

Hour Glass 20th CENTURY

A KORERO Report

"IF YOU want to know the time, ask a policeman," says the song. But if you want to know the correct time, ask the Dominion Observatory at Kelburn, Wellington. They keep it there, and have kept it for over three-quarters of a century. For it was in 1868 that Parliament decided to set up a uniform time service for New Zealand and the Observatory was built and started the job it has never stopped, and is still doing, of acting as official timekeeper to the Dominion. Before the days of radio the time was checked solely by observations of the stars. From this to pure astronomy was a short step, and until five years ago, when the Carter Observatory took over the work, considerable research had been done by the Dominion Observatory in this branch of science.

In a plain cool room of this modest brick and stone building, which has incidentally a magnificent view over the city and the whole harbour, stand the clocks: tall clocks, grandfather clocks or, more precisely, pendulum clocks. There is no ornament about them: they have large plain dials, the superimposed seconds dial as big as the top of a circular tobacco tin, and simple wooden cases. But they are remarkably accurate. You or I, if our respective watches kept within one minute of correct time in twenty-four hours, would be satisfied, but not the Observatory. Their idea of accuracy is within a quarter of a second in twenty-four hours.

The method by which the accuracy is kept at this high level is elaborate and careful but straightforward. One clock has the job of keeping time. In the pendulum rod is a quantity of mercury to allow for any changes in temperature, though these are not very severe, and

more divergence is caused by changes in barometric pressure or air density. On the other side of the room is a control clock. By adjusting small weights on a platform the size of a 5s. piece at the top of the pendulum rod it can be kept to the correct time. It in turn controls a "slave clock" by means of an electric circuit.

The slave clock is responsible for the time signal which is heard over the air from the broadcasting stations. A simple link up with the seconds dial of the slave clock brings the six teeth on the appropriate part of a wheel successively into contact with a small cam which, through a switchboard, transmits the time signal dots automatically to the radio station, where also they are superimposed on the various programmes as the shrill "pips" we are accustomed to.

It is the time signal mechanism which lessens the accuracy of the slave clock and necessitates a control clock, so exact are the requirements of accuracy here.

The Post and Telegraph Department, by the way, prefers a long "dash" to a "pip," and there is a special clock to fulfil this purpose. This clock also transmits time signals to the seismographs, the instruments which record local and distant earthquakes.

Each day the time is checked by wireless from Greenwich and Washington. To do this takes less than an hour. If for some reason it were at any time impossible to carry out the check this way, then recourse would be had to a specially mounted 3 in. telescope called a transit instrument standing nearby, and observations taken of the stars. As this takes from two to three hours, however, normally the checks are by wireless.