

5. It was suggested that any inconvenience that might possibly be caused, or any mistakes that might be made, would be made by local coastal vessels and not by the ocean-going vessels—when the captain may have been ashore and had his watch set to local time?—But he should go by his chronometer. He should work the tide out by his chronometer, because the establishment of the port on his map is shown by Greenwich time.

*Captain Blackburne:* Hardly any of the local steamers carry chronometers.

*Witness:* Well, I do not think it ought to create any practical difficulty. If the captain has not got a chronometer, he will have a timepiece good enough for taking the time of the tides, which are more uncertain than the worst clock. But, in point of fact, coasters know the tides far better than they could ever calculate them by the maps.

6. *Mr. G. M. Thomson.*] It has been suggested that harbourmasters, through altering their local clocks, might make some mistake in connection with the signalling of the tide, and so on, and it might lead to accident at bar harbours?—Well, of course mistakes are possible everywhere. I do not think they are at all probable.

7. Would it not increase the liability to mistake?—I should say it would not increase the liability with any person who knows his business. A harbourmaster ought to know his business sufficiently to be able to make the addition necessary to convert his time into local mean time. That is all that is wanted.

8. But this would necessitate altering it again?—I mean true local mean time. He has to make the calculation now, if he wants perfect accuracy. In Wellington that difference amounts to about nine minutes and a half. If he wants to get accurately the moment of high tide, he has still to make a calculation—if he is going to give it by the mean time.

9. *Mr. Fraser.*] Does not the Nautical Almanac, in indicating the hour of high or low tide, give it in the mean time of New Zealand, or is it Greenwich time?—Greenwich time.

10. Supposing that the almanac says 8 o'clock for high tide: what 8 o'clock is that?—I think that is Greenwich mean time.

*Captain Blackburne:* Our New Zealand Nautical Almanac gives New Zealand mean time.

*Witness:* Oh! a New Zealand almanac, yes. Mr. Fraser mentioned the Nautical Almanac. When I am talking of the Nautical Almanac I refer to the one that is published in Greenwich.

11. *Mr. Fraser.*] If a man has no chronometer, that is of no use to him?—No. A man who goes to sea without a chronometer is next door to the man who goes to sea without a compass or a chart.

12. Supposing now that we altered the time as proposed by this Bill, a man's watch would then show an hour's difference in time from the time indicated in the New Zealand Nautical Almanac until the almanac has been reprinted: would it not be so?—Yes, unless he alters his watch.

13. But he must alter his watch in conformity with the Bill?—He need not alter his watch. With a ship sailing on the sea the time is altering moment by moment.

14. The man keeps New Zealand mean time, does he not, and keeps his watch at that?—Yes, civil time.

15. And that will differ from the time set forth in the New Zealand Nautical Almanac until that almanac has been reprinted?—But so it does now, if I am not very much mistaken.

16. How?—I did not know there was a New Zealand Nautical Almanac, but I suppose that all its events are marked in local mean time.

17. No, in mean time for New Zealand?—Are they?

*Captain Blackburne:* Yes, the tide-tables.

*Witness:* Then every ship-captain taking the tide from those tables must make a correction if he wishes to reduce the events to local mean time. There is no difficulty: the change will be indicated on the almanac. At the same time, times of tides should always be given in local mean time. There is no harm in adding New Zealand mean time.

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