

## Milestone: Timekeeping: Homework 4

Due: 22 September 2021

### 1 Verge and foliot clock

The key parts of a verge and foliot clock are: the verge and foliot, the crown wheel and axle and a suspended mass.

- a) Briefly describe the main purpose of the suspended mass in such a clock.
- b) Briefly describe the main purpose of the crown wheel and axle in such a clock.
- c) Briefly describe the main purpose of the verge and foliot in such a clock.

### 2 Early mechanical clocks

Once the verge and foliot was devised, the enterprise of clock-making could start. Describe the predominant venue for early mechanical clocks (e.g. wristwatches, homes, ...).

### 3 Frequency and period

Consider oscillators such as the verge and foliot on an early mechanical clock.

- a) If the period of oscillation is 4.0s, determine the frequency. Show your work.
- b) If the frequency of oscillation is 5.0Hz, determine the period of oscillation. Show your work.
- c) Two oscillators have different frequencies. Does that with the larger frequency have a smaller or larger period than the other? Explain your answer.

### 4 Clock hands on early clocks

The earliest verge and foliot clocks only had one hand. This now serves as the hour hand. Explain why such clocks did not have a minute hand such as those on modern clocks which can indicate minutes.

### 5 Temporal versus equal hours

Were early mechanical clocks better equipped to record temporal hours or equal hours (each hour has the same duration regardless of the day or location)? Explain how this might have affected time-keeping in the decades after these clocks were introduced.

### 6 Research paper 1

Provide the topic for your first research paper plus at least one possible source of information/evidence that might deal with the issue that your research paper considers. *This just seeks two pieces of information: the topic and the source. At this stage, you don't need to describe how the source might deal with the issue.*