The figures in the list are given in tenths of a foot. The method consists in selecting from the list the particular days that will give the best values of the tide sought, at the same time eliminating the effect of the S tides and reducing the effect of the other tides as much as possible.

Example for K_2 tide :—

If the following lines are used from the list—

(185–97) - (96–8),

i.e., equal intervals of 88 days—then the S tides are completely eliminated and the maximum value is obtained for the K_2 tide.

If the following lines are used when the observations extend over a year, a further value is obtained :—

(362–274) - (273–185).

The selection of these lines and the sums from the list is shown in detail on the schedule, giving the twenty-four values of D, which are subjected to analysis. S_t and S_0h+_t are next formed, and then Δ_t.

The calculation of the values of $F^1 = \sum_0^5 \Delta_t \sin (9+t)i$ and $G^1 = \sum_0^5 \Delta_t \cos (9+t)i$ is most readily done on the calculating-machine, and the printed record obtained on the arithmotype is very useful for checking from. The corrections due to the tides M_2, N, L, ν, T, and R are calculated and applied to F and G. The rest of the calculation is shown on the schedule, where comparisons with the results in Vol. xvi of the Indian Survey, p. 296, are also given, the differences in the values of κ and R being 4°·745 and 0·0020 ft.

Reference must be made to Dr. Börgen's paper for details of the method. The whole of the calculation is, however, given in full, and the brevity of the method will be appreciated by those who have had experience in the analysis of tidal observations. For the other tides more lines from the list of sums are used ; but even then the labour of analysing a year's observations is estimated by Dr. Börgen to be about one-tenth of the labour of the method proposed by Sir W. Thomson and Mr. Roberts, and to be about one-third or half of that of Darwin's abacus.

K_2.

(1.)

	+		−	
m	$n_1 - 1$	n_3	n_2	$n_2^1 - 1$
1	8	185	96	97
2	185	362	273	274

(2.)

t	$\sin (9+t)\,i$	$\cos (9+t)\,i$
0^h	− 0·99992	+ 0·01290
1	− 0·85877	+ 0 51236
2	− 0·48628	+ 0·87380
3	+ 0·01720	+ 0·99985
4	+ 0·51605	+ 0·85656
5	+ 0·87589	+ 0·48252

(3.)

	$\mathfrak{f}x,y$	Nx,y.
		°
For K_2	+ 231·31	5·6748
M_2	− 0·20619	157·2318
N	+ 1·1526	253·6761
L	+ 3·2203	60·7877
ν	+ 0·83144	218·0195
T	+ 10·695	177·1626
R	− 10·695	182·8374

(4.)

	Correction for F^1.	Correction for G^1.
For M_2	$- 11·471A_m - 2·475B_m$	$+ 2·732A_m - 11·770B_m$
N	$- 10·939A_n - 3·588B_n$	$+ 4·043A_n - 11·364B_n$
L	$- 11·832A_l - 1·281B_l$	$+ 1·374A_l - 11·967B_l$
ν	$- 11·033A_\nu - 3·448B_\nu$	$+ 3·876A_\nu - 11·443B_\nu$
T	$- 12·004A_t - 0·301B_t$	$+ 0·292A_t - 11·989B_t$
R	$- 12·022A_r - 0·111B_r$	$+ 0·087A_r - 11·977B_r$
	or approximately,	
Correction =	$- 11·550\Sigma A_y - 1·867\Sigma B_y$	$+ 2·067\Sigma A_y - 11·752\Sigma B_y$.

(5.)

$$A = + 0·083127\ F - 0·00011230\ G$$
$$B = - 0·00011230\ F + 0·083549\ G.$$

R and ζ are determined from the equations—

$$R \sin (\zeta - N) = \frac{A}{\mathfrak{f}}$$

$$R \cos (\zeta - N) = \frac{B}{\mathfrak{f}}$$

while H and κ are determined from—

$$H = \frac{1}{f} R$$

$$\kappa = \zeta + (V_o + u).$$