

EARTHQUAKE REPORTS—*continued.*

No.	Date.	Character.	Phase.	Time. G.C.M.T.	Boom Period.	Amplitude.	Remarks.
						Ac.	
	<b>1920.</b>			<b>H. M. S.</b>	<b>s.</b>	<b>MM.</b>	
..	Nov. 6	..	P ?	21 23 06	15	..	
			L	21 24 36	..	..	
			M	21 25 48	..	..	
..	.. 11	..	P ?	11 08 24	..	..	
			L ?	11 13 48	..	..	
			M	11 16 00	..	0·5	
			M	11 26 00	..	0·5	
..	Dec. 10	r	P	04 59 18	..	..	
			S	05 08 00	..	..	
			SR <sub>1</sub>	05 12 48	..	..	
			L	05 23 00	..	..	
			M	05 44 30	16	3·0	
..	.. 13	r	P	03 50 06	16	..	
			S	03 56 30	..	..	
			SR <sub>1</sub>	04 00 12	..	..	
			L	04 04 42	..	..	
			M	04 06 06	..	1·0	Δ 47° ±.
..	.. 16	r	P	12 24 24	15	..	
			S	12 30 48	..	..	
			L	12 48 30	..	..	
			M	13 14 42	..	4·7	

## APPENDIX III.

## EXPLORATIONS ABOUT MOUNT TUTOKO.

THE Darran Mountains, lying between the head of Milford Sound and the valley of the Hollyford River, are shown on the Department's maps as an unexplored region, some isolated points therein having received a provisional fixing during the course of explorations made in neighbouring districts.

Mr. S. Turner, F.R.G.S., the well-known mountaineering enthusiast, has devoted several seasons to climbing in this little-known region, discovering a very large new fall and a lake, and finding reasons to believe that a peak hitherto shown as Tutoko on the maps was not the highest in the vicinity, and that the name (which belongs to the highest) should be transferred to another peak some two miles north-west, which is apparently that shown on the original Admiralty chart as 9,691 ft.

Desirous of locating his discoveries and settling the doubt as to the identification of Mount Tutoko, Mr. Turner applied to the Department for the services of a surveyor for reconnaissance work, and Mr. D. Macpherson eventually was allowed to accompany Mr. Turner in February, 1921.

Unfortunately, owing to several untoward circumstances, the amount of survey work accomplished was insufficient to effect the primary objects of the trip, but the observations and photographs made seem to an outsider to strengthen Mr. Turner's conclusions as to Mount Tutoko, though Mr. Macpherson is not convinced of this. The fogs and mist, while they did not hinder the roar of a very large fall being carried to the ears of the explorers, did prevent any determination or estimation of its size, which previous observers consider to rival the famous Sutherland Falls.

The country climbed is very difficult, and at one time fears were entertained for the safety of the party, which found itself unable to return by the way it had gone out, and was obliged to make a most difficult trip, pushing over largely unknown glacier and ice country, down into the Hollyford Valley, thus crossing quite over the mountain-range and making five days' travel on three days' provisions, eventually getting out to Martin's Bay. The delay due to this experience was a considerable factor in preventing sufficient reconnaissance survey being done, as it was necessary to return again to Lake Te Anau—an immense detour—whence the trip would have to be begun again to get back to the mountains, and Mr. Macpherson did not return.

The very interesting photographs reproduced here, kindly lent by Mr. Turner for the purpose, give a good idea of the country, but the accompanying map, drawn from Mr. Macpherson's sketches and Mr. Turner's descriptions and bearings, can only be considered as an eye-sketch owing to lack of proper intersecting bearings, &c. Two of these photographs are of especial interest as showing the unknown country surrounding the disputed Tutoko peaks. That of Turner's Pass shows both peaks; that to the right, now named Madeline, is that which is suggested as being really the peak at present called Tutoko on the maps, while the far-off mountain on the left is the higher new peak, probably the real Tutoko. The next photograph is taken from the top of Madeline (the snow-covered foreground), in a north-westerly direction across Turner's Pass to the real Tutoko, some two miles and a half distant. This view shows to the right the newly found icefield lying round Tutoko, and sending down one glacier to the left (south) into the Tutoko Valley, one to the north-east towards Stick-up Creek and Lake McKerrow, and another one along the flanks of Tutoko and Madeline south-east into the Hollyford Valley, and over and along which the party, after crossing Turner's Pass, descended into the Hollyford Valley.

*Approximate Cost of Paper.*—Preparation, not given; printing 750 copies (including diagrams, &c.), £37 10s.

By Authority: MARCUS F. MARKS, Government Printer, Wellington.—1921.

Price 1s. 6d.]