A DAY TO REMEMBER

by Charles Phillips

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Before the coming of the railroads, American towns kept their own time, using some form of local solar time maintained by a well-located clock—in a church steeple, perhaps, or prominently displayed in a jeweler’s window. Most folks simply ignored the fact that solar time changed as the earth rotated and the sun crossed new longitudinal meridians. Thus in the Delaware Valley it might be only 11:55 a.m. as 60 miles to the east the midday whistle blew in lower Manhattan. A New York or a Chicago could impose its timekeeping on a few nearby areas, but “official” times proliferated as municipalities jealously defended their own as the only true reckoning. By the mid-1800s there were some 144 official times in North America. So long as people lived mostly in towns and villages, and so long as traffic between them traveled relatively slowly, by buggy and barge, competing times seemed to hardly matter. But once the railroads began crisscrossing the country, the keeping (and scheduling) of time grew considerably more critical.

By 1848, the British government had established a railroad standard time based on the prime meridian at Greenwich, England, but American railroad barons flinging tracks across the continental United States in the wake of the Civil War were highly skeptical of any kind of government regulation. They preferred keeping their own time. An American railroad passenger entering one of the larger stations to transfer to another line might be faced with a row of clocks behind the ticket counter, labeled not for places as they would be today—“New York,” “Chicago” and “Cincinnati”—but instead for railroad lines: “New York Central,” “Chicago, Milwaukee & St. Paul,” and “Baltimore & Ohio.” Each discrete time reflected the clock back at the railroad company’s headquarters. Along Penn Central’s lines, the schedules were keyed to time in Philadelphia. The “Vanderbilt time” of the New York Central line was set at Grand Central Station in New York City. It was up to the ticket holder to know who ran on what time, to convert that into local time, and hop on the right train.

To complicate matters further, some towns boasted more than one official time, such as Buffalo, N.Y., which displayed three, one for each of the three railroads that served the city. Little wonder that many passengers were bewildered. Competing times were not merely disconcerting, they were dangerous. Inevitably, trains employing different times on the same tracks ran into each other, and train wrecks were frequent. Passengers traveling by rail became by necessity obsessively conscious of the time, which, along with everything else, made travel even more nerve-racking.

The absurd time conflicts at Buffalo so outraged the principal of a small women’s college in upstate New York that he came up with what he hoped would be a solution. In 1869 Professor Charles Dowd of Temple Grove Ladies’ Seminary (now Skidmore College) in Saratoga Springs made the first proposal for standard time, based on the Washington, D.C., meridian, as a way of simplifying the Byzantine complications of American railroad schedules. Referring to the three “official” railroad clocks in the Buffalo station (reflecting Albany, Columbus and Buffalo time), he wrote, “The traveler’s watch was to him but a delusion; clocks at stations staring each other in the face defiant of harmony either with one another or with surrounding time and wildly at variance with the traveler’s watch, baffled all intelligent interpretations.”

In 1872 he revised his original proposal. A graduate of Yale, marked by his fellows as an outstanding scholar, Dowd had done his homework. He was now dropping the Washington meridian for the Greenwich. He knew, of course, that there were 10 official prime meridians then currently in use, all of them historically justified, and the United States was free to adopt any of them. But the U.S. Navy and the American commercial fleet, along with Britain and its colonies, all used Greenwich charts, as did all but about 10 percent of the world. Then, too, as Dowd read in Atlantic Monthly, Benjamin Peirce, a Harvard mathematician and astronomer, had proposed similar reforms based on the Greenwich meridian. As it happened, the system Dowd proposed for North American railroads—five time zones, each varying by an hour, each zone spreading across 15 degrees of longitude in leaps westward from Greenwich—is remarkably similar to the one we use today.

William F. Allen, secretary of the American Railroad Association, and any number of other railroad trunk managers did take heed of the proposals from the persistent professor, but Dowd was ahead of his time and an outsider to the railroad fraternity. To them, he appeared a dotty professor, while true railroad men, real astronomers, established theorists, diplomats—in short, people who they believed knew what they were talking about—were only just beginning to take up the cause of reform, meeting in a series of conferences around the world. Standard time, opposed by religious bigots, agrarian reactionaries, even the contented, nontraveling populace, was only now becoming a cause—a symbol, actually, of progress and rationality. Those with the real power to change railroad timekeeping, however, shelved Dowd’s proposals for more than a decade.

Among the reformers was Sandford Fleming, a Scottish emigrant to Canada, who upon his arrival in 1845 began training as an engineer. By 1857, he had become chief engineer for the Ontario, Simcoe, and Huron Railway (now part of the Canadian...
National Railway, the CNR). In 1863 the Canadian government hired him to conduct a survey for the initial stretch of the railway that was ultimately to connect Canada's Atlantic and Pacific lines. He became chief engineer for the construction of the Intercolonial Railway as part of the CNR. In 1871 he was appointed engineer-in-chief of the proposed Canadian Pacific Railway. But political infighting and squabbling among his staff led him to take a leave of absence, during which he first pursued new ideas on the standardization of time in a series of articles and presentations at professional conferences.

In 1878 Fleming proposed the system of worldwide time zones that we use today. He recommended that the world be divided into 24 time zones, each spaced 15 degrees of longitude apart. Since the earth rotates once every 24 hours and there are...
360 degrees of longitude, each hour the earth rotates one-twenty-fourth of a circle or 15 degrees of longitude. Fleming's time zones were heralded as a brilliant solution to a chaotic problem worldwide. Nevertheless, in 1880 Fleming lost his job with the Canadian National Railway. He took a position as chancellor of Queen's University in Kingston, Ontario, and devoted himself to his scientific projects and his writing.

Although Fleming's arguments for the establishment of time zones met with some resistance, railroad men like William Allen were certainly aware of his proposals and the growing ferment for reform. Allen dusted off Professor Dowd's proposals, revised them a little and introduced them as a new plan of action at the semiannual meeting of the General Time Convention of the American Railroad Association. On April 8, 1883, the 50 managers of grand-trunk railroads voted to accept the changes.

Reducing the number of time standards used by American railroads from almost 50 to only four, Allen called them Eastern, Central, Mountain and Pacific—the same names, though not precisely the same zones, we use today. (A fifth zone for Canada's maritime provinces—called the Intercolonial zone—was added some months later.) On Sunday morning, November 18, 1883, railroad standard time was established across North America. It became known as "the Sunday of two noons" because towns along the eastern edges of the four American time zones had to turn their clocks back half an hour, thus creating a second noon, to get in synchrony with those towns along the western edges. Skeptics sneered and dubbed the startling commercial innovation "Vanderbilt time," but up in Canada, Fleming hailed the change as a "quiet revolution."

Within a few days, 70 percent of North America's schools, courts and local governments had adopted railroad time as their official standard, though some towns—Bangor, Maine, and Savannah, Ga., to name two—refused, mostly for religious reasons, to go along, and Detroit, at the edge of the Eastern and Central times, voted itself in and out of each before finally settling on the Eastern zone. Probably much to Allen's and the railroads' relief, the federal government did not sign up. It would take 35 years for Congress to recognize the benefits of a standard time and write it into law in 1918. Meanwhile, President Chester A. Arthur, in one of the few acts that distinguished his administration, called for a Prime Meridian Conference in Washington, D.C., to set standard time for the whole world.

Delegates from the 25 countries then labeled "civilized" (meaning not colonies) showed up less than a year later in October 1884 at the conference, at which the American and British delegates browbeat the others, especially the French, into adopting Fleming's time zone scheme but with Greenwich as the prime meridian. Thus the conference's protocols owed much to Charles Dowd, though Professor Dowd was not invited to Washington and his name was not even mentioned in the proceedings. William Allen was there, of course, and so was Sandford Fleming. Together they became celebrated as the creators of modern standard time. Although recognized today for his role in creating standard time, Charles Dowd was less honored in his lifetime despite his pioneering. He died, mostly unheralded, in a railroad crossing accident in Saratoga Springs in 1904.