APPLICATION OF VISUAL AND PHOTOGRAPHIC RECEPTION OF TIME SIGNALS.

(Extract from a Note by Mr. Pierre BERNARD, read by Mr. Charles MAURIN. Comptes rendus of the "Académie des Sciences", Paris, 10th May 1943, p. 631).

... With a view to various utilizations... I have constructed an apparatus capable of transforming a sound into a visual impression, both simply and economically. The light-source is a silent discharge valve (neon gas valve) whose intensity variations follow without any lag (within 10^{-5} seconds) the variations of tension applied to its electrodes.

It is controlled by a two-stage low-frequency amplifier; the receiver is an ordinary ear-phone, in series with the primary current of a 1/10 ratio tension raising transformer. The grid of the first valve (6 B_7) is connected to the earth by the secondary of the transformer. The vibrations of the ear-phone diaphragm are thus transmitted by induction to the amplifier. The output tension of the second valve (EL3N) is picked up by another low frequency transformer whose secondary is directly connected to the terminals of the silent discharge valve; the ratio of this transformer is determined by the optimum impedance of the EL3N (7.000 Ω) and the approximate resistance of the silent discharge valve.

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This apparatus is more particularly intended for the accurate determination of time on seismograph records.

Moreover it is possible to make photographic records on the seismograph, side by side with the record tracing, which entails interruptions at every minute controlled by the clock, by substituting for the neon valve an argon gas valve whose light is very actinic.

This method of automatic recording of time on seismograms is also applicable to time signals received by wireless; it has the advantage of being independent of the relays and electro-magnets controlled by the station clock, any delay in their working is included in the correction of the clock determined from the photographic impression of the flash variations of the argon lamp whose inertia is practically non-existent. This determination is made with the same accuracy as the other time readings on recorded seismic waves.

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