Tank driver, at Fort Knox, Kentucky, June 1942 (Library of Congress/Alfred T. Palmer)

Hydrocarbons and Hegemony

By Anand Toprani

There is a widespread notion today that the United States inherited from Great Britain and defended a liberal world premised on the free exchange of goods and capital (particularly by sea).[1] This article suggests we can better understand the origins of this system and its possible future by integrating hydrocarbons—specifically coal and oil—into our analysis. The control of hydrocarbons—both for satisfying domestic demand and for controlling external flows to allies and adversaries—was an essential ingredient of both British and U.S. power. That said, subtle differences exist between the two nations' experiences. Coal sustained and augmented British *primacy*, but British control over coal was also less extensive than that of the United States over oil and afforded it far less influence over the internal affairs of other nations (either through coercion or by consent), which is one prerequisite for a hegemonic power.[2] To simplify, coal contributed to Britain's global power but did not create it,

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"Breaker Boys," from Hughestown Borough Coal Company, Pittston, Pennsylvania, pose for photo, January 1911 (U.S. National Archives and Records Administration/Lewis Hine)

unlike oil, which was a key element in the U.S. rise to genuine *hegemony*.

At a time when there is a great hue and cry within Western capitals about saving the post-1945 liberal international system, those who are planning U.S. operations and strategy—to include the readership of *Joint Force Quarterly*—ought to know exactly what it is they are defending. But military professionals should also have a broader awareness of the other instruments of military power. When we in the national security community study the economic instrument of U.S. power, it is tempting to limit our perspective to economic warfare, most notably sanctions. The U.S. economy and financial system are not only instruments of American hegemony but also constitutive elements of it. Preserving this hegemony requires understanding both how it came about (which necessitates a critique of the relevant scholarly literature) and how it perseveres, and what systemic changes are undermining it.

Transitions between rising and declining Great Powers tend to be violent.[3] Great Britain and the United States, however, stood for complementary (though not identical) visions of the world order, privileging the interests of *trading* as opposed to *territorial* states. Therefore, unlike past transitions among so-called hegemonic powers and their challengers (Spain, Holland, France, and Germany), the proverbial passing of the torch from Britain to the United States did not require them to come to blows, even if this transition was accelerated by devastating Great Power conflicts in 1914–1918 and 1941–1945. There remain scholarly differences over how consensual the process was, with some arguing that Britain aided, even welcomed, the rise of American power, whereas others argue that the United States had been pursuing a competitive grand strategy to topple British hegemony since the Civil War.[4]

Originally, the concept of Great Britain passing the mantle of liberal hegemon to its American cousin was an outgrowth of the work of the economic historian Charles Kindleberger concerning the origins of the Great Depression. He argued that Britain, specifically the Bank of England, enjoyed a position of financial supremacy during the heyday of the 19th-century gold standard and operated as a de facto lender of last resort that stabilized international financial markets, usually by coordinating interest rate adjustments among central banks. The ebbing of British financial power during World War I, and the failure of the United States (in this case, the Federal Reserve) to undertake similar burdens, despite its then considerable gold reserves and status as the world's largest global creditor, doomed the international economy—particularly after the 1931 financial crisis, when the Federal Government raised interest rates to protect U.S. gold reserves and thereafter failed to coordinate a global response to an incipient financial crisis.[5]

Political scientists picked up Kindleberger's evaluation of how a collapse of transatlantic equity and financial markets grew into a global economic crisis that threatened the very viability of liberal capitalism. Robert Gilpin, based on his reading of Thucydides's claims regarding the underlying causes of the Peloponnesian War, articulated a theoretical construct of the international system in which hegemonic powers exercised a stabilizing role, thus mitigating the innate tendency of the system toward anarchy. The waning of a power's hegemonic status, and the waxing of a rival's, created the possibility of a *hegemonic war* either to defend the existing system or to create a new one.[6]

Kindleberger's thesis was an attractive explanation of the Great Depression since it complemented the Wilsonian perspective of U.S. officials during the 1930s and 1940s that the economic crisis and the war that followed it were the result of Americans' failure to accept global leadership after World War I.[7] This might be good strategy, but it is poor history. Many elements of Kindleberger's narrative collapse under close scrutiny, especially his argument that Britain's position in the world before 1914 was analogous to that of the United States after 1918. Paul Kennedy, for instance, demonstrated that the Bank of England was hardly a ruthless instrument of British statecraft. Because of prevailing liberal orthodoxies, the bank maintained relatively small gold reserves. This policy facilitated global trade but came at the expense of Britain's financial health in wartime, when the country could not count on a large trade surplus to finance its war effort.[8]

Barry Eichengreen put the final nail in the coffin of supposed British financial hegemony. He posited that the Bank of England never served as the conductor of an "orchestra" of central banks. Great Britain's economic power had already begun to wane in the late 19th century. Its share of global manufacturing output shrank as rivals such as the United States and Germany rose from behind tariff walls, while the peculiar nature of British political economy (specifically, the nexus between the City of London and financial policymaking at the Treasury and the Bank of England, which P.J. Cain and Anthony Hopkins called "gentlemanly capitalism") starved British industry of investment by diverting savings abroad to chase higher returns within the formal or informal empire, as well as in the United States.[9]

Great Britain's imposing financial position before 1914 actually masked the true state of the nation's diminished economic, industrial, and geopolitical standing. The stability of the global financial system rested, therefore, less on objective criteria concerning Britain's relative power than on a series of implicit assumptions concerning political economy—namely, that national governments would not run persistent budget or trade deficits (the two are closely linked) and would, if necessary, induce involuntary unemployment through higher interest rates to forestall a balance of payments crisis that undermined the peg to gold. These commitments were credible to international financiers and bankers because of the limited extent of the franchise, which privileged the interest of the merchant creditor class in national legislatures rather than those of debtors such as farmers in the United States (following William McKinley's triumph over the forces of free silver led by William Jennings Bryan in 1896) or organized labor in Europe, which lacked a broad national political foundation (in Britain) or was actively repressed (in Germany).[10]

These critiques of British financial supremacy underpinned Patrick O'Brien's comprehensive rebuttal of any hegemonic transition between Great Britain and the United States.[11] O'Brien argued that the narrative of hegemonic transition was an ex post facto construction that obscured the extent of the massive power differential between the two nations. Compared with American hegemony, Britain's position was really one of primacy—first among equals—whose perpetuation rested largely on a favorable balance of power within Europe following the Napoleonic Wars. Echoing the work of Halford Mackinder, O'Brien argued that British power flourished in the twilight of the Columbian era, when control over maritime trade allowed Britain to augment its meager natural resource endowments. Even at the zenith of British influence, however, the foundations of this world were crumbling thanks to the diffusion of railroads, automobiles, and eventually aircraft; such proliferation allowed better resourced continental powers to chip away at the position of the outlying maritime powers.[12]

Although Great Britain relinquished its role as "workshop of the world" to the United States and Germany in the late 19th century, it certainly remained the world's dominant financial power until World War I. Nevertheless, O'Brien echoed Eichengreen by noting that British officials had neither the intention nor the means to play the role of a global financial backstop or to use access to British markets as an instrument to coerce potential adversaries, like the United States does with financial sanctions today. It is hard to imagine the United States allowing one of its major banks to finance a key foreign policy objective of one of its rivals, as Britain did when Baring Brothers assisted the fledging United States with the Louisiana Purchase.

British fiscal policy, meanwhile, was a far cry from that of the vaunted "fiscal-military" state of Georgian England, with its high taxes, intrusive regulation, and military Keynesianism avant la lettre.[13] Victorian and Edwardian governments were all in thrall of the liberal credo of retrenchment and sought to curb taxes and expenditures—unlike Americans today, liberal Britons blanched at the thought of running deficits to sustain an empire, believing that peacetime probity was vital to Great Britain's credibility if the nation needed to borrow in wartime. For British elites, the prospect of resurrecting a fiscal-military state was doubly horrifying at a time of demands for extension of the franchise. They would countenance the latter only by locking in a set of policy preferences that constrained the scope of government spending: adherence to the gold standard, balanced budgets, deflation (to protect creditors), and laissez-faire.

This approach may have preserved some measure of social harmony, but it came at the expense of British strategic interests once rival powers and ideologies emerged. As Michael Howard once observed, resource constraints and an incipient distaste for Europe encouraged British officials to focus on imperial and home defense at the expense of a "continental commitment" to Europe.[14] The failure to invest in a proper army capable of intervening on the Continent may, as O'Brien observed, have backfired by depriving Great Britain of a credible deterrent against German aggression in 1914.[15]

The contrast with American economic, financial, and military power since World War II could not be starker. The United States not only took up the role of the dominant naval power from Great Britain, but it also quickly established its control of the aerial domain of warfare, which was bolstered by a vast atomic arsenal after the Korean War and an extensive set of overseas bases to project power deep into the Eurasian heartland.[16] Its vast military spending has, contrary to the fears of conservatives such as Dwight Eisenhower, not created any "guns or butter" dilemma. Nominal defense spending has risen steadily since the Korean War, even as the defense share of gross domestic product and even government spending has decreased.[17]

One of the factors that made this possible was the remarkable predominance of the dollar in global finance. Across the world an insatiable demand for dollars as a reserve currency or dollar-denominated securities, the liquidity of the market for U.S. treasuries, and the attractiveness of the U.S. market for external investment—no doubt aided by the incomparable reach of American cultural preferences—have provided the United States with the "exorbitant privilege" of relying on foreign savers to finance its persistent budget and current account deficits.[18] For example, the cumulative U.S. current account deficit from 1992 to 2019 (which is matched by corresponding capital surpluses—that is, capital imports) is equal to 83 percent of total U.S. defense spending during those years.[19]

If anything, O'Brien understated his case by neglecting to pay sustained attention to hydrocarbons, specifically coal and oil, which were also essential ingredients of the industrialization, motorization, and mechanization of warfare.[20] Ample supplies of hydrocarbons do not necessarily make a Great Power so much as they enable or constrain powers from utilizing fully the tools at their disposal.[21] But we should not assume that energy is a uniform commodity—just as the chemical properties of coal and oil differ, so too do their geopolitical effects.[22]

Coal was an essential ingredient behind Great Britain's sustained, exponential growth in the 19th century as a feedstock for factories, railroads, and steamship lines.[23] Coal also allowed Britain to retain its naval superiority as steam-powered ironclads replaced wind-powered sailing ships. Not only could British factories and shipyards produce large numbers of the new ships, but Britain's domestic supplies of coal and stranglehold over maritime coal supplies (through a large fleet of colliers and extensive network of bases) also meant that other navies and merchant marines—including those of the United States in the Pacific before the completion of the Panama Canal—depended on British sufferance.[24]

But while coal solidified British primacy in the 19th century, it did not create Great Britain's geopolitical primacy. Britain was preeminent by 1815 following its victories over France, and economic growth had already begun to take off as a result of the earlier agricultural revolution and the institutional legacies of the fiscal-military state.[25] But British primacy also persisted due to the fragmentation of Europe and the relative quiescence of Asia following the decline of the Qing dynasty in China and the weakness of Meiji Japan.[26]

Leaving aside that the coal-fired industrial revolution laid the seeds for the continental powers to undermine the Columbian era through the use of railroads to move industrialized armies, the peculiarities of the coal industry and the gradual eclipse of coal as the world's dominant source of propulsion fuel during the first half of the 20th century seriously constrained British power. Although Great Britain did possess large domestic coal supplies, its coal industry (until nationalization) was, due to privatization, fractured into a number of rival companies that never achieved the vertical or horizontal integration of the major oil companies.[27] Coal was also more labor intensive than the capital-intensive oil industry, which left it more vulnerable to coordinated strike or sabotage action.[28] And although coal was a valuable British export, much of it went to nearby markets in Europe, so it never became a globally traded commodity like oil.[29] Finally, while coal enabled fortunate nations to make the transition from organic to mineral economies, it was a source of energy appropriate only to the "Paleotechnic" era of iron, textiles, and steam power—what some historians called the First Industrial Revolution.[30]

By contrast, oil was the quintessential energy source for the "Neotechnic" age of steel, internal combustion, chemicals, and electricity—the Second Industrial Revolution. Without access to patents jealously guarded by German chemical companies through their alliances with oil companies, coal producers had no ability to produce synthetic fuels or enter the petrochemical industry.[31] The latter, in particular, was a major consumer for petroleum besides transportation and power generation. The petrochemical industry that emerged after World War II became the world's primary source of synthetic rubber and helped spearhead the "green revolution" through the diffusion of fertilizers developed from petrochemicals (not to mention the oil-fueled mechanization of agriculture).

The close relationship between the oil industry and the health of the global economy and petroleum's indispensable role in modern warfare means it is no surprise that the superpowers that emerged from World War II possessed large domestic supplies of oil. But U.S. hegemony depended on more than mere self-sufficiency, which mostly evaporated after 1948.[32] A large U.S. domestic industry created the wherewithal to expand overseas both for markets and for new supplies. This process incentivized American diplomats to solidify U.S. predominance in Latin America and influence over budding oil producers in areas once of marginal interest to the United States (such as the Persian Gulf). Oil also shifted the naval balance in favor of the United States even before World War I, particularly in the Pacific, where Great Britain and Japan were relatively starved of oil while the U.S. Navy enjoyed prolific oilfields in California.[33]

Oil also gave the United States an immense advantage during the Second Industrial Revolution. Germany was a leader in the development of the internal combustion engine and was unchallenged within the realm of chemicals, but it could not keep pace with U.S. motorization or follow Great Britain and the United States into converting its battle fleet to oil before World War I.[34] Even Britain for its oil depended on sources controlled directly or indirectly by the United States and relied after World War I on U.S. security and financial assistance to maintain access. Oil combined with industrial power—both aircraft production and petrochemicals—similarly allowed the United States to exert dominion over the newest domain of warfare—the air—even if the results never matched the claims of enthusiasts such as Giulio Douhet[35] (although recent studies suggest that the firebombing of Japan during World War II was far more effective at producing social disorder than it was in Germany[36]). In effect, American predominance on the high seas and in the air restricted potential rivals' access to oil in the 20th century far more extensively than British control of coaling stations ever did a century prior.

U.S. commercial ascendancy in the oil industry contributed to the pricing of even foreign oil in dollars. Obviously, the fact that oil often required payment in dollars or hard currencies convertible into dollars was a profound handicap for countries suffering from balance of payments deficits. Likewise, reliance on dollars and U.S. banks as financial intermediaries became yet another source of vulnerability for countries such as Japan: Its access to oil in 1941 was effectively blocked without a formal embargo when the United States froze Japanese accounts in the American banks.[37]

The growing demand for oil priced in dollars throughout the 20th century enabled a form of seigniorage whereby the United States could pay for imported oil using dollars that lost some of their value before foreigners could recycle them into U.S. goods and services. The fact that oil is traded in dollars encouraged foreign central and private banks to hold dollars as a reserve currency even after the collapse of the Bretton Woods system in 1971–1973; it also incentivized the use of dollars for cross-border trade even when a U.S. actor is not the counterparty, because dollars can always be exchanged for goods and services around the world. Nations always had an incentive to earn or accumulate dollars even if they traded little with the United States—yet another form of "exorbitant privilege" that so enraged critics of American power, albeit one with major costs for certain sectors of the U.S. economy. Specifically, if the dollar was to retain its predominance after Washington severed the link with gold, the United States had to embrace full capital mobility and commit to providing ample liquidity to satisfy economic growth. These developments depressed domestic manufacturing by artificially raising U.S. exchange rates and encouraged U.S. firms to look for cheaper labor abroad.[38] One of the major beneficiaries of this process was, of course, China.

Furthermore, unlike coal, oil is produced in relatively few geographic locales, two of which (North America and the Gulf of Mexico/Caribbean) were in the U.S. orbit. The United States has (with the assistance of Great Britain at least until 1971) worked consistently to ensure that no rival foreign or domestic power (Nasserist Egypt, Ba'athist Iraq, or revolutionary Iran) could dominate the Middle East, long before President Jimmy Carter articulated his Carter Doctrine in 1980.[39] Most oil is transported by tanker (thanks in part to pipelines' vulnerability to sabotage or economic blackmail), which gives the dominant naval power extraordinary coercive ability in the event of war or crisis since it is difficult for either producing or consuming nations to stockpile more than a few months' worth of oil. Even then, doing so entails a tremendous financial and material cost due to the vast quantity and diversity of petroleum that modern nations require, and because it is impossible to recycle oil or petroleum in the same way as other critical commodities, such as copper, nickel, tungsten, chromium, and others.[40]

Ultimately, oil—its ubiquity in modern societies and centrality to military affairs, the operations of the industry, and geopolitical competition over access—has served to create an American hegemony that has no historical parallel in either its military or financial dimensions. Moreover, hydrocarbons have preserved this power even as the United States, like Great Britain before it, relinquished its status as the world's dominant industrial power and oil producer. While nations such as Saudi Arabia and the Soviet Union overtook the United States as an oil producer in the 1970s, U.S. firms continued to dominate the international trade in oil. Even more important, oil-related transactions continued to be denominated in dollars.

A century before, coal sustained British primacy but ultimately proved to be a hindrance as technological, social, and political change affected the structures of nations, economies, and conventional warfare. Even supplies in coal-rich Great Britain were vulnerable to labor unrest, and the coal unions' close links to the Labour Party forced the government to nationalize the industry even as its profitability declined. To make matters worse, British earnings from coal exports after World War I shrank as new sources came online and demand slackened from the ongoing conversion to oil.

Kuwaiti oil well control specialists direct fire control rig over oil well fire in order to complete water blasting method to extinguish fire at Rumaila Oil Field, in southern Iraq, as part of Operation *Iraqi Freedom*, March 27, 2003 (U.S. Army/James P. Johnson)

Before 1914, this last factor was most pronounced in the naval dimension, but thereafter it spread to other domains of warfare thanks to the internal combustion engine. Coal was not suitable for internal combustion, and the transition away from steam left Great Britain saddled with obsolete infrastructure around the world (coaling stations and mines—a version of the "stranded asset" problem). Finally, Britain had to restructure its naval and maritime power by converting from coal to oil during a period of financial duress. This shift occurred at a time when Britain was already under pressure from rising naval challenges from Germany, Japan, and the United States. Even though Britain managed to defeat its German rival and win Japan as an ally during World War I, it did so with U.S. oil and dollars, while the growth in U.S. naval power and dominance in oil global production meant that the United States controlled Britain's access to oil even after British firms began developing the Middle East, where security in wartime was always questionable.

Oil, therefore, in many ways created as well as sustained American hegemony. One might assume that the resurgence of U.S. domestic oil production during the "shale revolution" would presage a new era of American geopolitical dominance, but that is a short-sighted perspective that assumes the future will mimic the past. The fact of anthropogenic climate means that any future premised on hydrocarbon-fueled growth is out of the question. Unless the United States recognizes and acts on this fact, oil may end up posing a greater risk to its hegemony than coal did for British primacy.

In the United States, the oil and gas industry has long enjoyed special political privileges (tax breaks and incentives) and has used them to stifle alternatives. Preserving control over the access to oil and the global oil market has also encouraged the United States to devote vast resources to the strategic sinkhole that is the Middle East.[41] This status quo no longer seems tenable. Even before the recent pandemic, climate change threatened to turn the oil and gas industries' reserves into stranded assets and therefore erode the industry's financial and political power.[42] And the opportunity costs of delaying action must not be overlooked. The United States stopped investing in battery technology after World War II because oil was so cheap and plentiful. Conversely, China currently possesses the lion's share of minerals essential for lithium batteries and has undertaken the leading role in the latter's construction.[43]

Perhaps most important, China is poised to take a decisive role in the global effort to curtail carbon dioxide emissions. On the one hand, this is welcome news from the country with the largest share of emissions. On the other hand, it is worrying because American denialism about climate change and China's growing importance within the global economy are both forcing stalwart U.S. allies such as the Europeans to seek collaboration with Beijing, even as China's foreign policy becomes more bellicose.[44]

Hydrocarbons were undeniably a necessary condition for Anglo-American predominance, but there is a possibility that the latter can thrive only if the world depends on the former for its energy needs. The era of Euro-American predominance was always an outlier in human history; until at least the 15th century, if not the 18th century, Asia accounted for a larger share of global economy activity because of its larger population and more efficient administrative and production techniques.[45] What if the transition away from hydrocarbons accelerates the process of the world returning to a premodern economic balance of power—that is to say, an Asia-dominated or even Sino-centric world order?

To return to the introductory thesis, it was the combination of American industrial power and American preponderant influence over the global oil trade that served as a key pillar of U.S. hegemony after 1945. If there is indeed a close link between the control of energy and geopolitical primacy or even hegemony, then China appears well positioned to leapfrog the United States in a world that depends on renewables rather than fossil fuels for its energy needs.[46] **JFQ**

Notes

[1] See, for example, G. John Ikenberry, *A World Safe for Democracy: Liberal Internationalism and the Crises of Global Order* (New Haven: Yale University Press, 2020).

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[3] This is the core of Graham Allison's theory in *Destined for War: Can America and China Escape Thucydides's Trap?* (Boston: Houghton Mifflin Harcourt, 2017).

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[11] Patrick O'Brien, "The Myth of Anglophone Succession," *New Left Review* 24 (2003), 113–134.

[12] Halford John Mackinder, "The Geographical Pivot of History," *Geographical Journal* 23, no. 4 (1904), 421–437. These ideas are developed further in Paul M. Kennedy, "Mahan Versus Mackinder," *Militaergeschichtliche Zeitschrift* 16, no. 2 (1974), 39–66.

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[14] Michael Howard, *The Continental Commitment: The Dilemma of British Defence Policy in the Era of the Two World Wars* (London: Maurice Temple Smith Limited, 1972).

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