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> " . . they shall go out from one fire,
> and another fire shall devour them."[2]

I. INTRODUCTION

For its 1880 report, the Bureau of the Census published a special appendix on Forests that included a map of forest fires.[3] Substitute Minas Gerais for Michigan, Serra do Mar for the Appalachians, and *cerrado* for prairie, and the accompanying text could as easily stand for Brazil in the 1980s. The same kind of useful, abusive, necessary, and casual burning was present, and for much the same reasons. Although predominately agricultural, the United States was rapidly industrializing. Its lands were awash with flame to encourage pasture, clear fallow, and sweep away encumbering woods to make way for new fields, all generally tracking the human presence. In addition, many fires were set for reasons other than economic; they resulted from revenge, accident, or

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1. This article is a general-audience distillation of ideas expressed by the author in two recent works. *See, e.g.*, STEPHEN J. PYNE, AMERICA'S FIRES: A HISTORICAL CONTEXT FOR POLICY AND PRACTICE (Forest History Society 2010); STEPHEN J. PYNE, TENDING FIRE: COPING WITH AMERICA'S WILDLAND FIRES (Island Press 2004); *see also* ROGER G. KENNEDY, WILDFIRE AND AMERICANS (Hill and Wang 2006); STEPHEN F. ARNO & CARL E. FIEDLER, MIMICKING NATURE'S FIRE: RESTORING FIRE-PRONE FORESTS IN THE WEST (Island Press 2005); DAVID CARLE, BURNING QUESTIONS: AMERICA'S FIGHT WITH NATURE'S FIRE (Praeger 2002).

2. *Ezekiel* 15:7.

3. *See* U.S. CENSUS BUREAU, STATISTICS OF THE POPULATION OF THE UNITED STATES AT THE TENTH CENSUS, REPORT ON THE FORESTS OF NORTH AMERICA (1880), at 489-93, *available at* http://www2.census.gov/prod2/decennial/documents/1880a_v9-01.pdf.

simply littering. The national narrative of economic progress arose, it seemed, on a counter-narrative of ecological ruin. Both pointed to fire as cause, consequence, and catalyst.

America was not alone. Those European nations with relatively undeveloped backcountries were experiencing similar havoc, but the primary venue was Europe's evolving imperium. By the 18th century, the major colonizers were also the leading economic and intellectual authorities; and located north of the Mediterranean basin, they lacked a natural basis for fire, which they interpreted as an expression of social order (or disorder); and this magnified the shock when they pushed into lands routinely burned. The colonies were, so it often appeared, immersed in an interminable firefight against insurgencies by both indigenous peoples and native biota. America's first professional forester, Bernhard Fernow, sourly dismissed the fire scene as one of "bad habits and loose morals."[4]

Today, the American fire scene provokes widespread dismay. Most landscapes are reckoned to suffer from a deficit of fire not a surfeit; the fires that do occur are no longer in sync with the biota; and when wildfire occurs firefighting is hideously expensive and seemingly helpless against an ever-growing ecological insurrection. Yet in something over a century, America had ceased to resemble Brazil and had become, depending on perspective, either a paragon of fire's suppression technologies or an exemplar of modernity's environmental failures. Modern critics might paraphrase Fernow to denounce the scene as one of bad habits and loose money.

Today, all aspects of fire's management are ratcheting upward—burned acres, costs, flame-famished landscapes, publications, rhetoric. Nature's economy is suffering as great a bout of fire inflation as the American economy did 30 years ago. How did such a transformation happen?

II. REGIME CHANGE: A NARRATIVE EXPLANATION FOR AMERICA'S TRANSFORMATION

Twenty-first century America does not have a fire problem. It has many fire problems, each of which has different origins and likely futures. The fact is, all fires are local and solutions must address the specifics of place and time. But a relatively robust master narrative is possible by braiding three second-order themes. First, the story of fire—this is what America shares with the rest of Earth. Second, the story of public lands—this narrative America shares with cognate firepowers

4. *See* ANDREW D. RODGERS III, BERNHARD EDUARD FERNOW: A STORY OF NORTH AMERICAN FORESTRY 154 (Princeton University Press, 1951).

such as Australia, Canada, and Russia. Third, the national story, what America has uniquely. Specifically, it is the narrative of how the particulars of American lands, institutions, ideas, and personalities knotted together to make the scene we have today.

A. The Fire Narrative

The fire story tracks the latest iteration in humanity's species monopoly over fire. In the first phase, people could start fire, and within limits stop it. The power of fire, however, rested on the land's ability to spread or contain it. In the second phase, people could create combustibles by cutting, draining, loosing domesticated stock, and otherwise making burnable what, by nature, would not burn or would burn only in less usable seasons. This power was limited by the ability to coax or coerce fuels from the living world, and could easily lead to abuse. In the third phase, people began exploiting landscapes from the past in the form of fossil biomass. The transition made firepower virtually unbounded, although it required that fire burn in special chambers, and it unleashed pollution on a global scale. It also meant that people ceased to apply fire to the land; rather, they routed their firepower indirectly through machines. Combustion ran through chain saws, bulldozers, and tractors; fire's capacity to purge and promote now derived from factories that converted fossil biomass into chemical biocides and fertilizers; the built landscape rose from materials such as steel, glass, and brick that had already passed through the flames.

The upshot is that fire has steadily disappeared from industrial societies. Save in rural scenes, it is gone from vernacular life. It is banished from homes save for ceremonial events; it is gone from factories and cities; it is fast vanishing from fields, commercial forests, and even suburban landscaping. Year by year, it becomes harder to burn lawns, pruned branches, and autumn leaves. Buildings are shaped by fire codes but not by fire. For most citizens, flame exists only virtually.

B. The Public Lands Narrative

How, then, if the industrial transition has steadily expunged fire, is it possible that America is experiencing annual upticks of wildfire that are ever more threatening and costly? An answer lies in a second narrative in which, during Europe's imperial outburst, colonizers laid claim to vast estates of lands and governed them under principles of state-sponsored conservation. In practice, this meant creating forest reserves, preferably on uninhabited lands, and turning their administration over to foresters. Both practices became global.

Behind the strategy was alarm over climate change. Specifically, the colonizing state feared that feckless deforestation would lead to droughts and floods and would enhance diseases, which would render colonies burdens rather than assets. As a result, the state would have to intervene between local communities and global capital; the easiest way was to create reserves that would be spared from "fire and axe." The templates for this type of governmental intervention were hammered out in the French and British colonies, particularly India. The Indian Forest Department, under Dietrich Brandis, was especially appealing, and following its example, the U.S. commenced a program of reserves in 1891, and in 1905 transferred their administration to the Bureau of Forestry, renamed the U.S. Forest Service. Revealingly, its first two chiefs, Gifford Pinchot and Henry Graves, both studied under Brandis.

The ambition was that policed reserves, operated under scientific principles, would stop the wreckage. For the most part, they did. It was relatively easy to halt logging, but fire was reckoned the far worse threat, perhaps as much as ten times greater. Fire control obsessed the reserves' early overseers from Cape Colony to New South Wales to British Columbia. They regarded fire control as the foundation for administration, and until it was effective, nothing else mattered. Henry Graves declared that fire protection was 90% of American forestry. When Rudyard Kipling wrote a sequel to the *Jungle Book,* in which he explains what happened to Mowgli after he grew up in the man-village, he has him join the Indian forest service as a fire guard.[5] Such was the reach of conservation as an ambition and the iconic identification of environmental havoc with free-burning, folk-loosed fire.

One of the great accidents, and facts, about fire is how its oversight devolved upon foresters, a cadre of self-identified "professionals" who hated and detested fire. During this time period, most fires resided in pastures, fields, or woods that were massaged by flame to assist in the growing of herbs, medicinal plants, and honey or around households. All such users held differing understandings of what appropriate fire might look like on the reserves. Instead, administration fell to a group collectively committed to its expiration, and who equated fire with social unrest. To forestry belongs the credit for establishing an infrastructure for wildland fire's management, a science of free-burning fire, and the weld that bonded fire to state-sponsored conservation. To forestry, also, belongs the blame for a colossal misreading of fire's ecological and social dynamics. Foresters suppressed what they did not understand.

5. *See generally* RUDYARD KIPLING, THE JUNGLE BOOKS: IN THE RUKH, Appendix A (Oxford University Press, 1992).

Like a broad spectrum antibiotic, they killed the good along with the bad. Everywhere the doctrine was applied outside temperate Europe, it failed.

Instead of devising a fire-danger index, forestry should have constructed an irony index. The reserves were created to prevent fire; they became, instead, a permanent habitat for it. Extensive wildland fires flourish in the United States today because the country has extensive wildlands. By misaligning policy and programs, forestry assured that fire on those reserves, most of it domesticated in the hands of local practitioners, would go feral. The simple attempt to suppress fire's patterns (or regimes, as they are known), regardless of whether such an attempt was successful, much less sustainable, was sufficient to delaminate many biotas, for changing fire's regimes could have the same kind of ecological effect as changing precipitation patterns.

Equally, the elites removed fire from the hands of ordinary citizens and rendered it a government monopoly both in cities and landscapes. They treated fire—something humans have known for all our life as a species—as though it were atomic energy, a source of power too dangerous to permit in everyday living.

C. The American Narrative

The public-lands narrative is one America shares with those countries it most identifies with as cognate firepowers. All underwent colonization in the late 19th century, all created forest reserves relatively empty of inhabitants in the name of conservation, and all handed over control to foresters. It's a story they have in common that distinguishes them from other nations, even those nations with reserves established out of still-inhabited lands. But each of Big Four has its own unique narrative as well, and this is the third strand in the braid.

There are many ways to parse, categorize, periodize, reconfigure, and tell the American fire story. Still, 2010 marks the centennial of the fabled Big Blowup, arguably the most traumatic and informative wildland fire of modern American history, which suggests a century as a usable timeframe and the U.S. Forest Service, which took the main blows of what became known as the Great Fires, as a working protagonist. The fires were the first crisis faced by Henry Graves, as chief, following the calamitous dismissal of Gifford Pinchot for insubordination; and the next three chiefs, up through 1939, were personally on the fireline. The Great Fires were the agency's Valley Forge, the Long March of its founding generation.

The narrative arc first traces the growth of the Forest Service into a fire hegemon. During this ascent, the Forest Service established the national terms of engagement. There would be no compromise with fire

and no yielding to folk arguments for controlled burning; rather, fire would, to the extent possible, be removed from the land. The Transfer Act of 1905[6] granted the Forest Service authority over the forest reserves (later renamed as national forests). The Act of 1908[7] granted it emergency funding, an off-budget source of monies for firefighting. The Great Fires of 1910 served as trauma and taunt, a negative exemplar that impressed itself on chief foresters through 1939.[8] The Weeks Act of 1911[9] created the infrastructure for cooperative forestry, based on fire protection that extended federal influence into the states. The McSweeney-McNary Act of 1928[10] not only confirmed the Forest Service's spontaneous program of fire research, but made the agency the federal government's sole-source supplier. The New Deal gave real political will to the ambition to break fire's hold on the land and the Civilian Conservation Corps gave that determination muscle. Out of this largesse, and stung by reburns in the Northern Rockies, the Forest Service announced its 10 AM policy as single, universal standard across the country for fire control. After the Korean War, military materiel became available on a huge scale, allowing for the rapid mechanization of fire suppression and prompting the creation by the Forest Service of equipment development centers to help beat those swords into fireplows. Fire protection joined the agenda of the national-security state. The cold war on fire promised to be as interminable as the geopolitical contest between the U.S. and the USSR.

By the early 1960s, the Forest Service controlled federal policy, informed fire programs by the states, monopolized fire research, exercised almost total control over suppression equipment and crews, and, more or less, determined what America would do about wildland fire and how to do it. In 1910, Graves could declare that fire protection was 90% of American forestry;[11] by the late 1920s, William Greeley got that figure down to 75%;[12] by 1960 fire protection claimed 13% of the

6. *See* Transfer Act of 1905, Pub. L. No. 34, § 58, 33 Stat. 628, 628 (1905).

7. *See* Forest Fires Emergency Act, Pub. L. No. 135, § 60, 35 Stat. 251, 251 (1908).

8. *See generally* STEPHEN J. PYNE, YEAR OF THE FIRES: THE STORY OF THE GREAT FIRES OF 1910 (Mountain Press Publishing Co. 2008).

9. *See* Weeks Act of 1911, Pub. L. No. 435, § 61, 36 Stat. 961, 961-63 (1911).

10. *See generally* 45 Stat. 699-702 (codified as amended at 16 U.S.C. 531, 581a, 581b-581i) (repealed 1978).

11. *See generally History—Henry S. Graves, Second Chief, 1910-1920*, US FOREST SERVICE, Mar. 22, 2004, http://www.fs.fed.us/aboutus/history/chiefs/graves.shtml (discussing the life of Henry S. Graves and his work with the U.S. Forest Service).

12. *See generally History—William B. Greeley, Third Chief, 1920-1928*, US FOREST SERVICE, Mar. 22, 2004, http://www.fs.fed.us/aboutus/history/chiefs/greeley.shtml (discussing the life of William N. Greeley and his work with the U.S. Forest Service); WILLIAM B. GREELEY, FORESTS AND MEN (USE AND ABUSE OF AMERICA'S RESOURCES) (Doubleday & Co., Inc., 1951)(Greeley's autobiography).

Forest Service's operating budget. The war on fire had, it seemed, been won. To critics and cheerleaders both, fire suppression had the indominability of a juggernaut.

Then the wheels fell off. The agency that had seemed as immovable as the Berlin Wall broke up with stunning speed. One day the wall was there, like a Hegelian world soul; the next it was down, collapsed into a rubble of agencies, policies, practices, themes, and monies. With astonishing ease, the intellectual justification behind all-out fire suppression imploded and took the old institutional arrangements with it. But since fires continued with or without a workable policy and with or without a dominant agency, the actual dismantling took several decades as did the concurrent attempt to build a new Humpty Dumpty out of the pieces of the fallen one—a coalition of the necessary first demanded for suppression, and then for all the other tasks of a full-service fire program.

The process of reconstruction has taken nearly half a century. In 1962, the Tall Timbers Research Station commenced its annual fire ecology conferences, an undertaking that challenged both policy and a federal monopoly over fire.[13] In 1963, the Leopold Report urged the National Park Service ("NPS") to recharter its fire program to encourage fire's restoration.[14] In 1964, the Wilderness Act created a legal wedge to crack apart the universal standards of fire suppression; and by placing wilderness within existing agencies rather than creating a new one to administer those lands, the Act compelled each agency to internalize the contradiction of suppressing a natural process in a protected natural area.[15] In 1968, the NPS broke ranks and proclaimed its own policy. In 1969, the Boise (later, National) Interagency Fire Center was established to coordinate logistics on large fires—demands that no single agency could satisfy any more.[16] In 1976, the National Wildfire Coordinating Group began establishing standards for fire-job certification, training, and equipment.[17] In 1978, the Forest Service overturned its fire mission by adopting a new policy—effectively, fire by prescription—; closed the formal funding mechanisms that had supported cooperative fire protection by the states; and replaced some of the emergency funding (for presuppression) with a normal budget. The reforms were followed a

13. *See generally* TALL TIMBERS RESEARCH STATION, PROCEEDINGS OF THE 1ST ANNUAL TALL TIMBERS FIRE ECOLOGY CONFERENCE 1962 (Fla. State Univ. 1962).

14. *See generally* A. STARKER LEOPOLD ET AL., WILDLIFE MANAGEMENT IN THE NATIONAL PARKS (Nat'l Park Serv. 1963), *available at* http://www.nps.gov/history/history/online_books/leopold/leopold.htm.

15. *See* The Wilderness Act, 16 U.S.C. § 1131 *et seq.* (1964).

16. *See* NIFC—About NIFC, http://www.nifc.gov/about_nifc/mission_history.htm.

17. *See* NWCG-History, http://www.nwcg.gov/nwcg_admin/organize.htm#History.

long spell of wet, nearly fire-free weather. Then drought and big fires returned in 1987, and as Yellowstone National Park burned for weeks, the public became educated in the new thinking.[18] Fire entered the media's annual cycle of disasters, beginning an era of celebrity fires that swept the West. In 1994, wildfires hit the billion dollar mark for suppressions costs and 34 firefighters died, half of them at the South Canyon fire. In 1995, the agencies consolidated their efforts further with a common federal fire policy. In 1998, the Joint Fire Science Program pooled most of the federal funding for research. In 2000, a National Fire Plan came into force.[19] Further modifications and amendments continued until, by 2010, the centennial of the Big Blowup, with the wholesale adoption of a policy of "appropriate management response," the last vestiges of the 10 AM policy were swept away with the rubble.

In principle, fire's restoration, not its suppression, dominated agency agendas. By now, however, a worsening climate, the blowback from decades of allowing combustibles to stack up like cordwood, caution about throwing money and firefighters at all fires, and changes in land use, from exurban housing to wilderness designations, meant an increase in burned areas and costs. More area burned from prescribed fire, from wildland fire use, and from outright wildfire, and it all cost horribly more. The fires of 2000 in the Northern Rockies seemingly mocked a century of suppression. A few years later, the fires of 2002 were the largest of historic record for Colorado, New Mexico, and Arizona, and the 2003 Cedar fire was the largest for California. As costs went ballistic, Congress refused to honor the old emergency funding system. In 2005, five former chief foresters wrote an open letter to Congress explaining that rising costs were consuming an ever greater fraction of the Forest Service budget, approximately 60%, and if not reversed would claim as much as 90% in a few years.

A century after the Forest Service had proclaimed to the National Conservation Commission that it knew how to control fire and was on the verge of successfully applying that know-how, the agency had to confess that it had no single index or prescription for managing fire. It could say definitively what it should not do, but could not say with equal clarity what it should. In 2010, fire management cost the agency as much, proportionately, as it did in 1910. What had begun as a narrative arc was ending as a circle.

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18. *See* Jan Van Wagtendonk, *The History and Evolution of Wildland Fire Use*, 3 FIRE ECOLOGY 3, 8 (2007).

19. *See generally* National Fire Plan, http://walter.arizona.edu/society/policy/nfp/.

III. CONCLUSION

We are now between two fires, or, more accurately, we are between a suite of fire polarities. Nature's fire and humanity's fire. Wildfire and prescribed fire. Wilderness fire and exurban fire. Megafire and industrial fire. Good fires and bad fires. The fires of the past and the fires of the future.

For much of the past century, only one fire problem has tended to dominate at any one time. So regular was this process that the problem fires came in roughly 20-year rhythms. The inner spring that powered that cycle seems, however, to have wound down. The likelihood is that today's fires will all jostle together on the national stage, achieving local but not national dominance. The future is likely to be one of a plurality of fires and a pluralism of fire practices. In place of a unified policy to guide management, we may need a consensual process by which we can experiment, act, learn, adapt, and act again. What fire restoration ought to aspire to is not restoring an ideal past or future state, but a philosophy of pragmatism.

A. Projecting the Three Narratives

Still, some trends are apparent in each of the three braiding narratives. For the first narrative, fire's story, the prevailing theme is the competition between the burning of surface biomass and the burning of fossil biomass. Industrialization is dividing Earth into two grand—and incommensurable—realms of combustion. As humanity routes its firepower through machines, it removes surface burning, which can be as ecologically disruptive as fire's sudden introduction. But the impact of those fires is not restricted to the surface; rather, their effluent is destabilizing the global climate. Together, those effects make humanity the prime mover of fire's future.

The second narrative, the public lands story, involves the downward trajectory of the imperial model of state-sponsored conservation. Whether or not the lands themselves survive, the administrative arrangement has not. Professional forestry has yielded to other disciplines and values, dominance by a single federal agency has morphed into collective rule by interagency agreements, and government control is being challenged by an emergent civil society that seeks to reclaim the right of landowners to use fire. Even the Forest Service, like a heritage building, while keeping its shell, has had its innards ripped out and replaced with more modern furnishings. The Nature Conservancy now burns more acres annually than the National Park Service. Most burning in Florida occurs on private lands. Prescribed Fire Councils are spreading across states more rapidly than did state forestry bureaus under

the Weeks Act. That control may be larger in symbolism than in acres burned, but it represents a historic shift in the social control over open fire. Outside the U.S. (and perhaps Australia) former government fire agencies are morphing into all-hazard emergency response services that can deliver better social services, but contribute nothing to land management. Regardless, public lands, or private lands held for a public good, will remain the habitat of free-burning fire. Consequently, the form those lands take and how they are governed will largely determine the future of open fire.

The final narrative, the American story, will also be recalibrated. The explanation for why America's fire scene looks the way it does continues to set its narrative frame at 1910. Namely, it makes the Forest Service the principal agent of malfeasance and resistance, and it continues to dress up its argument in a Smokey Bear costume. Yet half the chronicle has unfolded since the 1960s. The Forest Service is only one player among many and the government is no longer a monopolist. The thematic interest lies with what has happened since the beginning of fire reformation. The past 50 years constitute a separate narrative, and even if combined into a collective grand narrative, the second half does not derive solely from the disintegration of the Forest Service's ancient fire hegemony, for the protestors aimed not simply to downgrade the Forest Service, but to build up an alternative. The complexities and internal tensions get lost if the narrative organizes itself only around the rise and fall of the Forest Service. The revolution's disappointments vanish if measured against the era of hegemony. These disappointments become visible, however, if the successor era begins anew. To become a robust narrative, in brief, the contemporary story needs aesthetic as well as thematic closure, an anchor point that Smokey Bear can't provide.

B. Two Fires

Today, we do indeed appear to be caught between two fires. We seem to lack a narrative that can span the distance between them. We know things that don't work; we're less confident about what will work. We know what we don't like about the past; we are less able to agree on what we would like for the future. We want to protect ourselves against the fires we don't want and to promote those we do.

What those coming decades will look like will depend on many factors, some rudely predictable by projecting trends ahead, some utterly unforeseeable. The future will be what we make it. Mostly what we do will depend on how we define what we understand to be the problem, and how we define the problem will derive from how we see ourselves as Americans, as stewards of our lands, and as fire creatures. No single

vision dominates or is likely to; the reality is that all fires are local. They are more than a chemical reaction shaped by their physical surroundings; they are events equally influenced by social surroundings and cultural norms. They are synthesizers and catalysts of them all. In order to cope, we will have to be pluralists and pragmatists.

The fact is, we have always been caught between two fires. As John Dewey once observed, big problems are never solved in any technical sense; society just moves on to something else. Each "something else" in the fire narrative seems to leave us again passing through a new gauntlet of flames. In this sense, the past may indeed be prologue to the future. Early foresters believed that the fire problem could be fixed; that nations passed through such phases as people did childhood diseases; that the rash of fires on America's countryside was an ecological equivalent to chicken pox or measles; that maturity would bring a scene in which the fires would vanish. Instead, the fires persisted, and today they dominate the public land agenda as fully as they did in 1910. Not only won't the fires go away, we don't want them to leave because many landscapes need them. We will never pass through the fires to a fire-free nirvana beyond, for the flames will ever be there.

So we will always find ourselves between two fires. We can't change that. What we can change is how we respond.