

Milestone: Timekeeping: Homework 6

Due: 8 November 2021

Many of these questions are based on material that can be found in chapters 11 and 12 of *Times Pendulum* by Barnett. Other good sources of information are:

- E. Zerubavel, *The Standardization of Time: A Sociohistorical Perspective*, American Journal of Sociology, Vol. 88, No. 1, pp. 1-23 (1982).
- I. R. Bartky, *The Invention of Railroad Time*, Railroad History, No. 148, pp. 13-22 (Spring 1983).
- I. R. Bartky, *The Adoption of Standard Time*, Technology and Culture, Vol. 30, No. 1, pp. 25-56 (1989).

1 Standardizing time in England

Prior to 1840 in England, cities and towns generally used local time. This means that the clocks in any city were set, checked and reset according to when noon occurred (Sun at its highest in the day) in that city. The proliferation of local times became increasingly problematic during by 1840.

- a) Write a paragraph explaining why this system of timekeeping would not have been problematic before 1800 and why it became problematic by 1840.
- b) Write a paragraph explaining how time in England came to be standardized by 1848. Your paragraph should address which entities or people were central to the push for standardized time in England.

2 Railway time in the United States

As in England, by the early 19th century, cities and towns in the United States also set their clocks using local time. The process of arriving at standardized time in the United States was slightly different. This exercise considers various aspects of this process and these are described in: I. R. Bartky, *The Invention of Railroad Time*, Railroad History, No. 148, pp. 13-22 (Spring 1983). In the following, provide evidence for your answers.

- a) The article describes an example of a particularly contorted time situation in the Buffalo, NY, railway station. Describe this situation. How many different times would appear to a traveler in this station? If airlines currently operated in this way, what difficulties would it impose?
- b) Once Dowd had the idea of a special standardized time for railways, what other complication arose? Would this particular complication have arisen in England? Why or why not?

- c) How severe was the proliferation of actual different railway times in the United States just prior to the adoption of a standard railway time? Were there thousands, tens,...

3 Standardizing time in the United States

To answer the following use the article: I. R. Bartky, *The Adoption of Standard Time*, Technology and Culture, Vol. 30, No. 1, pp. 25-56 (1989).

- a) In England, time standardization largely followed the needs of the railroad companies. To what extent does the article argue that standardized time was really necessary for the operation of railroads in the United States in the 1800s? Even though a system of standardized time with time zones was proposed for the United States in 1870, were railroad companies eager to adopt it?
- b) What other community or group of people in the United States wanted a system of standardized time in the 1870s? What particular (astronomical) observational event highlighted their need for this? What problems did the system of local and railroad times cause? Does it seem that most of the population would have shared the same needs as this community?

4 Communicating standard time

Checking and maintaining standard time used to require very accurate observations of the stars and the Sun and this could only be done at a good observatory. Thus a few observatories became timekeepers.

- a) Briefly describe how the observatories communicated the time to various cities and towns in the 19th century. What evidence do you have for your answer?
- b) Briefly explain whether this standard time was available for free.

5 Standardized time in the United States

Currently in the United States we use a system of standard time that involves four time zones in the contiguous United States.

- a) In your usual daily activities do you need to know the time in states in other time zones (e.g. New York, Illinois, Texas, California)?
- b) Are there situations where it is useful for you to know the time in a state in a different time zone? Explain what these are or might be.
- c) Suppose that there was not a system of four time zones and each state used its own standard time and thus had its own time zone. Suppose that these were based on the longitude of the state capital. Roughly how many time zones would the US have in this case? Explain how this might create complications in your life.