TIDAL MOVEMENT

Commentary by Dr. A.T. DOODSON, D. Sc., F.R.S., Hon. F.R.S.E.,
accompanying a film on Tides by G.W. LENNON, B.A.,
shown at the VIIth International Hydrographic Conference,
Monaco, May, 1957.

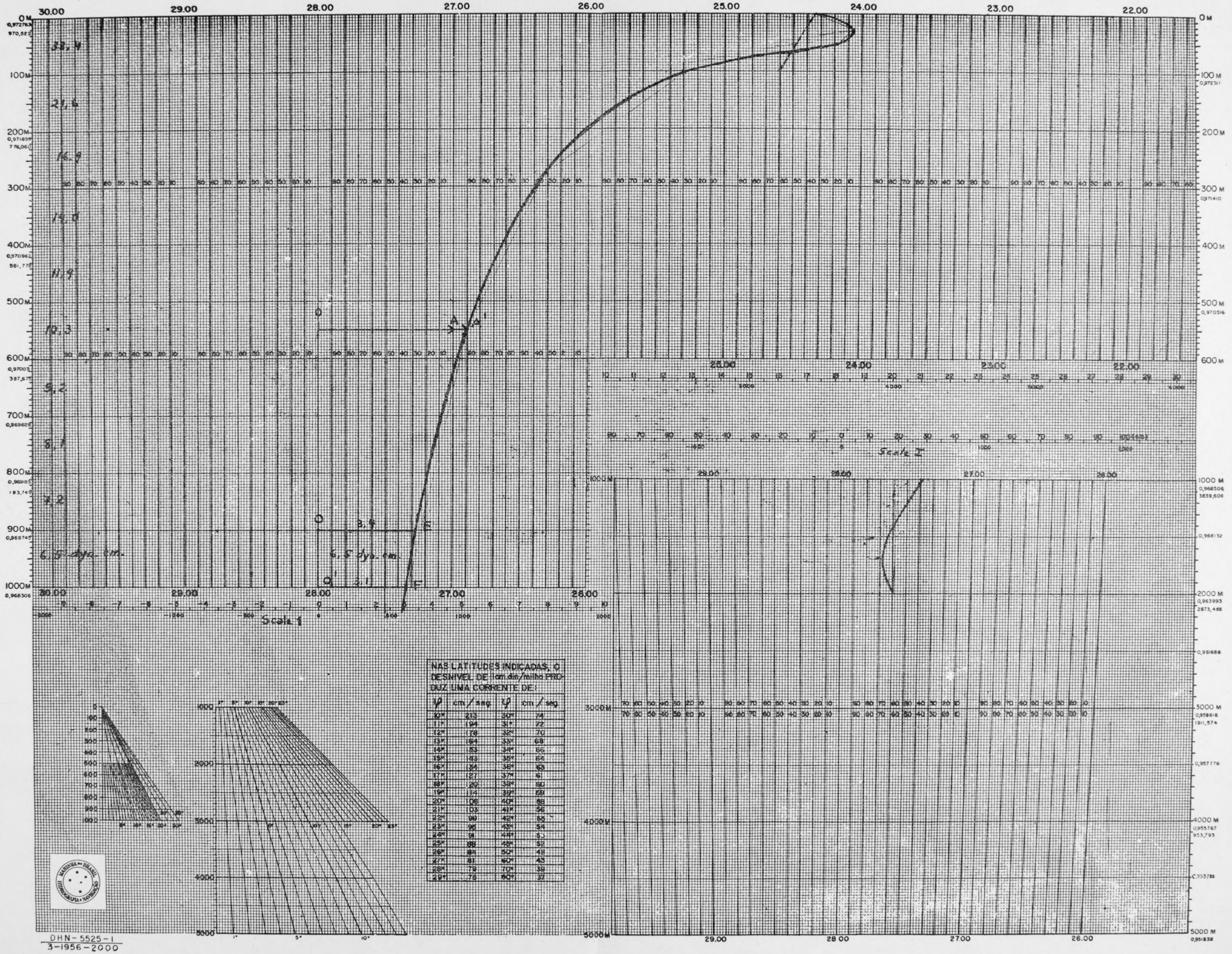
This film has been made from drawings by Mr. G.W. Lennon of the Liverpool Observatory and Tidal Institute. Ten years ago a film was shown at the IHB by me, and it created great interest. The idea of representing the movement of tides in seas and oceans was originally due to a Dr. Barton, with a view to instruction on the principles of observing tides and explaining their varied characteristics. It professed to show by a cinematograph film the movement of tides in waters surrounding the British Isles and also in the Atlantic and Indian Oceans. It was unfortunate that this film was based upon inaccurate tidal charts and on conjectural movements in the oceans. Nevertheless it showed that such a film could be of value to those who were engaged in instructing naval officers.

A very important fault of the movements depicted by Dr. Barton is that there are no amphidromic points in the systems. He based some of his ideas on the work of Dr. Harris of the United States but not exclusively so, and he did not use more modern conceptions of tidal movements such as were really available at the time when he constructed his drawings.

Mr. Lennon's film is less ambitious in scope in that it does not attempt to picture the progression of the tide in the oceans but it does illustrate the important part played by the amphidromic systems. He used the charts of tides in British waters which had been constructed for the British Admiralty by the Tidal Institute many years ago. Those charts give the cotidal and co-range lines for the principal lunar constituent of the tides and from these Mr. Lennon constructed charts for every hour of the tidal period to show the elevation at intervals of two feet, and then at sufficient intervals of time to give a free motion when shown on a screen. Shading shows up the variations of range, the very dark shades corresponding to high water and the very light shades to low water, as shown in a copy of one of the charts in Figure 1. The film shows the cotidal charts and the steps by which the final charts were made and then the final product shows the rotation of the tides round the coasts. It is rather fascinating to watch the movement and to see how the lines of zero amplitude rotate round the amphidromic points.

Such a film as this is useful and instructive. It is hoped that in due course it may be succeeded by films for the oceans.

Fig. 1.



NAS LATITUDES INDICADAS, O DESNIVEL DE 1cm.din/milha PRODUZ UMA CORRENTE DE:

φ	cm / seg.	φ	cm / seg.
10°	213	30°	74
11°	194	31°	72
12°	178	32°	70
13°	164	33°	68
14°	153	34°	66
15°	143	35°	64
16°	134	36°	63
17°	127	37°	61
18°	120	38°	60
19°	114	39°	58
20°	108	40°	56
21°	103	41°	56
22°	98	42°	55
23°	95	43°	54
24°	91	44°	53
25°	88	46°	52
26°	84	50°	48
27°	81	60°	43
28°	79	70°	38
29°	76	80°	37

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Fig. 2