II. HISTORICAL ASPECTS

3
Seven Long Waves in America's History

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Abstract

The synthesis of research on colonial America by Earle (1992) and independent America by Berry (1991) results in identification of the seven long Kondratieff waves that have unfolded since initial settlement in the early 17th century and the 'Great Recession' of the first decade of the 21st century. Earle's three colonial long waves have the same timing as those of industrializing and industrial America, documented by Berry.

Keywords*: Kondratieff waves, Carville Earle, long-wave clock, long waves, periodic structure of American history, Kuznets cycles, Juglar cycles.*

Introduction

When the late Carville Earle wrote *Geographical Inquiry and American Historical Problems* (1992), he devoted the final sections of his book to a proposed periodic structure of American history, seeking 'to provoke further meditations on a more ambitious American historical geography – a story of macrohistorical rhythms, of periodic structures, and of the recurrent geographical processes of agrarian innovation and spatial diffusion' (*Ibid.*: 447–448).

In what follows we contribute to these 'meditations', by integrating Earle's colonial-era scheme with that presented by Berry (1991 et seq.) for post-independence America, resulting in a synthesis comprising the seven long waves that have unfolded in America between the first pulses of the 17th century migration that followed settlement at Jamestown, Virginia in 1607 and Plymouth, Massachusetts in 1620, and the 'Great Recession' of 2007–2011.

Earle, a historical geographer whose specialization was colonial agricultural innovation, extrapolated his scheme into 19th-century industrial America, but erred as he strayed beyond his expertise into the fourth and later waves. The synthesis presented draws upon his colonial expertise and reserves to an appendix a brief critique of the inconsistencies in his extrapolations.

Following his 1991 book, Berry published a variety of research papers and books on long wave conjunctures and timing. That work is also reviewed in an

appendix. The discussion that follows begins with an outline of Earle's propositions, then turns to Berry's identification of a long-wave clock, next places Earle's colonial-era waves on that clock, and concludes with a summary of the seven-wave scheme.

Earle on Colonial Long Waves

Earle's presentation centered on three propositions: that American history has a periodic half-century structure; that the half-century periods comprise six shorter phases (‘crisis’, ‘creativity’, ‘conflict’, ‘diffusion’, ‘dissent’, and ‘decline’) that are recurrent; and that the periodic structure is governed principally by the processes underlying agrarian innovation and diffusion (Earle 1992*:* 448–449). He believed there to be ‘remarkable symmetries in periods, cycles, and waves that are unlikely to have risen by chance, and that we may provisionally regard as historical realities, that when combined, constitute the macrohistorical periodic structure of the American past’ (*Ibid.*: 448). The periodization rested on historiographic tradition melded with cycles of religious revitalization, recurrent policy shifts, and the economic long waves identified in capitalist economies by Nikolai Kondratieff (1925, 1926a, 1926b) and reaffirmed by Joseph Schumpeter (1939). By identifying the roughly half-century periodicity of severe depressions in the colonial era, Earle traced these long waves back to the early 17th century by showing that

> following each of these crises, prosperity resumed. The economy improved slowly at first and then at an accelerated pace during the wave's long upswing. Commodity prices went up; innovation in mercantile organization and agricultural practice spread rapidly; consumption increased; standards of living improved; and incomes and wealth, on average, rose. Growth continued impressively for two to three decades, whereupon the pace slackened and the economy entered a long downswing. In the ensuing two decades, the economy ran downhill into the abyss of long-wave depression and social crisis (Earle 1992: 461).

To Earle, the ‘persistent alignment of historical periods, policy cycles, religious revitalizations, and long-wave economic rhythms formed a historical conjuncture of unusual proportion’ (*Ibid.*: 463), enabling him to map his six phases on to the upswing-downswing structure of the long waves he hypothesized to have unfolded since the beginning of the 17th century. Each long wave, he said, began in the crisis years of depression, was eased out by upwave creativity, but entered a period of conflict around the long wave peak as the new clashed with the old. The new prevailed, and as the downwave began, the fundamental innovations of the creativity period diffused and spread, generating waves of economic growth and prosperity, and producing ‘a spectacular expansion in settlement, transportation, and regional economic development’ (*Ibid.*: 481) before dissent set in amidst conflict between the new ranks of haves and an older pop-

ulation of have-nots. This dissent, combined with economic slowdown, as the innovations reached market saturation, ended in accelerating decline into the next long-wave trough.

Berry's Long-Wave Clock

While Earle was crafting his study for an audience of colonial historians, Berry was beginning a program of research into long-wave dynamics and their many conjunctures over the timespan since American independence. The first product, *Long Wave Rhythms in Economic Development and Political Behavior* (Berry 1991) antedated Earle by a year, but the book was already well into press before Earle became aware of it (personal communication). A variety of books and research papers followed, outlined in an Appendix. Of these, the most significant for this discussion is the spectral analysis reported in Berry, Kim, and Baker (2001). The analysis confirmed post-Independence long waves of prices (inflation-deflation) with a periodicity of 55.8 years (Kondratieff waves) within which were embedded triplets of 18.6 cycles of investment and economic development (Kuznets cycles) and sextuplets of 9.3 business cycles (Juglar cycles). For illustrative purposes, the conjuncture of these economic cycles is most easily captured by a '24-hour' long-wave clock.

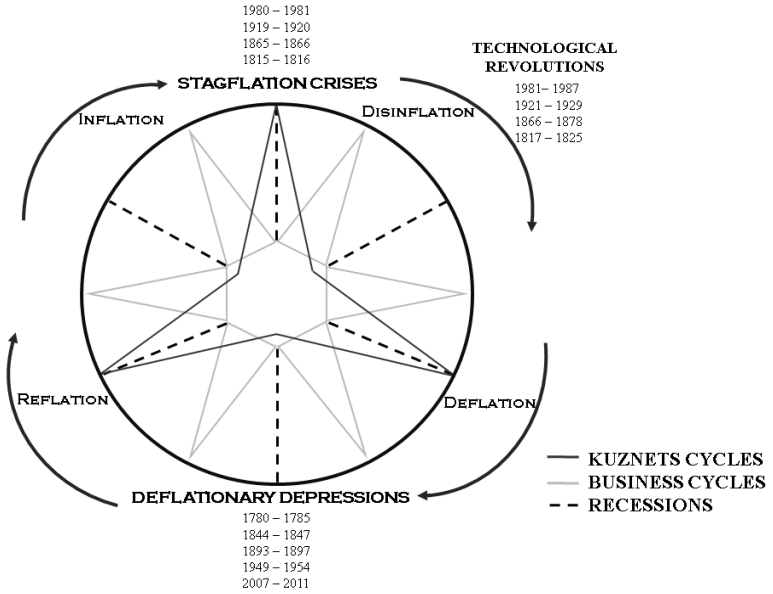

Fig. 1. The long-wave clock. There have been four Kondratieff Waves since American independence

Source: Berry 1991.

Fig. 1 shows this clock. The base ('midnight') lists the five deflationary depressions that have occurred since the United States achieved independence, each forming a long wave trough. Out of each trough have been epochs of reflation and then inflation, spiraling into stagflation crises at the long wave peaks ('high noon'). After each peak, the inflationary bubble busts and, as a disinflationary period begins, the falling cost of money facilitates a technological revolution that transforms both economy and society. The revolutionary periods are known by American historians, for example: 'The Era of Good Feelings' 1817–1825; 'The Gilded Years' 1866–1878; 'The Roaring Twenties' 1921–1929; and 'The IT Revolution' 1981–1987. Each resulting surge of growth produced rising inequality between the new 'haves' and older 'have nots' and was followed by deflation that sagged into the next long wave trough.

Fig. 1 also shows how three Kuznets investment cycles and the six Juglar business cycles are embedded within each long wave, as well as the location of the six depressions that slow growth and increase efficiency by pruning out the results of over-enthusiastic investment.

Earle Positioned on the Long-Wave Clock

Earle's principal conclusion was to identify the three long waves of the colonial era, running from trough to trough roughly 1619–1673, 1673–1729 and 1729–1783. These are shown overlaid on the Berry long-wave clock in Figs 2, 3, and 4. Earle postulated that each wave had a six-phase structure (crisis, creativity, conflict, diffusion, dissent, and decline) and these phases are located on the three figures drawing from Tables 12.1 through 12.6 (see Earle 1992: 475, 481, 483 and 485).

The first of Earle's waves, shown in Fig. 2, begins in the English depression of the early 1620s that precipitated the Puritan emigration to the northern colonies and that of the landowning Royalists to the south. This long wave peaked during a period of conflict, both the English Civil War and episodes of Indian warfare in Virginia and New England; proceeded through the diffusion of pre-peak inventions (tobacco topping in Virginia, sugar in Barbados) that, post-peak, promoted the growth of commerce in Boston and settlement expansion in Virginia; continued with the often-violent contention between Royalists and Puritans during the restoration of the British monarchy; and finally sagged into the depression of the 1960s.

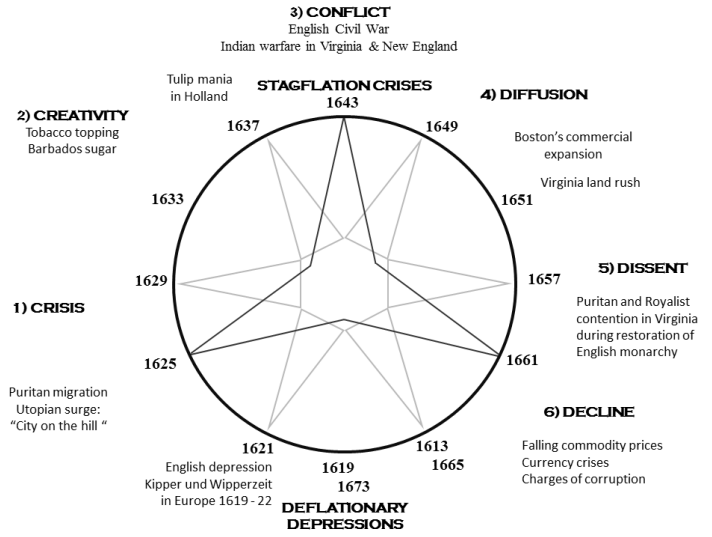

Fig. 2. The first colonial long wave, 1619–1673
Source: Earle 1992.

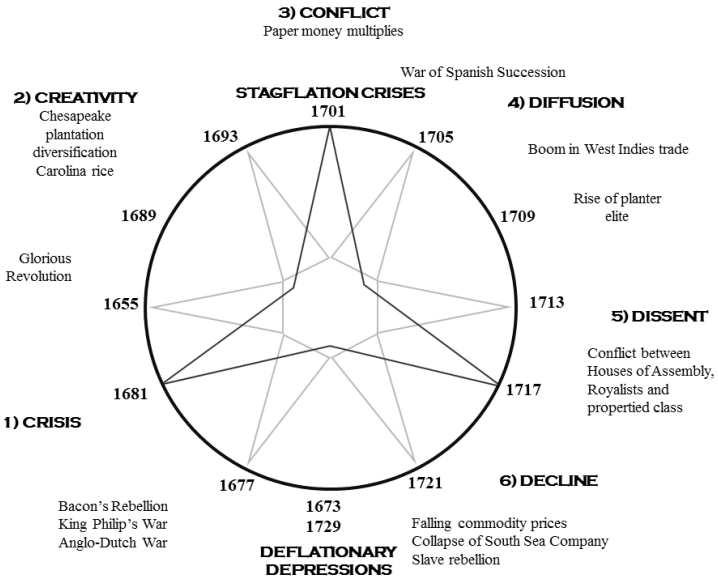

Fig. 3. Earle's second colonial long wave, 1673–1729
Source: Earle 1992.

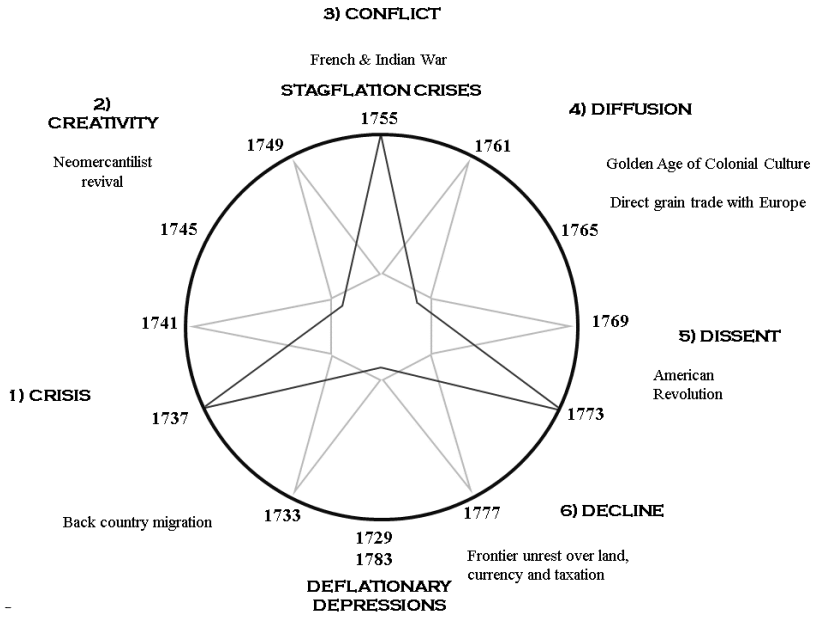

Fig. 4. Earle's third colonial long wave, 1729–1892
Source: Earle 1992.

Earle shows this colonial long-wave pattern to be repeated twice more, following the troughs of the 1670s and 1730s, and then, as Fig. 5 shows, correctly maps his cycles on to the first post-independence long wave that had been documented by Berry (1991), facilitating the synthesis of the two contributions. What he adds to Berry's discussion is the idea that it is in the pre-peak creativity phase that inventions occur that are central to post-peak technological revolutions. During such revolutions, inventions turn into diffusible innovations (*e.g.*, cotton gin and steamboats into cotton belt expansions in the South, and canals and early industrialization in the North). This pattern was repeated in each successive post-independence long wave (*e.g.*, first generation railroads before the civil war; internal combustion and automobiles before World War I; airlines before World War II; and mainframe computers before the peak of the Cold War).

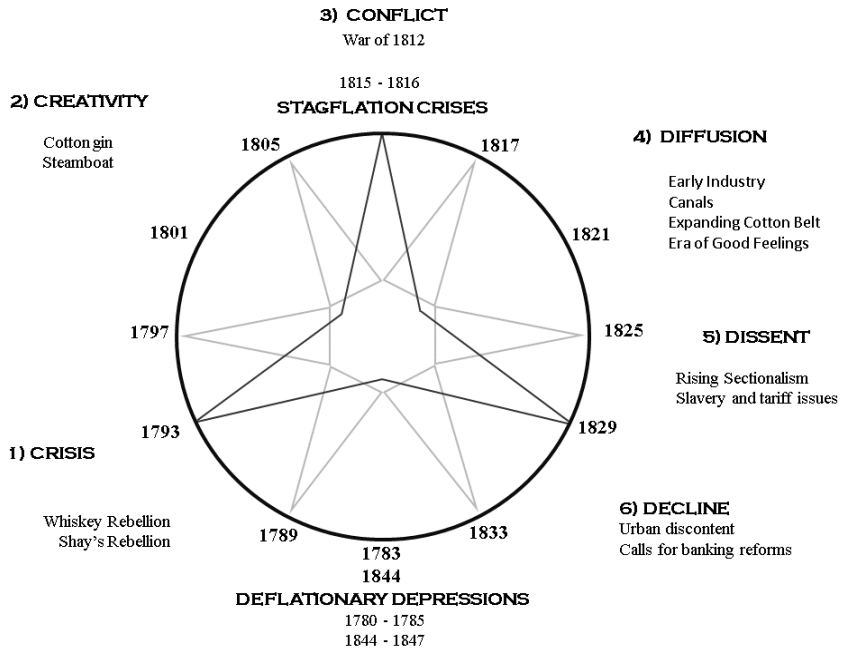

Fig. 5. Earle's fourth wave coincides with Berry's first post-independence long wave, 1783–1841

Source: Earle 1992.

Synthesis: Seven Long Waves

Berry's spectral analysis (Berry *et al.* 2001) shows the average periodicity of long waves to be 55.8 years. Beginning with the onset of bad times in England, *c.*1615, we calculate 1615 + (7*55.8) = 2005, *i.e.*, the end of the seventh wave in the Great Recession of 2005–2011 coincides exactly with the expected timing.

The seven waves are shown by listing the peaks and troughs on the long wave clock in Fig. 6. As it recovers after the Great Recession, America is now in the early stages of long eighth wave.

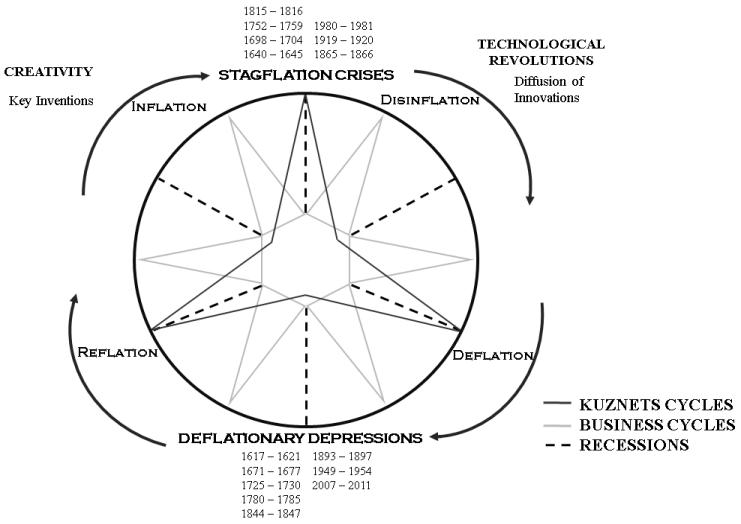

Fig. 6. The seven long waves on the long-wave clock

Source: Earle 1992.

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Appendix A

Berry on Long Wave Conjunctures

Berry's initial 1991 venture into long wave territory was quickly followed by *America's Utopian Experiments: Communal Havens from Long-Wave Crises* (Berry 1992), which examined the millennial surges that have followed each major deflationary epoch, the troughs separating long waves. In the years that followed came analyses of the key forces driving long waves, the technological revolutions that have occurred after each stagflation crisis that has accompanied each long-wave peak (Berry, Kim H., and Kim H.-M. 1993), the ensuing diffusion of innovations (*Idem* 1994), the emergence of leadership generations (*Ibid*.), the rise in inequality that accompanies technological change on the downwave (Berry, Harpham, and Elliott 1995), the relationship to waves of frontier development (Berry 1996), and to the rhythmic nature of American politics (Berry *et al.* 1998).

The rhythms have been so regular that Berry asked whether there has been an exogenous pacemaker (Berry 2000) and, with developments in the field of spectral analysis, by the provision of convincing statistical evidence not only for 55.8-year long waves, but also for three 18.6-year Kuznets cycles of economic development and six 9.3 year Juglar business cycles nested within each long wave (Berry *et al.* 2001). Later, long wave ('K-wave') troughs and peaks were associated with instability and war (Berry 2006) and with the idea of 'takeoff' or transformative presidencies in the aftermath of long wave troughs

(Berry and Dean 2015). To aid in understanding, the portrayal of long waves as 56-year clocks was re-introduced in 2012 (*Idem* 2012) and is central to the assessment of Earle's industrial-era proposals in this manuscript.

Appendix B

How Did Earle Go Wrong?

According to Schumpeter (1939), reinforced by Berry (1991), the second post-independence long wave began in the deflationary trough of 1844–1847, rose to a peak in the aftermath of the Civil War (1865–1866), and continued downslope to the next deflationary depression in 1893–1897. As Fig. 7 reveals, Earle (1992) crammed all six of his long wave phases into the twenty-year trough-to-peak upwave (1845–1865) and then showed his next long wave starting in the 1860–1870s amidst the extraordinary technological changes that accompanied the new steel converters, the growth of cities in the northeastern industrial belt, and the extraordinary wealth produced in The Gilded Years.

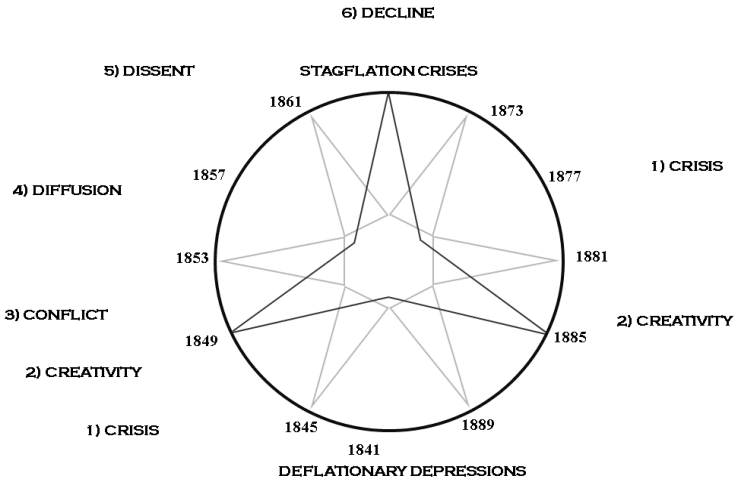

Fig. 7. Earle goes astray with eight phases, 1844–1897
Source: Earle 1992.

Why did his excellent treatment of the first four waves go astray? We suspect it is because he was a colonial historian who fixated on the fortunes of the American South, saw the Civil War as the source of decline (and indeed the end of slavery did produce a radical decline in Southern wealth), rather than an epoch of conflict. His central thesis had been that the driving force of long waves was agricultural innovation. This was true in the colonial era, but had been superceded by the diffusion of urban industrialization. In other words, once he left familiar territory, he was blinkered by his worldview!