

FIELD INSPECTIONS.

Sixty-five field inspections have been made during the year by senior staff surveyors, and the work disclosed has, with two exceptions, been up to regulation standard. It is anticipated that more of these inspections will be made during the coming year, especially in those districts which have not had sufficient made during the year under review.

TIDAL SURVEY.

The operations for the year under report comprised the analysis of the tidal observations at the Port of Dunedin for 1927, together with two complete analyses of the observations at the Port of Lyttelton for 1926 and 1927. The constants derived therefrom, combined with previous determined values, are contained in Table C.

TABLE C.

Mean Values of the Harmonic Constants for Use in preparing Tide-tables.

Tide Symbol.	Auckland. A ₀ = 5.72 ft.		Bluff. A ₀ = 5.27 ft.		Dunedin. A ₀ = 3.30 ft.		Lyttelton. A ₀ = 3.06 ft.		New Plymouth. A ₀ = 5.50 ft.		Wellington. A ₀ = 2.93 ft.		Westport. A ₀ = 4.77 ft.	
	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.
<i>Short Period.</i>	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°
S1	0.011	31.74	0.010	100.05	0.013	71.77	0.019	21.79	0.011	90.77	0.002	354.03	0.011	78.04
S2	0.580	268.31	0.502	49.79	0.244	126.96	0.149	142.47	1.103	306.14	0.100	330.28	0.959	332.22
S4	0.019	331.83	0.009	223.42	0.006	312.97	0.008	196.61	0.008	352.33	0.004	215.90	0.007	32.75
S6	0.003	41.77	0.006	170.17	0.003	108.45	0.013	338.20	0.006	88.73	0.004	310.31	0.006	331.21
M1	0.009	144.71	0.011	127.33	0.008	52.73	0.009	119.85	0.008	71.92	0.006	22.11	0.012	143.08
M2	3.818	206.37	2.858	35.68	2.401	122.64	2.887	122.42	3.986	277.36	1.611	138.99	3.747	304.43
M3	0.039	199.21	0.011	272.74	0.012	264.53	0.013	170.18	0.030	151.30	0.019	175.72	0.021	208.15
M4	0.106	124.54	0.088	226.45	0.263	180.66	0.009	126.78	0.078	52.77	0.041	251.11	0.057	53.90
M6	0.026	314.33	0.086	79.53	0.061	1.85	0.022	62.85	0.023	262.35	0.012	98.61	0.026	36.82
O1	0.053	145.25	0.113	72.91	0.085	68.53	0.085	59.60	0.046	103.23	0.103	36.57	0.093	45.98
K1	0.235	169.17	0.058	115.68	0.077	94.21	0.151	58.08	0.205	186.06	0.082	84.49	0.073	184.39
K2	0.139	256.95	0.134	46.77	0.083	110.95	0.049	108.29	0.309	297.39	0.044	7.49	0.276	328.04
P1	0.077	163.91	0.023	105.44	0.023	93.39	0.048	89.55	0.063	179.23	0.032	77.13	0.022	133.91
J1	0.017	185.22	0.006	198.96	0.009	103.80	0.009	140.62	0.018	222.36	0.010	178.05	0.013	219.25
Q1	0.009	67.58	0.031	47.70	0.028	67.40	0.022	62.32	0.019	38.27	0.036	22.17	0.037	33.03
E2	0.108	219.79	0.109	32.44	0.185	120.62	0.083	169.54	0.122	278.28	0.029	156.82	0.097	285.41
N2	0.793	179.27	0.654	16.50	0.530	102.48	0.655	90.84	0.821	261.11	0.398	104.65	0.770	289.02
γ2	0.203	206.34	0.153	53.35	0.125	100.67	0.155	93.39	0.177	264.28	0.107	113.02	0.194	320.40
μ2	0.102	178.49	0.065	7.93	0.035	56.62	0.116	65.27	0.127	242.24	0.067	88.08	0.134	283.83
T2	0.057	294.82	0.020	89.11	0.018	269.28	0.026	237.96	0.078	316.01	0.031	280.97	0.053	9.08
(MS)4	0.173	195.31	0.081	2.78	0.104	141.94	0.107	110.38	0.095	258.14	0.035	133.28	0.105	294.78
(2SM)2	0.066	303.10	0.045	121.63	0.038	14.29	0.058	27.03	0.088	222.36	0.033	356.74	0.076	199.89
R2	0.015	211.16	0.014	111.90	0.029	185.73	0.017	167.18	0.032	300.05	0.011	138.68	0.035	178.80
<i>Long Period.</i>														
Mm	0.045	195.02	0.043	1.94	0.052	329.47	0.067	191.13	0.060	337.01	0.039	174.85	0.051	199.18
Mf	0.050	206.01	0.067	235.36	0.085	256.46	0.069	221.75	0.026	365.26	0.060	232.19	0.055	7.87
MSf	0.035	209.57	0.063	326.77	0.058	151.61	0.055	191.04	0.081	190.54	0.043	106.30	0.069	98.39
Sa	0.186	30.61	0.089	16.98	0.127	268.75	0.171	3.81	0.077	86.54	0.108	332.12	0.113	81.51
Ssa	0.071	164.94	0.115	82.05	0.094	231.27	0.069	240.81	0.084	43.84	0.073	111.04	0.116	111.03

The tide-tables for the year 1930 for the seven New Zealand ports (Auckland, New Plymouth, Wellington, Lyttelton, Dunedin, Bluff, and Westport) for which tidal predictions are published were received in Wellington on the 1st August, 1928, from the Hydrographer of the Admiralty.

The work of measuring the times and heights of high and low water was again performed at the Tidal Institute, University of Liverpool, England.

In addition to the above, the comparisons between the predicted times and heights of high and low water for the year 1927 at the following ports—Auckland, Wellington, Lyttelton, Dunedin, Bluff, and Westport—and the actual times and heights of high and low water as recorded by self-registering tide-gauges, were completed. Details of these comparisons have been published in Volume V, *Records of the Survey of New Zealand*.

For the Port of Greymouth mean high tide has been determined from automatic tide-gauge registrations for the years 1923 and 1924, and equals 9.87 ft. above the zero of the gauge.