Time's Empire

by Anthony Aveni

> "I do not think that they ever experience the same feeling of fighting against time or having to coordinate activities with an abstract passage of time, because their points of reference are mainly the activities themselves, which are generally of a leisurely character—there being no autonomous points of reference to which activities have to conform with precision."

When the British anthropologist Edward Evans-Pritchard offered this observation on the daily life of the semi-nomadic Nuer people of southern Sudan in the mid-1930s, he seemed to be lamenting the dear price his own culture had paid for pulling time out of nature. I imagine that after writing his considered opinion of Nuer time, based on years of experience in close contact with these remote pastoral people, Evans-Pritchard must have drawn a breath and sighed before penning his next sentence, in apparent envy: "Nuer are fortunate." Those autonomous reference points the anthropologist speaks of—the ones to which we moderns believe we are required to march in lock step—emanate from an ingenious, unforgiving machine Western culture has struggled to master since the Middle Ages. I am speaking, of course, of the mechanical clock and all the other myriad clocks within its eminent domain.

"Time rules life" is the motto of the National Association of Watch and Clock Collectors—a credo borne out in the formal time units that make up our calendar, as well as in the way everyday events have become organized and packaged into quantifiable bundles. Like squares on a chessboard, our formal timekeeping units—from the second to the hour to the week to the month—define the field on which we engage life's momentous challenge. Athletic competition, the great modern metaphor for life, powerfully emphasizes how much of modern existence is controlled by the clock. Hockey has its three 20-minute periods, football its four 15-minute quarters, and basketball (at the college level), a pair of precisely timed halves.

Harold Lloyd in Safety First *(1923)*

We measure our records in individual sports to the nearest hundredth, sometimes thousandth of a second, and athletes aim to break time barriers: four minutes for the mile or 10 seconds for the 100-yard dash. In professional football and basketball, games often end with one team "fighting the clock," calling "time-outs" that literally bring time to a stop for the participant—though not for the unfortunate TV spectator, who is assaulted by a barrage of precisely timed commercial messages.

Like the quarterback running out of time, the efficient worker, too, battles the clock—a situation memorably parodied in Charlie Chaplin's 1936 film *Modern Times* (and again famously in an episode of *I Love Lucy* that found our heroine struggling comically to apply a chocolate covering to morsels on an assembly line).

Introduced in the United States early in the 20th century, the assembly-line process of mass production reflects many of the properties of scientific timekeeping that have become embedded in the Western way of life since the Industrial Revolution—sequentiality, consecutive change, and control—paralleling our concept of history, with its emphasis on piecemeal linear progression.

But time is not a purely social creation, a Frankenstein monster we cobbled together that now turns on us. All timekeeping systems, including our own, are ecogenic; that is, they originate in tangible percepts and rational concepts that emanate from the world around and within us. For example, the 260-day sacred round in the ancient Maya calendar was derived from the subdivision of the gestation period of the human female (approximately 253 days) into a pair of splendid cycles made up of the number of fingers and toes on the human body (20) and the number of layers believed to exist in heaven (13). The Trobriand Islanders of eastern Papua New Guinea begin their year when a certain Pacific marine worm spawns (about mid-November in our calendar).

For the Nuer, the physical reference is the sun, the extended arm the hour hand of a human clock. They mark their daylight hours by pointing roughly to the position of the sun in the sky. Moreover, their time intervals are not numbered like our hours; rather, each is named after the activity that takes place at that time of day—milking time, eating time, and so on. Late-afternoon intervals are compressed because, the Nuer say, this is the most important time of the day for doing chores. Longer intervals during the heat of the day reflect periods of relative inactivity.

Time's measure in Western culture has a long and sinuous history. Imagine starting work when it becomes light enough to recognize the difference between heads and tails on a coin, or learning to pay your rent before sunset on the day after the first crescent moon. All of these were viable subjective time-making schemes in the not-so-distant past of the West.

The simple act of shoving a stick into the ground and marking its shadow signaled the first break from nature that would culminate in our own uniform timekeeping system. But the desire for uniformity begets problems. The sunrise and sunset times that once designated the beginning and ending of the day vary drastically with the seasons, as do the proportions of daylight and nighttime hours. The partitioning of day and night into 24 hours probably came with the division of the celestial zodiac into 12 equal segments or "houses," each marked by a constellation through which the sun passed in the course of a single lunar cycle.

Because it takes the sun approximately 360 days to make a complete annual circuit among the stars, nature seems to have suggested an obvious

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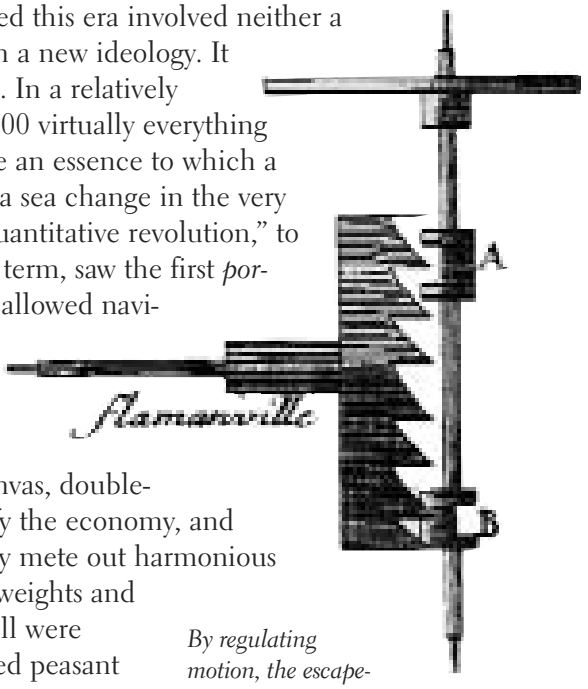
system for partitioning seasonal time: use intervals divisible by 6 and 12. And so, sexagesimal notation came to be a part of time reckoning, with 60 minutes to the hour (and, much later, 60 seconds to the minute), 12 hours per day and night, and so on. This happened in Babylonia about the fifth century B.C. Spatially, the circle that represents the round of the sun on its zodiacal course was segmented into 360 degrees. By the Roman era, day and night were joined to create a cycle that began and ended at midnight—a more abstract but also more convenient point to make the diurnal transition in the business world of the empire. And for a dozen centuries, the Romans managed it all with sundials.

To locate the first hint of modern time consciousness, one must crank the turn-of-the-century clock back seven rounds from the present to the period around 1298. This was the point in history that brought the pendulum swing that vastly expanded time's dominion. The flux of social change was truly enormous: there were upheavals in religion, in urban development, and in the very basic business of doing business. (*Business* derives from *busy* [German: *besich*], which means "to be engaged in something requiring time," in other words, the opposite of *idle*, or having no activity in time.) God, the city, and commerce—in all three of these spheres human needs would encourage the establishment of the standards of time that govern our behavior today.

The revolution that defined this era involved neither a war nor an invasion, not even a new ideology. It was a revolution in *mentalité*. In a relatively brief span of years around 1300 virtually everything in the Western world became an essence to which a number could be assigned—a sea change in the very perception of reality. The "quantitative revolution," to use historian Alfred Crosby's term, saw the first *portolano* marine charts (which allowed navigators to lay compass courses) and the invention of perspective painting to quantify geometrical space on a canvas, double-entry bookkeeping to quantify the economy, and polyphonic music to precisely mete out harmonious sound. Monetary standards, weights and measures, the hourly wage, all were unleashed upon the urbanized peasant turned commercialized man seven turns of the century ago. From that beginning point, Crosby writes, "Western Europeans evolved a new way, more purely visual and quantitative than the old, of perceiving time, space, and material environment."



By regulating motion, the escapement made mechanical clocks possible. In this verge escapement, the toothed "crown wheel" alternately engaged the "pallets" (A & B) on the verge, which was driven by a pendulum or weights. An axle in the crown wheel powered the clock's hands.

At that seminal turn of the century, out of economic necessity, the hour was snatched from nature and confined to the hidden gear work behind the façade of a weight-driven machine. As far as historians can document it, it happened between 1277 and 1340. There had been timekeeping mechanisms of various kinds before—including banded candles, sand hourglasses, water clocks powered by dripping water—but all were too inaccurate or unwieldy for general use. Some unknown tinkerers' invention of the *escapement*, a device for regulating the descent of a weight, allowed Europeans to make relatively reliable mechanical clocks—and led ultimately to their entrapment in time. London got its first public mechanical clock in 1292, Paris in 1300, Padua in 1344. These public timepieces were not merely useful devices but symbols of civic status and progress. The Paduan clock, which included brass and bronze disks that pointed to the hours, the months of the year, and the signs of the zodiac, was renowned throughout Europe. It took 16 years to build.

The historian and social critic Lewis Mumford called the mechanical clock the world's single greatest invention. It was the machine that would objectively grind out a new temporal reality couched in a network of numbers. Mumford said that the clock "disassociated time from human events and helped to create the belief in an independent world of mathematically measured sequences: the special world of science."

The earliest change in the common sense of time began neither in the marketplace nor in the hallowed halls of science. Rather, it was the child of the sixth-century Christian monastery. Many religions of the world call for regular times of prayer. Islam specifies five: sunrise, noon, sunset, evening twilight, and after dusk, while the Jew prays after day break, before sunset, and again after dark. Only in the Christian monastery were the times set by the hours—by the rule of an organized clergy whose duty it became to codify the schedule for prayer. Around A.D. 530, the rule of Saint Benedict specified when to "recite the hours": the Lauds, the prime, the terce, the sext, the none, the vespers, and the complin in the waking hours, and two more at night—the vigils and the matins. If we all pray to God together, the better will He hear our plea. The precise measurement of time thus became a major concern as Christianity spread throughout Europe after the fall of Rome. But who would "stand watch" in the middle of the night to keep the observance of devotions intact? Who would keep the vigil? The clicking gear work of the verge-and-foliot escapement would become the sole sentry all supplicants could depend upon.

The first mechanical clocks were little more than gravity-driven mechanical bells. They had no faces or hands. In fact, the word *clock* derives from the French word *cloche*, or bell, a device to which the ears, not the eyes, responded. Remember Frère Jacques, the delinquent monk who slept through his matins? This eternally harassed figure in a children's song was one of the first people to feel the tyranny of the automatic alarm.

The mechanical clock arrived just as another unrelated develop-

Clock time was initially the servant of the sacred, as in this circa 1450 miniature showing Sapientia (Divine Wisdom) regulating a clock as she instructed a disciple.

ment was sharply focusing the European mind on the fleeting nature of time. The Black Plague quickly spread northward from its introduction in 1347 by flea-bearing rats entering from the Levant at the port of Messina, Sicily. In three years, the pox decimated much of Europe (the Scandinavian countries and parts of northeastern Europe were spared), wiping out more than a third of the population. "Be diligent in your prayer and in your daily acts," came the word from the pulpit. "Watch the clock carefully: you could be experiencing your last hour!" To avoid eternal death, one needed to prepare ever more diligently for salvation. Time flies! "He who idles away his time and does not measure it is more like an animal than a human being," said a 14th-century preacher.

If the monastery was the midwife attending the birth of the mechanical clock, the city provided the ideal community for that robot child to grow to adolescence. By 1298, the population of Europe was three times what it had been at the turn of the millennium. Venice, London, Basel, Paris: the city as we know it—a place where goods are assembled, processed, and traded—had been born. The new manufactured products and other goods moved from city to city and from city to country. Economic change bred more changes: new, widely circulated currencies—Genoa and Florence minted the first genois and florin,

respectively, in 1252, and Venice the first ducat in 1284—and what Crosby calls a "giant step into abstraction," a universal system of monetary exchange. Increasingly, everything now had its price, including time.

The city changed the rhythm of human activity. Workers migrated en masse from the country to get jobs. There they could become shoemakers, weavers, textile workers, or dyers—and they could bring home a pretty good wage if they were well trained. But the urban workday was a far cry from the rural peasant's former daily schedule, which had consisted of a list of chores that began with feeding the chickens and ended with bringing in the cows—all accomplished alone and more or less in sequence and timed by the approximate rhythm of the sun in the sky, much like Nuer time.

Work in the city required collaboration and coordination among relatively large groups of people. The penalty for lost time was lost revenue. Piecework gave way to the hourly wage, as church bells migrated first to shops, where they became work bells, then to the belfry at the center of town, where all manner of pealings, differing in pitch and duration, would attempt to impose their discipline upon those for whom the bells tolled, upon masons and carpenters, wine makers and linen cutters. The well-to-do likewise subjected themselves to a new discipline of time, egged on by Renaissance philosophers such as Leon Battista Alberti. "A man owns three things," he wrote, "his fortune, his body and his time."

Regardless of where the laborers performed their tasks—whether in the vineyard or in the weaving loom, at the shipyard or the mine, whether in the home or at the bench in the shop—they came to resent the bells and mistrust those who rang them—the employer class which also ran the town government. Time seemed no longer to belong to God. It belonged to those who presided over this world.

For a variety of reasons, the revolution in time stirred concern in the medieval church. For example, take the practice of lending money at interest, an increasingly common phenomenon with the rise of markets in medieval Europe. The borrower essentially lives on borrowed time, paying a fee (interest) for the use of assets for a period of time. In the eyes of the medieval church, such crass secular capitalism constituted a criminal act called usury, the selling of time, a thing created by God. By putting money "to work" day and night, the usurer also posed a challenge to the Christian regulation of time: "Every man stops working on holidays, but the oxen of usury work unceasingly and thus offend God and all the saints," wrote one 13th-century observer. Dante consigned usurers to the bottom of the seventh circle of the Inferno, lower than blasphemers and sodomites.

But the struggle over time between medieval labor and management cut two ways. Clocks also gave workers the opportunity to master their own time, and they raised new and complex issues for employers and workers alike. It is a relatively simple matter to mark the length of a workday that begins at sunup and ends at sun-

down, but what of one that is measured in hours? Such questions about time's essence, which had never been raised before the advent of clock time, were bound to create conflict. There are many examples. In 1315, when they were required to handle fabric of a heavier weight, textile workers in the northern French city of Arras demanded higher wages. To increase their earning power, they further entreated to be allowed to exceed the length of the workday announced by the bells—the first overtime dispute! Management fought back: in the cloth trade, for example, sheep shearers, fullers, and washers who failed to obey the clothiers' bells were fined as follows: the equivalent of five British pounds for checking in after the morning bell, 60 for ringing it to call an assembly of fellow workers, the death penalty for ringing it to call for a revolt.

As the clock became a symbol of prestige and progress, owning a "watch" became a measure of status, even though for aristocrats, working half a day at most, a "chamber clock" was hardly a necessity. In the horological revolution that swept Europe, clocks became elaborate showpieces. One estimate has it that by 1700 a single British clock maker had produced 50,000 watches for domestic use and exported twice as many abroad. (Today, Americans alone purchase 50 million a year.)*

Naturally, when clocks were brought indoors from the tower to the chamber they got smaller. By the mid-15th century, you could carry your own personal timepiece in your waistcoat pocket. (King Francis I of France owned a watch so tiny it was said to fit into the hilt of his dagger.) Pull it out, open the lid, and push a button, and your "repeater" watch would automatically chime out the hour and its quarter divisions—a great convenience in dark city alleys in the days before artificial lighting.

This miniaturization of timepieces was made possible by replacing the falling weights that powered larger clocks with the spring balance, a tightly wound metallic spiral whose slow release of tension was communicated via a twisting shaft whose detents alternately engaged rows of teeth on a round wheel connected to the dials. Credit for this technical achievement probably belongs to Italian artisans of the early 15th century. The wristwatch, which fostered even more intimate contact with the moment, dates from World War I, when military commanders, needing to coordinate everything from reveille to frontal assaults, sought readier access to their timepieces.

Renaissance Europe soon discovered that life in an interlocking market economy spanning an entire continent necessitates the international regulation of time standards. Consider the tradespeople who journeyed with their wares between Venice, Munich, and Basel. Because each city kept its own separate system of hours, a set of conversion tables became an absolute necessity for business travelers. A visitor to Basel, for example, needed to know not only that the city's

*Recently Tiffany's in New York displayed a Patek Philipe Swiss watch said to be the most complicated in the world. Weighing 2.4 pounds, held together by 332 screws, and exhibiting 24 hands, it performs more than three dozen different tasks—among them calculation of Easter Sunday's place in the calendar, the times of sunrise and sunset, and the orientation of the Milky Way in the night sky.

reckoning of the hours in a day began at noon but that it called that hour one o'clock, not 12.

The extension of bureaucratic control over time continued in the 19th century with the imposition of a unified global scheme of time measurement, a change necessitated by the revolutions in industry and transportation, and specifically the schedules and timetables of the railroads. In order to avoid massive inefficiency and spoilage, goods and people needed to arrive and depart at predictable times.

The technological burden was accompanied by a social one. Towns along the line needed to agree on a system of standard hours. Before the advent of zone time in the United States in 1883, the wayfarer kept two kinds of travel time: standardized "railroad time" inside the train, and "local time" in the towns outside. The latter differed from town to town, for at a given time the angle of the sun from the meridian is the same only at a given longitude. Step one pace east or west of that line, and the natural hour changes. Even noon and midnight change. To keep pace, travelers would need to change their watches about one minute for every 14 miles traveled in an east-west direction. Clearly, to be in step with the world, you needed to march to the same beat as your neighbor. The federal Uniform Time Act of 1883 established a new standard: everyone situated within a fixed distance east or west of the nearest whole multiple of 15 degrees of longitude would keep time by that parallel. (If the line of demarcation bisected a heavily populated area, the line would be shifted to avoid confusion.)

One year later, the International Meridian Conference applied the same scheme to the entire globe, establishing Greenwich, England, long a favored reference point of navigators, as the point of zero longitude, and Greenwich Mean Time as the international time standard. (The French, however, clung to their own standard, Paris Mean Time, for nearly 20 years.) Thus, the continuous time differential experienced in nature as we move long distances has, for the sake of convenience, become discontinuous and partitioned.

Like the tendency to socialize time, the penchant to bureaucratize it has its roots in the ancient world. Our own calendar emanates from Julius Caesar's adviser Sosigenes, who invented the leap year in 45 B.C. to keep time's canon in tune with the seasons. If you didn't add a day to the 365-day count every four years, the feasts that follow the seasonal cycle of $365\frac{1}{4}$ days indicated by the sun's movement would backslide by one day every four years. But the Julian calendar, modified several centuries later, did not entirely solve the problem. By the 16th century, the recession of nature's year relative to the artificial version of it had grown to 11 days. Concerned about where Easter Sunday ought to be positioned relative to New Year's Day, Pope Gregory XIII appointed a commission to solve the calendar problem in 1582. As was the case a millennium and a half before, two actions were needed to assure that the future festival date would arrive at its proper location in the year of the seasons. First, the spring equinox (from which the annual reckoning of days until Easter commenced) needed

Prayer times throughout the Muslim world are noted at Sri Lanka's Jami Al Alfar Mosque.

to be restored to its proper place in the year cycle; and second, the commission needed to devise a mechanism to hold it fixed.

After much debate about whether the lost time might be made up in small parcels over a long interval, the first problem was solved, as in Caesar's time, in a single bold stroke simply by dropping 11 days out of the calendar. To put the plan into effect, the pope decreed that the day after October 4 of that year would be October 15. The second step of the Gregorian reform consisted of changing the leap-year rule by decreeing that among century years, only those divisible by 400 shall be leap years.*

As might be expected, the Gregorian reform was immediately adopted by all Catholic countries but not so quickly by others. Great Britain did not approve the new calendar until 1752, by which time it needed to erase even more days to make the transition. Russia did not accept the Gregorian calendar until the Bolshevik Revolution of 1917 (and then under Stalin experimented with five- and six-day weeks), and many non-Western societies at first paid little attention to calendar reform.**

We can scarcely fathom the toll such a theft of time would exact from us today, and it is safe to say it wreaked substantial havoc even

*Thus, 2000 will be a leap year but 2100 will not. This recipe had far-reaching consequences, for it drastically reduced the shortfall inherent in the Julian leap-year system by cutting the length of the calendar year, averaged over long periods of time, below 365.25 days to 365.2425 days (which is closer to the real value of 365.2422 days). So near perfect was the new rule that the man-made year cycle would now roll ahead of the seasons by only one day in 3,300 years.

**Minor reforms have taken place since the time of Pope Gregory. By agreeing to convert A.D. 4000, 8000, and 12,000 to common years, we reduced the difference to one day in 20,000 years. Finally, at an Eastern Orthodox congress held in Constantinople in 1923, yet another rule was adopted. It stated that century years divisible by 900 will be leap years only if the remainder is 200 or 600. The resulting calendar is accurate to one day in 44,000 years.

centuries ago. Immovable feasts were moved, critical saint's days omitted, monetary deadlines shortened, and the calculation of bank interest interrupted. Angry mobs assembled in the streets shouting against the authorities from Frankfurt to London: "Give us back our days!" The change was less traumatic in Britain's American colonies, largely rural and therefore less strictly calibrated to the calendar. The ever-pragmatic Benjamin Franklin shrewdly advised readers that "expenses will be lighter" in the transition month.

During the past two centuries, the calendar has more than once attracted the attention of secular reformers. All such revolutionary attempts to regulate long-interval time seem to aim for pristine completion of the year cycle as well as the ability to arrive precisely at a solar date. The more fingers in the bureaucratic pie, the greater the concern to build up and tightly interlock larger and larger cycles, with a single aim: to gain a foothold on the future.

The calendar reform launched by anticlerical zealots of the French Revolution was one of the most thorough attempts to reform a traditional calendar system. On October 5, 1793, the National Convention's "calendar of reason" abolished all units of time and replaced them with new, more uniform ones. Months were made the same (12 each of 30 days, with a five-day period tacked on at the end of the year). For the traditional names borrowed from oppressive emperors and deities the revolutionaries substituted names with seasonal associations: Mist, Frost, Snow, Germination, Harvest. (Never ones to pass up an opportunity to ridicule their cross-channel rivals, English satirists promptly invented new and improved names, such as wheezy, sneezy, and freezy.) The days were divided decimally into 10 hours each of 100 minutes, every minute containing 100 seconds. There were 10 days in a week instead of seven, which meant nine consecutive days of toil instead of six before a day of rest—a move that instantly made the new calendar very unpopular with the masses. The Republican Era replaced the Christian Era; 1792 became year 1.

The creation of such an ultimate time machine fit easily with the entrenched mechanical philosophy of the Enlightenment, and especially the Cartesian view of the universe as, in effect, an immense clockwork that, once set in motion by God, would operate automatically and unfailingly, driven by its own self-evident principles. If today's God is a computer programmer, Descartes' God was a watchmaker.

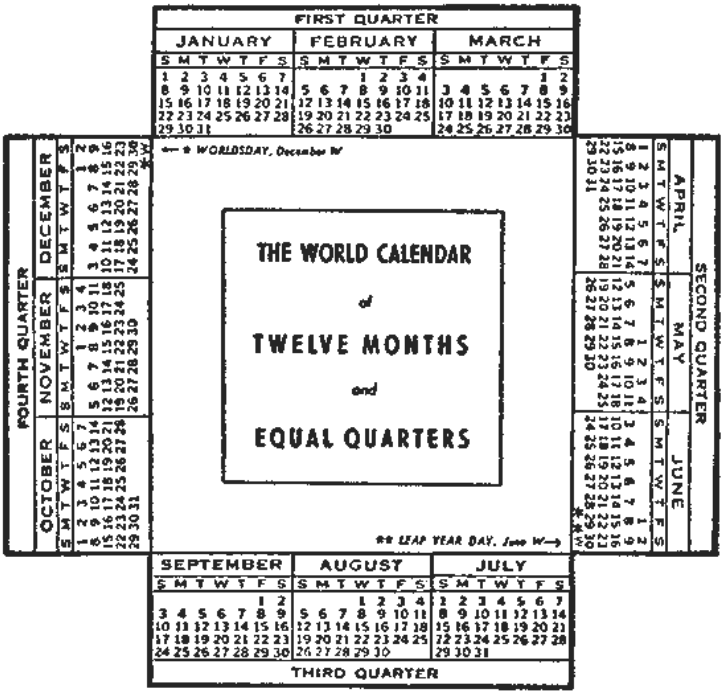
But French Revolutionary time ended as abruptly as it began. On the 11th of Snow in year 13, Napoleon brought the new era to an end, returning France to the Gregorian calendar and to the year 1806. The revolution's attempt to impose a new secular rhythm upon the people in the name of progress had run too much against the grain of religious tradition. While Enlightenment philosophy emphasized that science, reason, and the natural order were the principles humanity was designed to live by, the revolution's new time was forced and unnatural, too suddenly emplaced, too radical,

"Punching the clock," an emblematic everyday act of the industrial era

too discontinuous with time systems outside France. The new calendar was too much a misguided social creation rather than a natural one.

A second significant attempt to rationalize time came with the campaign for a so-called World Calendar after World War II. Imbued with the same postwar attitude of universalism that animated the quest for a common language (Esperanto), calendar reformers such as Elizabeth Achelis of the World Calendar Association floated various propositions for "one World Calendar for One World." Mahatma Gandhi declared that such a reform "will help to unify the peoples of the world."

The 20th-century reformers often framed their rationale in terms of a familiar conviction: "Time is money." The existing calendar, one business executive said, is a "smooth and subtle" thief. Consider, for example, the time required to determine on what day of the week the 10th of the next month will fall or whether Christmas will occur on a weekend next year. One radio news commentator estimated that it cost the taxpayers of New York City $5,322,866.25 a year to reckon time—and that was in the 1930s. (This is a subject that hits home in the current wake of discussions of what it will cost us when '99 turns into '00, which most computers think of as 1900!) Vagaries in the Gregorian calendar produce variable quarters, variable overtime, variable time-payment periods—and endless opportunities for error. The advocates promised to erase these irrational, trou-



blesome deviations, removing a large obstacle to the enhanced planning, regulation, and precise recordkeeping demanded by an advancing world.

The World Calendar was nothing less than a utopian house of time. It advocated the radical proposition of withholding the 365th day, thus making a normal year 364 days long. This number has the distinct computational advantage that it is easily divisible, into four equal quarters of 91 days apiece. (It was employed as well for similar reasons by ancient Mayan timekeepers more than a thousand years ago.) According to the plan, these quarters would be segmented into identical month sequences of 31, 30, and 30 days.

But the supreme advantage of using the number 364 is that it overcomes the bugaboo of the wandering week, for it is divisible exactly by 7. Thus, every year in the new calendar would have 52 whole weeks, and consequently every quarter would begin with a Sunday and end with a Saturday. Every January 1 would be a Sunday; every February 1, a Wednesday; every March 1, a Saturday. Our birthdays would always fall on the same day of the week.

Now, because the year timed by the seasons is actually closer to 365 days (365.2422 days, to be precise), one needs to add an extra day to every year and to intercalate yet another extra day according to the leap-year prescriptions described earlier. What could be more suitable, argued supporters, than to call that extra day "World Day"? This day, formally named "December W" though unnumbered in the usual sense, would follow the last day of December. It would be dedicated to

universal harmony and unity, a day for bringing together all races and nations in fellowship. "Leap Year Day" would likewise be inserted into the calendar every fourth year.

The World Calendar was embraced by the likes of H. G. Wells and John Dewey and praised as the temporal tonic for our time. One proponent heralded it as "a scientific system of time measurement without sectional, racial or sectarian influence." Even the Vatican acceded that time management was primarily a civic rather than a religious concern, proffering a conditional endorsement of the World Calendar in 1954. World calendar advocates confidently predicted that their system would be instituted in 1961, a year they pegged as ripe because its January 1 fell on a Sunday.

Of course, it never happened. There is no single reason why it didn't, but perhaps the World Calendar failed for the same reason the metric calendar of revolutionary France did not survive. Perhaps there remains within the human heart a longing for the uncertain, the incalculable, the chaotic—that tiny segment of the unknown we all struggle to preserve as the sacred, symbolic turf of time to which we might escape, the ever shrinking domain we can still freely explore in a life already too rigidly controlled by the clock.

Human culture is the great processor of time. Like other creatures of the biological world, our ancestors began simply by sensing the rhythms of natural time—the beat of the tides, the coming of the rains, the on-and-off stroboscopic flickering of the full moon's light, the comings and goings of swallows, locusts, the red tide, and El Niño. But once we grabbed hold of the controls, we changed the order. We manipulated time, developed and enhanced it, processed, compressed, and packaged it to conform to our perceived needs.

There will be no turning back to life in a participatory universe like the one that Evans-Pritchard found among the Nuer. The struggle over time has had the effect of removing us from any real involvement in the rhythm of nature. We desperately want to take up an instrument to play, but our ambition to conduct the whole orchestra prevents us from doing so. At the end of his classic work, Evans-Pritchard describes Nuer society as one possessing "neither haste nor an appetite for product and profit, a modest society that accepts its lot and never tries to transform or exceed it." Maybe Evans-Pritchard envied the Nuer because they seemed content just to play along.
