

Disk-recording seismographs developed by J. A. Ewing

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James Alfred Ewing (1855-1935) made various improvements to the horizontal seismograph developed in 1880 by him. He also designed a vertical seismograph of which idea had been given by Thomas Gray (1850-1908), however, did not complete the instrument until his leave from Japan in 1883. The disk-recording seismographs were used at the Tokyo (Imperial) University in two decades probably because of an advantage in rigid recording surface, although handling of the disk was troublesome and arc-like records were complex. Nevertheless these instruments were not quite constructed by sophisticated technology at that time, reproduction of the instruments is not so easy at present. In Japan of 1880s who did manufactured the seismographs?; what components of the instruments were available domestically? Curiously, seismographs in the 1880s and the 1990s were not installed dampers, although some scientists claimed damping mechanism should be attached to such instruments. The early worker might have though the seismic wave did not include long period components and use of pendulums of appropriate period was sufficient for observation of earthquakes.

Keywords: J.A.Ewing, early seismographs