk in ground 4" fr cor

" " State — 70.083

" " Union

" " Front — SW Spk in ground 4" fr Cor

+	H.I.	−	Elev	B.M.			
	108.185						
11.865	119.465	0.585	107.600				
		7.570		111.895	✓	Elm and First	
11.820	129.570	1.715	117.750				
		10.945		118.625	✓	" " Second	
11.810	141.000	0.380	129.190				
11.175	151.345	0.830	140.170				
2.610	152.515	0.440	150.905				
		10.955		142.560		" Third	
0.030	183.827			183.797	✓	Grape and First	
		7.680		176.147	✓	" " Second	
0.915	175.534	9.208	174.619				
1.125	164.689	11.970	163.564				
0.740	153.704	11.725	152.964				
		8.277		145.427	✓	" First	top of Elbow collar water pipe. NE
0.270	141.999	11.975	141.729				
0.180	130.754	11.425	130.574				
3.930	124.119	10.565	120.189				
		7.725		116.394	✓	" Front	
0.110	112.324	11.905	112.214				

Sept 6th/89

	+	H.I	−	Elev	B.M.	
105.163		112.324				
			6.680		105.644	✓
	0.080	100.979	11.425	100.899		
			6.080		94.899	✓
	0.538	89.682	11.835	89.144		
			11.070		78.612	✓
	2.261	80.426	11.577	78.165		
	0.135	69.211	11.050	69.076		
60.66			8.597		60.614	✓
	0.160	57.856	11.515	57.696		
	1.190	47.401	11.645	46.211		
46.615 57½			0.830		46.571	✓
	0.595	36.216	11.780	35.621		
			4.405		31.811	✓
	0.820	25.789	11.247	24.969		
16.820 8½			8.965		16.824	✓
					16.811	✓

Grape " Albatross. NW Iron Pin 6" fr cor Post-

" " Union NE " " " Cem. wall

" State SE Spk cor Post- 50's of cor

" Columbia

" India

" Arctic

" California 16.811

16.865 824

Sept 11th/89.

+	H.I	−	Elev	B.M	
9.785	31.359			21.574	✓
		1.550		29.809	✓
11.985	42.499	0.845	30.514		
11.720	53.934	0.285	42.214		
		8.270		45.664	✓
11.770	65.139	0.565	53.369		
11.850	76.759	0.230	64.909		
		8.770		67.989	✓
11.838	88.187	0.410	76.349		
		7.970		80.217	✓
11.765	99.402	0.550	87.637		
10.283	109.130	0.555	98.847		
		5.900		103.230	✓
11.480	120.465	0.145	108.985		
11.705	132.065	0.105	120.360		
10.810	142.835	0.040	132.025		
		8.410		134.425	✓
11.545	153.785	0.595	142.240		
8.490	160.455	1.620	152.165		
8.665	158.875	10.445		150.210	✓

		B.M.
Hawthorn & California		21.63
" Arctic		29.85
" India nr Spk Elec Pole		
" Columbus		
" State		80.29
" Union		103.29
" Albatross	S.E. Nozzle of Hydrant	
" Front	S.W. Pin at 7' tie point	

+	H.I	−	Elev	B.m.			
	158.875						
9.671	167.646	0.900	157.975				
		2.030		165.616	✓	Hawthorn + First	S.E Nozzle Hydrant
7.275	174.038	0.883	166.763				
		0.360		173.678	✓	" + Second	N.E Spk ground N° cor
0.780	163.123	11.685	162.343				
		1.325		161.798	✓	" + Third	S.W. Spk in Fence cor
11.515	173.628	1.000	162.113				
11.680	184.590	0.718	172.910				
6.630	190.518	0.702	183.888				
		6.735		183.783	183.795 ✓	Grade +	183.795
11.510	184.420		172.910				
11.110	194.465	1.065	183.355				
11.270	205.670	0.065	194.400				
2.985	207.185	1.470	204.200				
		0.170		207.015	✓	Ivy + 3rd St.	207.037
1.506	199.705	8.980	198.205				
		1.315		198.390	✓	" + 2nd St.	198.398
1.100	194.085	6.720	192.985				

Sept 12th

+	H I	−	Elev	B.M.				old B.M.
	194.085							
		3.590		190.495	✓	Ivy and First St		190.516
0.280	183.915	10.450	183.635					
		8.370		175.545	✓	Front		175.568
0.170	172.110	11.975	171.940					
0.770	161.310	11.570	160.540					
		10.090		157.220	✓	Albatross		157.263
0.330	150.610	11.030	150.280					
1.245	140.390	11.465	139.145					
0.550	129.215	11.725	128.665					
0.635	125.920	3.930		125.285	✓	Brandt	S E Spk ground nr Stone wall	
0.070	114.395	11.595	114.325					
0.070	103.090	11.375	103.020					
		0.980		102.110	✓	Union		102.153
0.175	91.750	11.515	91.575					
0.085	79.840	11.995	79.755					
		4.753		75.087	✓	State		75.135
1.045	69.145	11.740	68.100					
		1.907		67.238 (4)	67.234	Columbia		67.271
0.880	58.100	11.925	57.220		✓			

+	H.I	−	Elev	B.M.	
	58.100				✓
		11.360		46.740	46.732
1.630	47.260	11.870	46.230		
0.565	36.315	11.510	35.750		
		8.810		27.505	27.493
0.915	25.705	11.575	24.790		
4.805	21.625	8.885	16.820		
		4.100		17.525	17.507
11.715	29.672			17.957	✓
VI.525	40.827	0.370	29.302		
		9.725		31.102	✓
11.300	51.787	0.340	40.487		
		5.330		46.457	✓
11.845	62.747	0.885	50.902		
11.370	73.469	0.648	62.099		
		5.685		67.784	✓
11.500	83.729	1.240	72.229		
		4.443		79.286	✓
11.945	95.484	0.190	83.539		

Old B.m.

Izy and India N.W. Spk in Elec Pole

" Arctic 27.544

" California 18

Juniper " California

" Arctic N.W. Spk in Fence cor 75' N of cor

" India 46.540

" Columbia N.E. Iron Pin in ground N° cor

" State SE " " "

+	H.I.	−	Elev	B.M.	
	95.484				
		7.415		88.069	✓
11.725	107.161	0.048	95.436		
11.650	118.046	0.760	106.396		
11.910	129.746	0.210	117.836		
		4.060		125.686	✓
11.210	140.911	0.045	129.701		
11.775	152.611	0.075	140.836		
11.860	164.379	0.092	152.519		
		7.715		156.664	✓
11.830	176.124	0.085	164.294		
11.375	187.072	0.427	175.697		
9.740	196.332	0.480	186.592		
		6.590		189.742	✓
9.960	205.942	0.350	195.982		
		3.380		202.562	✓
6.409	211.600	0.742	205.200		
10.540	221.040	1.100		210.500	✓
0.330	215.645	5.725		215.315	✓
		8.630		207.015	✓

Old B.M.

Junker East Union NW. Iron Pin 5' North Block cor

" Brandt SW Iron pin 6" SW fr cor

" Albatross 156.691

" Front 189.795

" First SE. Nozzle Hydrant

" Second 210.519

" Third SW Iron in 6" S.W. cor

Ivy "

Sept 13th

+	H.I	−	Elev	B.M			Old B.M
9.571	224.886			215.315	✓	Juniper and 3rd	
6.390	230.576	0.700	224.186				
		1.400		229.176	✓	Kalmia + 3rd	229.191
11.890	241.456	1.010	229.566				
		8.495		232.961	✓	" " 4th	232.965
8.460	249.466	0.450	241.006				
		7.405		242.061	✓	" 5th	242.054
9.825	258.064	1.227	248.239				
		8.390		249.674	✓	Fifth and Laurel	249.664
7.265	264.300	1.029	257.035				
		5.855		258.445	✓	Maple	258.437
10.190	271.833	2.657	261.643				
		7.875		263.958	✓	" Nutmeg	263.934
6.910	277.203	1.540	270.293				
		6.000		271.203	✓	Olive	271.185
7.029	282.477	1.755	275.448				
		6.405		276.072		old B.M.	276.061
		5.240		277.237	✓	Palm S.W. Hyd. nozzle	
6.260	285.187	3.550	278.927				
		5.730		279.457	✓	Lemon SE Iron pin 6" fr curb	
4.770	286.222	3.735	281.452				

+	H I	–	Elev	B.M					old B.M
	286.222								
		4.295		281.927	✓	Fifth	& Spruce	Spk in Pole 50' South of SE cor	~~281.767~~
3.980	285.247	4.955	281.267						
8.450	289.822	3.875	281.372						
		6.710		283.112	✓		Thorn	NE Spk 4' E fr cor	
		3.030		286.792	✓	old B.M	Upas		286.739
1.825	289.817	1.830		287.992	✓		"	NW Spk ground 3 feet E. cor	
4.195	289.547	4.465		285.352	✓	4th +	"		285.303
		6.150		283.397	✓	3rd +	"		283.328
		7.985		281.562	✓	3rd +	Thorn		281.501
3.840	287.132	6.255	283.292						~~274.147~~
		4.030		281.102	✓	2nd +	Thorn	NW Spk W cor	
		4.010		283.122	✓	5th +	Thorn ~~+ Upas~~		
3.230	280.467			277.237	✓	Palm +	~~Upas~~ 5th St		
		11.695		268.772	✓	" +	4th St		268.779
2.525	276.027	6.965	TP 273.502						
		11.555		264.472	✓	4th +	Quince	Closed	264.489
7.820	277.257	6.590	269.437						
		11.051		266.206	✓	4th +	Redwood		266.221
5.340	279.622	2.975	274.282						

+	H.I	−	Elev	B.M			old B.M
	279.622						
		5.700		273.922 ✓	Fourth + Spruce		273.932
8.415	283.667	4.370	275.252				
		2.588		~~281.079~~			
2.155	285.267			283.112 ✓	Thorn + ~~Upas~~ Fifth		
3.960	285.222	4.005	281.362				
		3.306		281.922 ✓	Fifth + Spruce		
		11.295		273.927 ✓	Fourth "		
2.820	279.092	8.950	276.272				
5.465	275.667	8.890	270.202				
		9.455		266.212 ✓	" + Redwood		
~~10.115~~	~~274.587~~			~~264.472~~ ✓	~~Fourth + Quince~~		
		~~4.155~~		~~270.432~~			
10.115	283.617		T.P 273.502				
		4.155		279.462	Fifth + Quince	Check from Fourth St. + back to Spruce + 5th	
5.470	284.927			279.457 ✓	Fifth + Quince		
4.055	286.147	2.835		282.092 ✓	" + Redwood.	S.E. Spk ground 3' E of cor	
		4.230		281.917 ✓	Spruce		

Loop checks to first, error in old B.M. of 0.010

Copied

Thorn + Upas old B.M. .050 low

Sept 14th

+	H.I	−	Elev	B.M.	
				268.772	✓
5.960	274.732				
		5.710		269.022	✓
2.705	270.714	6.723		268.009	✓
		8.040		262.674	✓
1.285	262.954	9.045	261.669		
		5.900		257.054	✓
1.988	257.612	7.330	255.624		
		5.385		252.227	✓
0.120	246.237	11.495	246.117		
1.485	237.302	10.420	235.817		
		3.130		234.172	✓
1.550	230.367	8.485	228.817		
		1.377		228.990	✓
0.569	222.132	8.795	221.572		
1.645	212.052	11.725	210.407		
		4.220		207.832	✓
1.735	205.067	8.695	203.357		
		5.750		199.342	✓
2.460	197.842	9.710	95.382		
		8.090		189.752	✓

Circuit.

Fourth and Salem		
old B.M. Olive		269.037
4th + Olive	NW Pin N° cor	
" + Mulberry		262.676
3rd + Mulberry		257.052
2nd + "		252.221
1st + Mulberry		234.302
1st + Maple		
		229.013
Front + Laurel	NE Pin gone N. cor Stone wall	
" Kalmia		199.369
" Juniper		189.742

+	H.I	−		B.M	
6.675	206.017			199.342 ✓	
10.315	216.167	0.165	205.852		
		2.725		213.442	~~211.444~~
		3.910		212.257	212.261
7.635	223.682	0.120	216.047		
11.910	233.350	2.242		221.440	221.446
		4.185		229.165	229.175
2.940	252.614			249.674	
4.900	247.474	10.040	242.574		
		2.695		~~244~~.779	
		4.700		242.774	
4.310	241.109	10.675	236.799		
		3.935		237.174	
2.390	233.294	10.705	230.904		
		2.750		230.544	
		7.855		225.439	
2.155	224.769	10.680	222.614		
		2.145		222.624	
3.400	217.884	10.285	214.484		
		10.025		207.859	

Sept 16th

Front & Kalama				
First "	" off B.M			213.455
✓ " "	"		SE. Cor. W. cor	
✓ Second "	"			221.468
✓ Third	"			229.176
Laurel + 5th				
off B.M	4th			244.783
"	+ 4th		S.W Nozzle of Hyd	
	3rd			237.205 .174
"	2nd		SE Side Elec Pole	231.352
old B.M	1st			225.414
"	1st		S.W Nozzle Hyd	
"	Front			

+	H.I	−	Elev	B.M.
~~6.865~~	~~206.207~~			~~199.342~~
~~10 7.021~~	~~5.417~~	~~+.500~~	~~204.707~~	
		7.588		207.829
11.895	219.727			207.832 ✓
11.040	229.932	0.855	218.892	
		7.240		222.592 ✓
11.625	240.382	1.175	228.757	
		9.890		230.492 230.495
		8.245		237.137 237.142
10.810	248.627	2.565	237.817	
		5.885		242.742 242.750
8.010	255.297	1.340	247.287	
		5.635		249.662 249.671
2.640	261.085			258.445 ✓
		6.225		254.860 ✓
2.875	255.120	8.840	252.245	
		4.770		250.370 ✓.367
~~0.210~~	~~249.315~~	~~6.015~~	~~249.105~~	
		6.765		~~242.550~~
~~0.030~~	~~249.515~~	9.830	239.485	

Laurel + Front

1st — S.W Nozzle of Hydrant

2nd — SE Spk East Pole

3rd

4th — SW Nozzle of Hydrant

5th

Mable + 5th

4 — 254.868

3rd

~~247.705~~
250.372

~~229.615~~
242.522

9.025
228.987
38

+	H. I	−	Elev	B. M.	
	~~239.515~~				
		~~10.490~~		~~229.025~~	
				99	
~~8.540~~	~~231.132~~			~~222.592~~	
~~6.300~~	~~234.717~~	~~2.715~~	~~228.417~~		
		~~5.730~~		~~228.987~~	
5.152	255.522			250.370	.364
1.477	245.654	11.345	244.177		
		3.120		242.534	.525
2.675	236.744	11.585	234.069		
		7.740		229.004	228.992
				99	
5.635	273.644			268.009	✓
		2.435		271.209	271.203
3.645	267.603			263.958	✓
		4.940		262.663	✓

~~Laurel~~ + 1st

Maple St. 3

2nd

1st

228.990 004 14

Olive + 4

5

Nutmeg + 5th

4

Sept 16th

+	H. I	−	Elev	B.M.	
				242.061	5th + Kalmia
1.640	243.701				
0.112	235.083	8.730	234.971		
		4.190		230.893	5 + Juniper
0.050	223.608	11.525	223.558		
8.750	220.363	11.975	211.633		
		10.852		209.518	4th " " 209.524
5.035	220.350			215.315 ✓	3rd + Juniper
		10.845		209.505 ✓	4th " "
11.040	230.970	0.420	219.930		
4.290	235.260	0.100	230.870		
		4.385		230.875 ✓	5th " "
1.345	225.225	11.380	223.880		
		8.940		216.285	5th Ivy 216.277

Brooks' Addition

Sept 17th

+	H.I	−	Elev.	B.M.	
7.070	292.422			285.352	
6.330	294.107	4.645		287.777	
2.523	292.840	3.790	290.317		
5.970	289.405	9.405		283.435	
6.315	290.485	5.235	284.170		
6.540	291.730	5.295		285.190	
5.800	293.570	3.960	287.770		
3.565	294.275	2.860		290.710	
		6.650		287.625	
7.165	57.755			50.590	✓
5.799	60.955	2.599	55.156		
		3.540		57.415	✓
5.460	62.185	4.230	56.725		
		3.755		58.430	✓
10.710	71.460	1.435	60.750		
11.815	83.015	0.260	71.200		
		4.195		78.820	✓
11.685	94.400	0.300	82.715		
11.625	105.635	0.390	94.010		

			old B.M
Fourth and Upas			
"	" Ferry		287.75
"	" Brooks		283.42
"	" Thornton		285.16
"	" Robinson		290.69
"	" Newhall		287.60
Sixth and	D.		50.59
"	" C	SE Hyd nozzle	
"	" B		58.463
"	" A		78.814

+	H.I	−	Elev	B.M			
	105.635						
		6.045		99.590	✓	Sixth + Ash sw B.M.	99.588
		5.500		100.135	✓	" "	Spk ground 6" fr cor
11.675	115.500	1.810	103.825				
9.620	123.997	1.123	114.377				
		8.300		115.697	✓	" Beech	115.712
7.062	129.456	1.603	122.394				
		4.145		125.311	✓	" Cedar	
11.350	140.378	0.428	129.028				
7.640	147.173	0.845	139.533				142.361
		4.830		142.343	✓	" Date	
0.410	136.153	1.430	135.743				
		2.430		133.723	✓	Fifth + Date	N.E. Nozzle Hydt
8.265	141.933	2.485	133.668				
		1.850		140.083	✓	" Elm	
10.060	150.898	1.095	140.838				
11.220	161.838	0.290	150.608				
		1.500		160.338	✓	" Fir	
11.340	172.933	0.245	161.593				
11.125	183.083	0.975	171.958				

-11.86

+	H.I	−	Elev	B.M
	183.083			
7.250	190.248	0.085	182.998	
		11.860		178.388 ✓
11.815	194.813		182.998	
6.880	201.168	0.525	194.288	
11.510	210.268	2.410		198.758 ✓
11.875	222.058	0.085	210.183	
		5.785		216.273 ✓
~~11.895~~	~~232.828~~	~~0.325~~	~~221.733~~	
		~~1.920~~		~~230.858~~
~~10.477~~	~~242.905~~	~~0.395~~	~~232.433~~	
		~~0.880~~		~~242.025~~
4.760	211.775			207.015 ✓
		0.780		210.995 ✓
11.290	222.665	0.400	211.375	
		6.385		216.280 ✓

Fill at Grade

" Hawthorne

" Ivy 216.277

" Juniper 230.875

" Kalmia 242.061

3rd " Ivy

4th " "

5th

211.004

+	H.I	−	Elev	B.M	
6.875	205.633			198.758	✓
		9.360		196.273	✓
0.140	194.580	11.195	194.440		
0.375	183.220	11.735	182.845		
1.145	173.065	11.300	171.920		
		11.245		161.820	✓
~~0.025~~	~~183.822~~			183.797	✓
10.600	190.672	3.750	180.072		
1		7.380		183.292	✓
1.560	181.412	10.820	179.852		
		2.980		178.432	
7.260	167.598			160.338	
		6.605			
				160.993	✓
4.510	169.613	2.495	165.103		
		6.130		163.483	✓

Hawthorne & 5th		
" " 4th		196.313
		161.807
" 3rd		
Grape & 3rd		
" 4		183.272
" 5		
Fir & 5th		
		161.107
" 4th	SE spk grand 8" fcor	
" 3rd		163.497

+	H.I	−	Elev	B.M	
7.085	145.664			138.579	✓
2.695	140.864	7.495	138.169		
		2.705		138.159	✓
		0.760		140.104	✓
1.230	134.953			133.723	✓
2.360	125.623	11.690	123.263		
		4.160		121.463	✓
2.635	117.563	10.695	114.928		
		7.650		109.913	✓
8.565	115.486			106.921	✓
		3.045		112.441	✓
11.455	122.781	4.160	111.326		
		5.830		116.951	✓
8.951	128.212	3.520	119.261		
		2.895		125.317	✓

Elm and 4th

" 4th NE Spk ground 6" fr. cor Fence.

" " 5th 140.083

Dale + 5th 121.474

" " 4th

" " 3rd 109.921

Cedar + 3rd 112.435

" 4th

" 5th 116.954

" 6th 125.311

+	H.I	−	Elev	B.M.	
5.220	50.325			45.105	✓
		1.060		49.265	✓
9.210	56.590	2.945	47.380		
		2.170		54.420	✓
7.335	60.485	3.440	53.150		
		3.065		57.420	✓
2.190	60.620			58.430	
2.735	57.260	6.095	54.525		
		1.695		55.565	
2.830	53.165	6.925	50.335		
		2.540		50.625	
		6.640		46.525	
3.760	61.175			57.415	✓
5.250	62.070	4.355	56.820		
		3.625		58.445	✓
2.965	57.560	7.475	54.595		
		1.970		55.590	✓
3.015	52.930	7.645	49.915		
		2.270		50.660	✓
		6.370		46.560	✓

6 × 3rd

" " 4th S.E. Hyd nipple.

" " 5th 54.418

" " 6th 59.415

B × 6th

" " 5th 55.602 / 561 / 37

" " 4th 50.650 / 25 / 54

" " 3rd 46.550 / 25 / 25

C × 6th

B × 6

" " 5th 55.602

" " 4 50.656

" " 3 46.550

+	H.I	−	Elev	B.M.		Station	Description	
11.130	69.575			58.445	✓	6a + B		
11.850	81.205	0.220	69.355					
0.425	79.255	2.380		78.825	✓	A		78.814
2.165	70.045	11.370	69.880					
		2.370		67.675	✓	5th + A	SE New Hydrant hinge.	
3.660	63.735	9.970	60.095					
		5.500		58.235	✓	4th	SE Spk ground at cor Fence	
6.100	66.055	3.760	59.995					
		4.975		61.100	✓	3rd		61.098 (105)
8.870	79.071			70.201	✓	Ash + 3rd		
7.302	85.448	0.925	78.146					
		2.000		83.448	✓	4 old B.M.		83.456
		6.315		79.133	✓ 130		S.W. Nozzle of Hydrant	
11.304	88.842	7.910	77.538					
		11.170		77.672	✓ 79	5.	SE Spk in cor Post	
11.825	100.037	0.630	88.212					
2.255	101.627	0.665	99.372					
		1.485		100.142	✓	6th		100.135 (42)

+	H.I	−	Elev	B.M		
6.645	116.342			115.697 ✓		Beech & 6th
0.160	104.752	11.750	104.592			
		3.900		100.852 ✓		5th
3.480	101.569	6.663	98.089			
		7.360		94.209 ✓		4th old B.M. 94.228
		6.900		94.669 ✓		4 S E. Spk ground at cor fence
3.140	94.624	10.685	91.484			
		5.480		89.144 ✓		3rd 89.146
1.385	90.531			89.146		3rd
2.765	85.086	8.210	82.321			
		7.440		77.646 ✓		2nd S E Spk in Cement walk at cor
0.970	199.728				198.758	5th & Hawthorne
0.585	188.438	11.875	187.853			
8.280	188.003	8.715	179.723			
		9.600		178.403 ✓		Grape & 5th 178.588 (405 / 15)
3.770	186.265	5.508	182.495			
		3.010		183.255		4th old B.M. 183.272
		3.745		182.520 ✓		N W Spk ground at cor
		2.495		183.770		183.797

+	H.I	−	Elev	B.M
5.077	63.522			58.445
		2.840		60.682
6.490	67.102	2.910	60.612	
		2.025		65.077
6.585	71.842	1.845	65.257	
		4.835		67.007
10.250	79.542	2.520	69.322	
		3.700		65.872
11.370	90.277	0.665	78.907	
		6.778		83.499
10.170	100.007	0.440	89.837	
		1.250		98.757
2.130	95.694	6.443	93.564	
3.032	87.066	11.660	84.034	
		2.150		84.916
1.505	78.196	10.375	76.691	
		5.815		72.381

				to B.M.
B	+	6		
"	"	7		60.680
"	"	8		66.065
"	"	9		68.010
"	"	10	Hydrant	76.845
"	"	11		84.486
"	"	12		99.753
C	+	12		85.904
D	+	12		73.354

9.405

+	H.I.	−	Elev	B.M.			
6.585	67.267			60.682	✓	B + 7	
		1.195		66.072	✓	" " 8	
8.180	72.997	2.450	64.817				
		5.005		67.992	✓	" " 9th	
11.415	81.467	2.945	70.052				
		4.615		76.852	✓	" " 10th	
11.830	91.817	1.480	79.987				
		7.330		84.487	✓	" " 11th	
9.535	100.647	0.705	91.112				
		0.900		99.747	✓	" " 12	
1.230	95.372	6.505	94.142				
2.500	88.432	9.440	85.932				
		2.525		85.907	✓	C + 12	
2.315	79.437	11.310	77.122				
		6.070		73.367	✓	D + 12	7.3 55
2.948	57.758			54.810	✓	7th + D	
7.855	63.163	2.450	55.308				
		1.820		61.343	346	C old B M	61.340
		1.825		61.338	✓ 344	NE Sr hinge Hydt	
4.150	64.448	2.865	60.298				
		3.775		60.673		B	

+	H.I	−	Elev	B.m.	
0.530	66.602			66.072	✓
		3.795		62.867	✓
1.170	63.217	4.550	62.047		
		5.458		57.762	✓
4.040	66.163			62.123	
6.960	71.303	1.820	64.343		
		6.045		65.258	
5.223	72.831	3.695	67.608		
		4.817		68.014	
4.817	72.809			67.992	✓
3.802	70.116	6.495	66.314		
		4.880		65.236	✓
3.295	66.391	7.920	63.096		
		4.275		62.116	✓
3.959	72.710			68.751	
6.490	77.530	1.670	71.040		
		2.495		74.535	
		0.685		76.845	

8th + B
" " C
62.865
" " D
57.765
9th + D
" C
65.240
" B
9th + B
" C
" D
62.120
10th + D
" C
74.544
" B
76.852

+	4.2	−	Elev	B.M.
5.499	74.250			68.751 ✓
6.015	77.882	2.383	71.867	
		3.339		74.552 ✓
3.145	77.599	3.428	74.454	
		0.752		76.847 ✓
1.770	86.217			84.487
0.420	81.152	5.485	80.732	
		0.870		80.282
3.475	77.172	7.455	73.697	
		2.790		74.882
0.785	81.067			80.282
3.205	76.912	7.360	73.707	
		2.005		74.877
8.070	81.437			73.367
9.780	90.510	0.707	80.730	
		4.615		85.895
10.520	99.895	1.125	89.375	
		0.760		99.735

10A × D.

" " C 74.544

76.852

11A + B

" " C 80.281

74.854

99.747

TRAVERSE TABLE FOR TRANSIT BOOK,

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

Published by Edward Denny & Co., Stationers, Drawing Materials, Mathematical Instruments, Etc., San Francisco.