The examination has emphasized very strongly the need, always felt, of a departmental handbook covering all the grounds of the technical branches of the office, both draughting and computing and field. The book is now being planned, and several of the sections are being written by experienced officers in charge of the principal branches. The professional handbooks now in existence will be revised and incorporated in the plan.

Surveyors' Board.

At the examination in September, 1920, twenty-six candidates sat, and twelve passed; and at the March examination fifteen candidates sat, and six passed.

At the end of the March examination the Board considered very fully the position regarding the issue of new Survey Regulations, and came to a conclusion regarding it, enabling the revision to be undertaken during the ensuing year.

(*b.*) COMPUTATION OF TIDAL CONSTANTS BY E. J. WILLIAMS, TIDE-COMPUTER.

The computations required to evaluate the harmonic constants used in predicting the tides of the six standard ports for the year 1922 have been completed.

From the harmonic analysis of the measured hourly heights of the tide-gauge records of any port extending over a period of 370 days is obtained one value of H (semi-range) and one value of K (epoch) for each component for each year of hourly heights analysed.

For the larger tides, M2, S2, &c., the values obtained are fairly concordant. In the smaller tides, however, on account of tidal observations not being exactly in accordance from year to year, there are considerable discrepancies. Therefore it is necessary to extend the observations over a number of years, and to accept the mean of the values of H and K for each tide, for the completed years of analysis, as the best result. In accordance with the above the following table was prepared and forwarded to the Director, National Physical Laboratory, Teddington, London, England, on the 1st June, 1920, for employment in the tide-predicting machine, and the tide-tables for 1922 were received in Wellington on the 4th January, 1921.

Mean Values of the Harmonic Constants used in preparing the Tide-tables for 1922.

Tide Symbol.	Auckland. A_0 = 5·74 ft.		Bluff. A_0 = 5·38 ft.		Dunedin. A_0 = 3·23 ft.		Lyttelton. A_0 = 3·20 ft.		Wellington. A_0 = 2·93 ft.		Westport. A_0 = 5·00 ft.	
	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.
Short Period.	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°
S1	0·009	11·03	0·007	68·10	0·012	337·40	0·035	31·12	0·005	228·48	0·013	74·64
S2	0·597	263·50	0·509	48·50	0·236	129·95	0·173	141·42	0·098	329·46	0·983	331·69
S4	0·019	336·59	0·008	233·57	0·006	301·85	0·011	188·72	0·005	188·20	0·008	54·92
S6	0·002	50·98	0·004	176·56	0·004	123·00	0·014	348·69	0·005	309·32	0·003	334·63
M1	0·011	141·89	0·011	84·79	0·009	128·68	0·010	105·35	0·006	49·45	0·013	340·63
M2	3·794	204·00	2·862	35·13	2·506	123·38	2·883	125·36	1·597	135·35	3·762	304·20
M3	0·048	204·02	0·008	281·81	0·013	245·63	0·019	108·63	0·025	192·86	0·024	202·01
M4	0·110	127·80	0·095	228·49	0·257	179·05	0·014	81·25	0·037	286·46	0·066	35·28
M6	0·023	294·55	0·086	77·28	0·076	359·86	0·021	66·42	0·016	100·77	0·026	38·59
O1	0·062	136·62	0·108	75·29	0·087	75·72	0·087	62·78	0·105	34·45	0·096	48·26
K1	0·234	167·74	0·061	113·16	0·071	89·15	0·144	84·56	0·086	79·98	0·075	184·91
K2	0·142	251·27	0·118	57·84	0·096	127·52	0·054	101·96	0·046	340·07	0·287	327·05
P1	0·073	167·06	0·021	103·64	0·025	96·80	0·052	116·79	0·030	67·31	0·023	110·12
J1	0·016	214·22	0·004	207·39	0·005	126·14	0·008	89·85	0·006	140·90	0·015	273·15
Q1	0·011	59·44	0·024	43·55	0·021	355·66	0·018	43·24	0·029	22·22	0·037	38·40
L2	0·190	212·64	0·127	28·87	0·189	101·32	0·094	108·35	0·055	140·74	0·110	269·18
N2	0·781	169·09	0·661	14·04	0·549	104·89	0·670	93·58	0·389	99·67	0·745	288·44
ν2	0·202	180·03	0·099	68·00	0·053	157·88	0·118	145·96	0·108	109·38	0·173	316·14
μ2	0·104	168·04	0·065	8·37	0·034	17·52	0·087	65·45	0·081	86·45	0·111	273·67
T2	0·077	103·24	0·023	111·74	0·022	262·01	0·032	220·40	0·040	308·20	0·042	44·18
(MS)4	0·176	193·71	0·080	359·97	0·106	141·93	0·104	128·62	0·036	134·61	0·106	301·30
(2SM)2	0·063	307·32	0·038	120·79	0·043	4·23	0·077	25·77	0·033	5·18	0·078	203·68
R2	..	..	0·018	119·43	0·016	171·69	0·011	172·05	..	..	0·049	244·29
Long Period.												
Mm	0·123	211·63	0·059	184·50	0·055	84·43	0·055	185·59	0·087	308·38	0·016	117·13
Mf	0·055	258·88	0·069	161·91	0·063	173·15	0·066	187·65	0·065	158·15	0·033	303·53
MSf	0·075	153·37	0·077	201·00	0·066	31·88	0·150	159·87	0·098	13·79	0·060	99·27
Sa	0·230	54·00	0·073	26·81	0·105	272·79	0·087	245·99	0·138	192·55	0·126	62·55
Ssa	0·107	293·67	0·120	88·39	0·063	86·02	0·109	124·65	0·073	191·54	0·130	97·45