

## *Preface*

Although I was completely unaware of it at the time, my first brush with public timekeeping issues came on Monday morning, January 7, 1974.

Christmas vacation was over and it was time for our children to go to school. I opened the front door and was astonished to see that it was still dark. So we held David and Anne back from their walk to Bethesda Elementary for perhaps twenty minutes, exchanged puzzled glances, and then went about getting ourselves ready for work. Mine was on Capitol Hill; I was a National Bureau of Standards employee, one of that year's departmental Science Fellows providing technical support to a subcommittee of the House Commerce Committee.

At work I learned that in mid-December, Congress had passed emergency legislation, a response to the country's oil embargo crisis. For the next two years all clocks would be advanced one hour—an experiment designed to conserve energy. The law had just taken effect, at 2 A.M. on Sunday. Like most Americans, I had paid no attention to the consequences of this shift in civil time.

My sunrise on that Monday morning was at 8:27—the latest that anyone living in Washington had ever seen. Across the United States sunrises varied from 7:37, in the Florida panhandle, to 9:48, in northwestern North Dakota; everyone everywhere was experiencing the latest sunrise ever recorded in their region. But I knew nothing then about these remarkable spans in sunrise (and sunset) times—having scarcely more than an awareness of the one-hour spacing between time zones and the fact that there are more hours of daylight in summer than in winter.

Asked in July to review the Department of Transportation's interim report on the effects of the country's experience with year-round daylight-saving time, I learned of the many protests directed to members of Congress by parents worried about the safety of their children walking to school or waiting for the bus in unanticipated darkness. Their letters started arriving in con-

gressional offices in January, but by spring—with its earlier sunrises by the clock—the volume of mail dropped. It dawned on me that their concerns would resurface around the end of October, increase in volume to a peak in December, and continue throughout the entire month of February.

The interim report before me indicated no overall energy savings linked to advancing the nation's clocks an hour. Moreover, it contained evidence of an increase in fatalities among schoolchildren during the weekday mornings of the two winter months just past. In my mind, given these results, the country's year-round daylight-saving time experiment had to be altered.

To everyone's great relief, the House subcommittee that I was advising held hearings in mid-August. Then, in October, a Congress rushing toward adjournment and last-minute reelection campaigning voted to drop advanced time for the winter of 1974–75. I returned to NBS, now enmeshed in a subject that coupled public policy issues with well-understood astronomical phenomena, America's geography, and demographic data.

Time passed. An NBS team reviewed the final report on the effects of daylight-saving time for the subcommittee and testified at its hearing. With Elizabeth Harrison, a lawyer on the Commerce Committee's permanent staff, I published an article in *Scientific American* in which we addressed the impossibility of gaining more light in the evening in one region without extending morning darkness in another. Underlying our remarks was a concern that any changes in daylight-saving time periods should do minimum damage to the country's system of uniform time. In my view, Congress forgot its 1967 goal, expressed in legislation, to have everyone everywhere keep the same time; the passage of emergency legislation in 1973 certainly conflicted with that intent.

Eighteen months later a second event challenged my understanding of the history of American timekeeping. I already knew that the first national legislation involving civil time standards could be traced to the public's desire for daylight-saving time during World War I. I was also aware that the zone system that Congress had established then could be traced to the railroads' adoption of Standard Railway Time in 1883. Now, preparing a talk for the U.S. Naval Observatory's 150th anniversary symposium, I was finding other evidence of the federal government's involvement in public timekeeping—some dating back as early as the middle of the nineteenth century. Even more intriguing, I was seeing late-nineteenth-century statements by Samuel Langley, secretary of the Smithsonian Institution, denigrating this early, Naval Observatory time service, and also claiming that his observatory near Pittsburgh had been the first to provide a stable source of public time signals. Later I would learn that some historians asserted Harvard College Observatory's priority in the matter. And, equally remarkable, for many years both institutions were paid to supply time to the public.

Perplexed by the conflicting priority claims, I hedged one or two of my remarks at the Naval Observatory's celebration. Then, in my spare time, I began mining the annual reports of observatories and the histories of railroads. Early on I was able to resolve a number of the astronomers' conflicting statements. However, a framework for understanding American timekeeping did not come so easily. Not until I was able to devote all of my time to the subject did the missing pieces fall into place. This book is the result.