



## A METHOD OF OBTAINING GREENWICH MEAN TIME BY THE USE OF WIRELESS TIME SIGNALS

by

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It is no exaggeration to state that wireless telegraphy has revolutionized the methods for the determination of longitude and it is the introduction of the portable wireless set that allows the fullest use to be made of the method under the varied conditions of work in the field.

It means that a continuous check may be kept on the rate of the chronometer and its error ascertained actually whilst the observations are in progress. The vernier or Rhythmic Time signal is used and in conjunction with a chronograph, the error of the chronometer may be obtained with a high degree of accuracy.

The beats of the chronometer are recorded on the tape of the chronograph and an observer working the recording key superimposes upon them the dots of the time signal, the coincidence of two dots providing an accurate comparison.

In H. M. Naval Surveying Service the MARCONI Time Signal Receiver, Type R. P. 11a, is used and a detailed description of this set is appended.

It has been specially designed for the Surveyor for the reception of time signals broadcast from high-power long-wave stations and its outstanding features are:—

- (a) Portability
- (b) Strength
- (c) Selectivity
- (d) Low filament consumption.

Considerable practical experience in its use has been obtained during the last two years by ships in the Red Sea and Eastern waters, and the following is extracted from a report by H. M. S. "Endeavour".

"The set was used by H. M. S. "Endeavour" at various observation spots in the Red Sea. It was landed about an hour before sunset with the remainder of the apparatus required for observing and was connected up near the observation spot. It took about five minutes to get ready.

“At all places where it was used, time signals were observed from Bordeaux, Rugby and Nauen (\*). These were obtained with the greatest ease, and no difficulty was experienced even as far south as Aden. Many others could have been utilised if necessary, but the stations mentioned above were ample as all the signals came within short intervals of each other.

“One chronograph chronometer was landed. The error of this chronometer was obtained at approximately 2 hour intervals by means of the Rhythmic Time Signals transmitted by these three stations.

“No trouble whatsoever was experienced in taking these signals, and in no instance was a signal missed or too indistinct to be read.

“The set is somewhat too heavy to be carried long distances, but the whole set could be carried a mile by four men in about half-an-hour without undue strain.

“Once the calibration chart had been carefully arranged the setting of the instrument became the simplest of operations.”



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(\*) In this connection it is pointed out that Admiralty "*Notices to Mariners*" are issued periodically giving the corrections to be made to the above time signals, for the previous month, as determined at the Royal Observatory, Greenwich.