Running Out of Oil: Discourse and Public Policy, 1909-1929

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Some of the most engaging problems in business history involve the creation and implementation of public policies. Outcomes are commonly seen as being at variance with both the operational realities of business and the public interest. Explanations of policy have usually involved laudatory books about reformers, judgmental claims of "capture," or technical descriptions of the operation of professional cultures, leaving aside considerations of ideology as a limitation. Yet there are significant examples--the long-term failure of the United States government to develop national energy policies, for one--in which the operation of ideology cannot be excluded from even tentative explanations. The most obvious difficulty here is the systematic identification of the ideological content of elements of policy discourse, especially when they are advanced as "facts."

In this paper we make the following methodological assumptions about discourse:

1. Everything written, or said, or seeking to convey information is discourse. Reserves estimates, congressional hearings, annual reports, books, newspapers, journals, speeches, and the like are all discourse.

2. Discourse is the product of society and culture. It is created by individuals, but it serves social purposes. Over time discourse is modified, supplemented, and continued in the context of cultural norms; its elements tend to reflect cultural continuity rather than change. The idea of America running out of oil, as current in the 1970s as in the 1920s, offers a good example of the persistence over time of an element in petroleum-related discourse.

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3. Discourse represents contention for power. Those who use it seek to further their own interests, as they perceive them. In this paper, for example, we show government scientists using technical discourse to enhance the positions of their agencies and businessmen using public discourse to advance business strategies.

4. Public discourse is not an entity or coherent unity. It is a collection of different channels of discourse, subsets of the whole, some of which may conflict with one another or contain internal contradictions. Thus, as we look at what oilmen said in response to conservationists, we can identify economic, technological, and operational (i.e., what oilmen perceived as happening in their industry) channels of discourse. The antiregulatory rhetoric they used, likening some Federal Oil Conservation Board recommendations to something coming from Moscow, is a broader channel of public moral discourse. As individuals used these various channels to further competitive strategies, it is not surprising that no consensus emerged from discussions of policy questions. As in any other group, oilmen could share channels of discourse without arriving at identical positions.

Working with public discourse proves especially useful in approaching the American petroleum industry for a number of reasons. As this paper will demonstrate, the relativism of discourse analysis allows for divergent perspectives without resorting to normative judgments that someone conspired, lied, or willfully withheld information--unfortunately common in public discourse on petroleum. In a positive context, it can lead to explanation of what otherwise seem like irrational or contradictory responses to economic and other problems, particularly in the public forum. It is helpful in explaining policy failures on the part of government or industry without reliance on time-honored *deus ex machina* devices like corruption or conspiracy. It avoids the problem of determining individual and group beliefs; without improbably candid personal papers, the former is largely unknowable, while assertions about public opinion are at best impressionistic in the absence of polling data. One can, however, talk about what people *said.* In more general terms, using discourse analysis in business history offers the opportunity to apply analytical techniques now of interest in a broad range of disciplines in the humanities and social sciences, thus bridging the discipline and its content to a wide body of scholarly interest.

We use the following case study, then, to show how discourse analysis can be used. It will also show why, with respect to the federal government's relations with the oil industry, so much has been said and so little constructive work done. More especially, it will show why the first attempt at a federal energy policy failed.

In December 1924, Calvin Coolidge created a Federal Oil Conservation Board (FOCB), appointed the secretaries of the Interior, War, Navy, and Commerce to it, and asked the board to answer such questions as whether there was an "inexhaustible supply" of petroleum in the United States; whether industry and government were "squandering" natural resources; and whether petroleum consumption and production could be cut back without disrupting the economy [FOCB Hearings, 1926, pp. 2-3]. The president's questions reflected two decades of conservationist discourse, in which the answers to the questions were "yes," "yes," and "probably." They also implied what many critics of the petroleum industry charged outright: that the American petroleum industry had managed a vital natural resource irresponsibly and that it was time for government to do something about it.

To anyone familiar with the history of the American petroleum industry, early twentieth-century fears of oil shortage seem singularly unreal. As one scholar noted decades ago, they surfaced at a time when the United States outstripped all nations in production and reserves [DeNovo, 1955, p. 646; Wildavsky and Tenenbaum, 1981]. By that time, scientific and technological progress in exploration and drilling, combined with an abundance of investor capital directed toward the petroleum industry, yielded successive discoveries of bonanza fields--a dozen from 1920 through 1923. As a deluge of newly discovered crude swamped markets and depressed prices, industry journals and proceedings of professional organizations like the American Institute of Mining and Metallurgical Engineers filled with oilmen's laments of superabundance. Oilmen worried about too much, not too little, oil. Indeed, some of them blamed the prophets of shortage for helping create overproduction.

The contradictory perspectives of petroleum industry critics and oilmen over the question of whether America was running out of oil, difficult to see as descriptive of the same nation, represent a struggle

between federal bureaucrats, politicians, journalists, and economists on the one hand, and industry participants on the other, to control petroleum-related public policy discourse. Those who argued that America was running out of oil and faulted the industry for it developed a conservationist discourse whose ideas owed more to traditional American political discourse than to observation of oil field operations. They often reified ideas constructed in discourse and tried to act on reifications in public policy. Normative connotations shaped their understandings of ideas like conservation and waste. Those who did not agree that America was running out of oil, for the most part industry participants, used terms like conservation and waste; but partly in response to their critics, and more especially in response to the economic and operational conditions with which they worked, their understanding of these terms differed from conservationists'. As a result, when both groups talked about conservation or addressed the issue of whether America was running out of oil, a discourse largely framed by moral connotation conflicted with a discourse drawn from economic and industry operation, resulting in a gridlock of opinion--a phenomenon all too familiar to observers of public policy on petroleum. The purpose of this paper is to explore the origins of this conflict in discourse, focusing on bureaucrats, and show how that conflict culminated in the twenties in debate over whether America was running out of oil.

The fountainhead of the modern American conservation movement, George Perkins Marsh, established the outlines of conservationist argument in his major work *Man and Nature*, which was published during the Civil War. Marsh established major foci and themes, including alarm at the exhaustion of natural resources, insistence that resources be considered only in physical quantities and not in economic terms, condemnation of the "rottenness of private corporations," and stress on need for governmental intervention, conforming to "the progress of science," in the national interest [Marsh, 1965, pp. 25, 35, 52]. Marsh's book would be read in subsequent decades as a veritable warrant for the control of natural resources by government scientists.

The first critics to direct Marsh's concepts toward petroleum and say that America would run out of oil were Pennsylvania geologists. From 1883 onward, J. Peter Lesley and John F. Carll warned that pro-

ducers were depleting Pennsylvania oil fields so rapidly that these reserves would exhaust in a generation, and there was "no reasonable ground" to expect large new discoveries. By the late eighties, E. W. Claypole echoed them in saying gas fields were also approaching exhaustion, of special concern as natural gas use expanded in Eastern cities. Not themselves industry participants--geologists did not regularly appear on oil company payrolls until after 1915--these geological pessimists all tended to use an image of petroleum as akin to fixed readily quantifiable assets, a logical perspective for men more used to talking about coal and other hard minerals or about natural gas in the context of the capital structures of city utilities. Claypole, for example, compared gas reserves to "capital stock on which our draughts are growing greater from year to year . . . by and by they will be returned with the words written across them 'No effects.'" Running out of oil and gas was like overdrawing one's account at the bank, and Mother Nature would not come forward to make additional deposits. Similarly, Lesley complained of the "thriftless" manner in which operators produced Pennsylvania oil and condemned the "gambling spirit" of the industry; he and his associate Carll condemned the way they depleted the Pennsylvania fields as wasteful [Pennsylvania, 1883, p. xiv; Pennsylvania, 1890, p. 23; Claypole, 1888, p. 36]. By speaking of thrift, gambling, and wastefulness, the geologists presented oil industry operations in the moralistic language of traditional American political discourse, specifically the concepts of frugality and extravagance, present in such discourse from the eighteenth century onward [Crowley, 1974, pp. 76, 79, 82-83; Wood, 1969, p. 418; Shi, 1985, pp. 3, 29-32; McCoy, 1980, p. 23].

Oilmen were disinclined to share such concerns. After 1883 new reserves were discovered in Pennsylvania, Ohio, California, Kansas, Texas, Oklahoma, Louisiana, and other states. Production of crude oil increased steadily from 23 million barrels in 1883 to 183 million barrels in 1909. [Williamson and Daum, 1959, p. 373; Williamson et al., 1963, p. 16]. During the same period, the industry applied new technologies in drilling, production, refining, and transportation to lessen both physical and economic waste. There were also increased uses and demands for refined products; and kerosene, the product that built the nineteenth-century industry, became less important than fuel oil, lubricating oil, gasoline, and natural gas. In all, during these three

decades between 1880 and 1910, production and demand expanded, while new technologies both facilitated efficient operation and, in the instance of the internal-combustion engine, created important and growing new markets.

Notwithstanding these developments, when Gifford Pinchot, chief forester of the United States, set the agenda for the Governor's Conference on Conservation and chaired the National Conservation Commission in 1908, he established the focus for the meeting by arranging for the reprinting of *Man and Nature*. With respect to oil and other resources, Pinchot shared the position of Marsh and the Pennsylvania geologists. He reinforced the exhaustion theme and gave it a strongly nationalist thrust: "When the natural resources of any nation become exhausted, disaster and decay in every department of national life follow as a matter of course." The businessmen who operated extractive industries simply could not be trusted to look after the national interest, which was in danger of being destroyed in "the handcuffs of corporate control." For Pinchot, as for Marsh, the issue of conservation policy transcended the physical preservation or efficient use of resources. As he put it, "The conservation question is a question of right and wrong." More revealingly, he disclosed his strategy in contention with "private monopoly," the transformation of the dispute over control of natural resources into a moral issue, a "fair share" for every American. As for Marsh, for Pinchot the way to safeguard natural resources lay in governmental action, preferably directed by scientists [Pinchot, 1967, pp. 4, 79-81, 84, 88].

Pinchot's agenda was widely shared in the thin ranks of federal scientists, many of whom were his personal friends [Hays, 1959, p. 26]. They developed supporting cases in their respective areas to spread alarm over impending exhaustion of resources and to justify, thereby, vastly enhanced political roles they sought as regulators. Developing their cases, however, meant quantifying resources, and that created difficulties.

While one could apparently determine within reasonable limits how many acres of forest there were in the United States, making a similar kind of physical determination of the volume of petroleum raised a host of complex problems. Petroleum was less readily accessible to measurement than trees. Then as now, surface indications, like later subsurface and geophysical analysis, could only suggest the

possibility, not the actuality, of oil. There was no way through such indications to make even approximately reliable judgments about amounts of petroleum underground. The only way to know if oil was present was to drill; and only production over time gave clear indication of reservoir capacities. Even then, in the absence of reliable well records--uncommon in early twentieth-century oil fields--and of petroleum engineering to interpret them, estimates of volume involved considerable guesswork. As oilmen and bankers knew, moreover, price determined the amount of petroleum that would ultimately reach markets from known fields; petroleum in the ground and petroleum supply were two different things. Oilmen knew from experience that high prices prompted exploration and additions to reserves. They understood reserves within the context of market forces. Conservationist quantification did not. It reified "reserves" into a readily quantifiable amount, like acres of forest.

Thus, in 1908, George Otis Smith, director of the United States Geological Survey (USGS), assigned David T. Day, his subordinate, to report on petroleum reserves for the National Conservation Commission. The assignment reflected the conservationists' reification, for Day was to come up with a figure for all U.S. reserves and estimate how long they would last. Day's eventual report appeared not only in the papers of the commission but also as a USGS bulletin and a popular article for the *American Review of Reviews*, thus moving from technical to public discourse, in step with other Progressive federal officials [U.S. Congress, 1909; U.S. Department of Interior, 1909; Day, 1909; Hilderbrand, 1981, pp. 56-57, 73, 77, 81-83].

At a time when midcontinent markets were swamped with Glenn Pool oil, Day offered an alarming view of American petroleum reserves. Beginning with a discouraging report of waning production region by region, he concluded that the United States had between 10 and 24.5 billion barrels of oil left, inclining to 15 billion barrels as the likeliest figure. Projecting from constantly increasing production rates, he argued that if production continued to increase in the future as it had in the past, oilmen would exhaust national reserves by 1935 [U.S. Congress, 1909, p. 460]. That Day presented these conclusions in calm dispassionate terms, the language of a scientist, and provided a wealth of figures, made his alarm all the more persuasive.

What Day had to do to come up with his figures, however, underlines the predicament forced upon those trying to apply scientific methodology to reified elements of discourse. In developing his estimate of American petroleum resources, Day not only allowed himself an impressive margin of error, but he assumed such things as an average porosity of oil pays, an average yield per cubic foot of pay, an average thickness of pay for all fields, and an average rate of recovery, for all fields [U.S. Department of the Interior, 1909, pp. 34-35]. His assumptions reflect both want of accurate data and the short time in which he had completed his assignment, but, notwithstanding that, in operational terms they amounted to nonsense. In the half-century history of the industry, oilmen had learned that porosity, thickness of pay, yield, and recovery rate commonly varied widely within single oil fields, let alone all fields, and that they always varied greatly from field to field. To forecast supply, Day simply worked with what he could find out about production--in fact, petroleum that had reached the market--and the rate at which it had been increasing, setting this against the rate at which production in mature fields had declined. He ignored the effect of price movement on supply, and he made no attempt to analyze demand. Thus, in his forecast, he effectively ruled out the operation of market forces. Finally, Day assumed no additions to existing reserves--no secondary or enhanced recovery, no deeper drilling, no new field discoveries. Thus, what he offered were estimates of what would happen in a hypothetical situation, one defined by oil as a physical--noneconomic--entity, one defined by conservationist rather than industry understanding.

In the light of his grim forecast, Day made recommendations that would be repeated by subsequent conservationists. If Americans were frugal about producing and using oil, reserves would last longer, perhaps to the 1990s. But it would be necessary to end waste, which for Day was improper use. (Unlike many later commentators, Day did not find significant loss of petroleum from spillage or evaporation.) Waste included all oil exports--"the most prolifigate waste"--and using oil for boiler fuel in locomotives and power plants. Offering a normative prioritization of petroleum use, Day stressed that oil had to be kept for vital needs like lubrication and military use, for which there were no oil substitutes. Beyond this, Day urged that federal lands with oil reserves be kept in federal hands rather than given over to private

development. This last idea was one Day's superior Smith was already urging upon Interior Secretary James Garfield [U.S. Department of the Interior, 1917, pp. 46-48]. It also furthered the influence of the USGS: what other federal agency could determine which public lands overlay oil and how they should be developed? The amount of land under USGS purview, under this proposal, would be staggering--involving primarily the vast Western public domain, already the focus of conservationist discourse, and much of it already seen as a potential province for oil production. Thus, just as the Forest Service regulated vast expanses of surface, the USGS would secure control over subsurface--an impressive expansion of the hegemony of a scientific bureaucracy over an industry, seen in the form of Standard Oil as rapacious and immoral. Whether or not one agrees that bureaucratic conservationists were inspired by professional ideals [Hays, 1959, p. 2], their crusade was not without interested objectives.

Few conservationist perspectives on petroleum have ever received as much attention and repetition as Day's. For the better part of the next two decades, the USGS repeated his alarm in the petroleum section of its annual survey of mineral resources; Day wrote this section of the report until 1915 and was followed by John D. Northrop and David White. His successors kept up the same campaign with the same ammunition. In 1916, Day's former USGS associate Ralph Arnold estimated remaining reserves at 6.1 billion barrels, which, if production rates increased, would last only 22 years. Two years later, Chester Gilbert and Joseph E. Pogue offered a reserves estimate of 7 billion barrels, to which they thought there would be no future substantial additions. In 1921, as markets glutted with Oklahoma, North Texas, and California crude, the USGS cooperated with the American Association of Petroleum Geologists to come up with estimates of 5 billion barrels of oil "in sight" and 4 billion more "prospective and possible" in known producing regions, enough for a possible twenty more years. For the first time, however, these forecasters admitted that they did not allow for new field discoveries and that it was improbable America would really run dry. They also admitted that enhanced recovery might give America more oil. Even so, they ended their forecast with a normative sanction by condemning waste, either through spillage or "misuse of crude oil or its products" [U.S. Department of the Interior, 1912-15, 1917; Arnold, 1916, pp. 173-76, 185-87; Wildavsky and

Tenenbaum, 1981, p. 61; USGS, pp. 42-46].

Forecasts of shortage received exposure not only because they made good copy for journalists and those who wrote for popular periodicals like *Scientific American* and the *Saturday Evening Post*, but also because USGS director George Otis Smith seized every opportunity to air them. Smith became a regular presenter at meetings of professional groups like the AIME, and he wrote on resources for the *Annals of the American Association of Political and Social Science*; his statements often appeared in the *The New York Times*. He kept repeating that petroleum was exhaustible, that production decline was at hand, and that Americans had been "living beyond our means." As he put it, "plenty and cheapness have led to waste; scarcity and dearness ought to promote thrift"--or perhaps fear of them would. Taking normative prioritizing beyond Day, by 1920, Smith was condemning nonessential use of gasoline for recreation; the "joy ride" was not an inalienable American right in the pursuit of happiness [OGJ, May 28, 1920, pp. 56, 60; Smith, 1921, pp. 89-93; Smith, 1909, p. 23].

After the USGS began to spread the alarm, the newly created Bureau of Mines, headed by former USGS employee Joseph Austin Holmes, joined its campaign by warning that the nation was wasting natural gas. As with the USGS estimate of oil reserves, discourse created a need for data, and in December 1912, the bureau hired former Indiana state geologist Raymond G. Blatchley to quantify gas waste in the thousands of wells in the midcontinent region, an enormous task. In operational terms it was also impossible; many wells had neither reliable records nor such refinements as gauges to measure the flows of oil and gas. Sometimes operators flared gas in the hope that oil production would follow it, keeping no account of what they flared. Sometimes striking a gas reservoir led to a wild well that cratered and swallowed equipment; no one measured escaped gas in such situations. In less dramatic circumstances, measuring gas waste by diminishing oil reservoir pressure assumed a level of engineering science and technology nonexistent in 1912. Even Blatchley was driven to admit, "It will never be possible to estimate the amount of . . . loss with accuracy." Although he thereby admitted his assignment was unfeasible, he nonetheless went on to develop estimates [U.S. Department of the Interior, 1913, p. 46].

Relying on hearsay and allowing a vast margin for error, Blatchley came up with estimates like the waste of gas from Cleveland, Oklahoma, wells--between 3 million to 30 million cubic feet daily--or of the average waste of gas per Kansas oil well--10 million cubic feet per day. Stating his figures in cubic feet, rather than the conventional Mcf, Blatchley came up with data dramatic enough to please any conservationist. Like David T. Day, he went on to advocate prioritization of gas use; gas used by industry rather than home consumers, as well as gas sold at bargain rates, was wasted gas. And like Day, Blatchley used his findings to justify a greater regulatory role for his agency. The remedy for gas waste was a program of investigation and education administered by the Bureau of Mines. Holmes, Blatchley's superior, pointed out how urgently such a program was needed by citing the USGS forecast for diminishing oil production: when there was no more oil to find, there would be no more gas either. Holmes's successor, Van H. Manning, would be similarly active in spreading the conservationist message [U.S. Department of the Interior, 1913, p. 37, 20, 13-14, 19, 48; U.S. Department of the Interior, 1914, p. 23].

Alarm at impending shortages could be used not only to justify bureaucratic functions but also to advocate limitation and regulation of operations of oil producers. Here the well-established antimonopoly discourse and the newer military strategic discussion merged with conservationist discourse. Debate over public lands policy, generated in the conservationist camp, offered accommodation to all three themes. Progressive antimonopolists like Robert Marion La Follette described public lands bearing oil and other minerals as part of the national patrimony, to be administered by government for the public welfare and kept out of the hands of monopolies [Bates, 1963, p. 21]. Fear of shortage raised the old menace of monopolists conspiring to control supply (forestalling) and to levy extortionate prices on consumers. Keeping public lands with oil in public hands would create a federal oil reserve, available to thwart monopolistic schemes. As used by politicians like La Follette, conservationist discourse gave the antimonopoly theme a new channel to follow after the dissolution of the Standard Oil holding company in 1911.

Similarly, Woodrow Wilson's Secretary of the Navy, Josephus Daniels, picked up the conservationists' idea of shortage and linked it both to his own antimonopoly position and to strategic concerns. If

one believed monopolists lay in wait to use shortage to gouge the navy, one could argue, as Daniels did, that the navy had to have its own production and supply of oil, making it self-sufficient [U.S. Department of the Navy, 1913, pp. 5-26; Morrison, 1966, pp. 55-56; DeNovo, 1955, p. 649]. Even if one were not inclined to worry about monopoly, if oil was running out, it could make strategic sense to envision what amounted to an early twentieth-century equivalent of the Strategic Petroleum Reserve, naval oil reserves carved out of public oil-bearing lands, which would be like an oil barrel for Uncle Sam.

The setting aside of certain public lands as naval oil reserves and barring oil operators from them thus resulted from the introduction of the idea of oil shortage to these three strains of discourse. It was also a grand reification of the idea of oil as a fixed asset. But what could so readily be framed in policy discourse was, unfortunately, at odds with geology. Bureaucrats were able to identify public lands for naval reserves because oilmen had already begun to drill and produce oil upon them. Indeed, in the Elk Hills and Buena Vista reserves, acreage was checkerboarded between federal and private ownership [Bates, 1963, p. 26]. And since, unlike a fixed asset, oil moved readily from undrilled to drilled acreage, even as the government set up its naval reserves, its would-be oil hoard was draining into private wells. From the beginning, Uncle Sam's oil barrel leaked.

To those who could see that naval oil reserves would not insure a strategic supply of oil, as well as to those who could not pursue drilling and production on the California leases in which they had invested, there was an alternative policy option: that the United States provide for its petroleum needs by using the oil reserves of other countries. The leading advocate of this position was California businessman and mining engineer Mark L. Requa. A friend of Interior Secretary Franklin K. Lane and of Herbert Hoover, Requa was a leader in the Independent Oil Producers Agency, which represented producers of about one-quarter of California's oil, and a staunch supporter of reopening public lands to oil development. Requa took the idea of shortage and stood the argument for naval reserves on its head: far from being a strategic safeguard, if the United States were really running out of oil, naval reserves were strategically worthless. In fact, if the United States were running out of oil, it was wasteful to let the navy burn it as boiler fuel [Bates, 1963, pp. 105-07; U.S. Congress,

1916].

Requa's point of departure was David T. Day's 1909 forecast, whose "terrific significance" he acknowledged. But where Day argued in restrained terms, Requa's language was worthy of Hollywood's special effects departments:

> Our very prosperity makes us careless of the future; we feast and revel while the handwriting blazes on the wall in letters of fire, and we do not pay it even the cold compliment of a passing glance. As a nation, we are wasteful, apathetic, and forgetful. We waste our natural resources with shameful prodigality; we are apathetic of the future, and we forget that our reserves of natural wealth are by no means inexhaustible" [U.S. Congress, 1916, p. 3].

The very machinery of modern life depended upon petroleum-based lubricants. Without oil for lubricants, the United States faced "commercial chaos or commercial subjugation" by whichever nations had oil. But could the United States avoid this dire outcome by relying solely on its own petroleum? Like Day, Requa pointed out that consumption rates were rising at the same time that producing oil fields were being pumped out; he saw little likelihood that discoveries of the future could equal those of the past. The only sound answer to the problem of future supply lay in American acquisition of reserves in foreign countries, especially Mexico and other Latin American countries. The United States, warned Requa, was doing nothing to safeguard access to such reserves. By contrast, the British were moving to acquire overseas oil; indeed, they seemed bent on control of world oil. This, as Requa saw it, meant that the United States had been "officially put upon notice"; "In the exhaustion of its oil lands and with no assured sources of domestic supply in sight, the United States is confronted with a national crisis of the first magnitude." What good would saving fuel for battleships do if the rest of the country ran dry [U.S. Congress, 1916, pp. 3, 14-16, 18]?

No wonder California senator James D. Phelan, the oilman's defender, introduced Requa's essay, "Petroleum Resources of the United States," as evidence in debate over withdrawn public lands. Requa had a far wider opportunity to air his opinions when he was appointed

director of the Oil Division of the wartime Fuel Administration in January 1918. In his division's report the following year, he repeated his warning of impending crisis and cry for reserves in foreign lands. By this time he wanted government action; efforts by U. S. oilmen to obtain oil overseas should have "most hearty and sympathetic support by official Washington." Requa's stress on the need for foreign reserves was readily taken up by George Otis Smith and Van H. Manning as part of their conservation arguments in the early twenties [Requa, 1918, p. 272].

The petroleum industry had no unanimous response to dire forecasts of shortage. On conservation issues, as on other questions, what oilmen said was more likely to reflect their own business strategies than a coherent industry perspective, as true after the founding of the American Petroleum Institute (API) in 1919 as before. Three of the former Standard companies, for example, advanced positions on the basis of their particular analyses of reserves, prospective competition for market share, and domestic political vulnerabilities. Taking industry journals as a guide, how much attention oilmen were likely to give to conservationist pronouncements seems to have varied with both business and political conditions. Between 1912 and 1917, the editors of the *Oil and Gas Journal* were far more concerned with airing industry complaints about California public land withdrawals than with whether the United States would run out of oil. As they told their readers, "The fear that there may not be a sufficient supply of oil for transportation and industrial purposes is groundless," perhaps one of the "many objectionable matters [that might] be charged up to the conservationist movement" [OGJ, October 10, 1912, p. 1; March 2, 1916, p. 2]. Forecasts of shortage were "fanciful guess work," and as for oil running out in several decades, "practical oil men" knew better [OGJ, February 24, 1916, p. 2].

Indeed, from time to time, the *Oil and Gas Journal* published what "practical oil men"--i.e., industry participants--said, and those quoted almost always dismissed the danger of "oil famine." Thus, in 1920 California oilman and former Fuel Administration member Thomas A. O'Donnell, first president of the API, regretted that "The public has been frequently alarmed by statements of well-meaning and learned scientists, predicting an early exhaustion of our petroleum resources." There had been many such predictions in the oil industry's history,

wrong every time; one could expect important domestic discoveries and domestic production to continue "long after the time limit set for exhaustion by some of our experts" [OGJ, December 3, 1920, p. 3]. The following year Harry Sinclair told the API's annual meeting, "There is plenty of petroleum and always will be. Exhaustion of the world's supply is a bugaboo. In my opinion, it has no place in practical discussion" [OGJ, December 16, 1921, p. 78]. By far the most eloquent in this vein was H. G. James, the president of the Missouri Oil Jobbers Association. As he put it in an *Oil and Gas Journal* of 1920,

> I am wholly out of sympathy with those croakers who are constantly keeping the public mind inflamed with dismal predictions of declining production and nearby exhaustion of the supply of petroleum. The surprising thing is that some oil men engage in the same sort of bunk or are persuaded to approve what is being said by others . . . . There never was a time when so many people who do not know anything about oil were giving expert testimony thereon [OGJ, April 23, 1920, p. 54].

Some industry observers developed creative explanations for belief in shortage. Thus, during the war, the *Oil and Gas Journal* decided some rumors of shortage were the work of "the untiring German propagandist," out to create producer and consumer discontent [OGJ, June 14, 1918, p. 47]. After the war, H. G. James decided coal producers were most responsible for keeping the shortage idea going, doing so to scare consumers away from switching to fuel oil. By contrast, a group of Kansas oilmen saw predictions of oil famine as "pernicious propaganda" circulated by large oil companies to encourage too much activity among producers and subsequent overproduction that drove oil prices down [OGJ, May 17, 1921, p. 3]. New York University professor Ernest R. Lilley said the "exhaustion bogey" had been circulated by "persons with ulterior motives" and "used by every stock promoter or oil lease salesman in the country" [OGJ, January 25, 1923, p. 10]. To the idea that American oil would be "used up within 20 years," Lilley rejoined that it would not be possible to pump out all the oil left in America's reservoirs in that amount of time. The *Oil and Gas Journal* agreed that "The bulk of oil men do not give any of these estimates [of dwindling reserves] serious consid-

eration" [OGJ, January 25, 1923, p. 10].

That did not mean that oilmen could not use elements of conservationist discourse to advance their own business strategies. In particular, after 1918 some adapted Mark Requa's arguments for meeting the threat of looming oil shortage by acquiring foreign reserves, turning it into a demand that the United States government help American oilmen acquire reserves overseas. Their argument for foreign reserves tied conservationist apprehensions to nationalist rivalry and antimonopoly sentiment by raising the alarm that, if American oil men did not receive government support, the British would grab foreign reserves and dominate world oil. Britons would let Americans supply them with petroleum until supplies ran out and then offer supplies from Latin America and the Middle East to Americans at exorbitant prices: here was Requa's commercial subjugation in action. This current in discourse received a tremendous boost in 1919 when British oil promoter Sir Edward MacKay Edgar, seeking to pump up stock sales in his Venezuelan Oil Concessions, Ltd., published an article in *Sperling's Magazine* [DeNovo, 1956, p. 859] in which he exulted that the United States had wasted its oil and would soon be dependent on British oil companies for supply. An adroit use of conservationist discourse in business strategy, Edgar's remarks also served American oilmen who wanted State Department assistance in dealing with foreign powers.

Among the oilmen most prominent in arguing for the need for foreign reserves and government support in getting them were Jersey Standard executives A. C. Bedford and Walter C. Teagle. Only two months after Armistice, the *Oil and Gas Journal* reported that both felt it vital to conserve American oil while maintaining control of foreign markets--a position that required reserves abroad [OGJ, January 24, 1919, p. 54]. In 1920, Bedford told the *Journal* that the country had been "caught napping" in the matter of safeguarding future supplies of oil; while the United States had been harassing its oilmen with investigations, the British had been helping their nationals pick up oil overseas. Noting the USGS estimate that over 40 percent of U.S. oil had been produced, Bedford said, "Our position in this most essential industry is not nearly so secure as it ought to be." Echoing Mark Requa, he concluded, "I particularly hope that public opinion will demand cooperative effort [of government and business] looking to the

extension of our holdings of oil lest we be caught in the position of a petitioner for oil in foreign markets" [OGJ, June 11, 1920, p. 85].

Later the same year, Teagle told the API that the United States was spending its petroleum wealth for the world's benefit and that it was imperative to develop oil resources in foreign lands. If this sounded like Requa, that was not surprising. Teagle was a friend of Requa and, while serving on the National Petroleum War Service Committee, shared Requa's Fuel Administration office [Wall and Gibb, 1974, p. 120]. Like Bedford, Teagle complained that Americans were treated unfairly overseas; while foreigners were free to exploit American oil fields, they barred Americans from sharing foreign supplies in their hands. These foreign sources would be necessary. His company felt it could no longer depend on domestic wildcatters for its future supply; it was now "interested in every producing area, no matter in what country it is situated . . ." [OGJ, November 26, 1920, p. 71; November 19, 1920, p. 62]. He did not explain that his company, left crude short at dissolution in 1911, had not in its brief history been able to acquire domestic reserves adequate to its projected needs in the expanding American market. Holding market share would require that SONJ increase its reserves through foreign investments.

Both the editors of the *Oil and Gas Journal* and API president Thomas A. O'Donnell echoed the Jersey executives' call for foreign reserves. In frequent editorials the *Journal* warned of the British oil menace [OGJ, April 18, 1919, p. 2; January 30, 1920, p. 2; February 6, 1920, p. 2; February 20, 1920, p. 2; August 20, 1920, p. 2; October 18, 1920, p. 2]. It told its readers that large oil companies--small ones could not compete--should pick up oil supplies all over the world, and that, as Mark Requa had pointed out recently, without support from the United States government, Americans would not have entry to foreign oil fields. There needed to be cooperation, not antagonism, between government and industry, and a policy of "America First." If government did not support the efforts to pick up reserves overseas, the United States would be "left to deal with foreign oil monopolists who have planned to control the industry throughout the world and to eventually bring the oil consumers of America to accept such supplies as may be vouchsafed to them and at prices that may be fixed . . ." [OGJ, June 18, 1920, p. 68]. O'Donnell was warier of an argument that might lead to the question of what American companies had been do-

ing to let the British have an advantage over them, but he also called for cooperative action of government and industry in acquiring foreign reserves. In Requa-like reflection, he noted that Americans needed to "abandon that indifference to the morrow which has hitherto characterized their attitude toward the petroleum industry and its problems at home or abroad" [OGJ, June 18, 1920, p. 68]. Working from conservation discourse, O'Donnell made it seem unpatriotic not to support oilmen in every way possible, certainly a perspective the industry could accept.

As industry voices argued for foreign reserves and drew from the discourse of the prophets of shortage, one theme was conspicuously and ironically absent from their pronouncements: the idea that America was running dry. Indeed, the editors of the *Oil and Gas Journal* and the API's O'Donnell went to some lengths to reject the idea, though the editors always gave respectful consideration to Jersey Standard's campaign for acquisition of foreign reserves. But here one could ask whether industry leaders who argued for foreign reserves and pushed their companies to acquire them must have believed the prophets of shortage, whether they admitted it or not.

Looking at industry activity during the late teens and early twenties, as well as at some of the companies most active in pursuing foreign reserves during that period, one does not need to resort to the idea that America was running dry to explain business strategy. Beginning in 1916, the American petroleum industry went through a period of tremendous speculative boom that extended into the twenties. Perhaps talk of oil famine encouraged frenzied activity, but there is no doubt that skyrocketing demand, spurred by war overseas and a growing number of automobile owners at home, did foster a boom in the industry. In the hotly competitive climate of boom times, industry participants sought to secure their positions through, among other means, acquiring reserves. Rising prices encouraged exploration, and reserves had ready buyers, not surprising at a time when both industry prosperity and optimism ran high. Thus, the boom mentality prevailing during the period encouraged focus on picking up reserves [Olien and Olien, 1990, pp. 25-39, 175-77].

Beyond this, the reserves position and market share of individual companies can explain their business strategies at this time. The Standard Oil Company of California, for example, emerged from dis-

solution far better supplied with crude than either the Standard Oil Company of Indiana or the Standard Oil Company of New Jersey. But a substantial amount of the production going to its refineries came from the San Joaquin Valley, where public land withdrawals and the creation of naval reserves generated an avalanche of litigation. Much San Joaquin production was of unclear title between 1912 and 1920, and the company was pressed for supply between 1918 and 1920. At the same time, its market share was eroded by the entry of Shell and a host of aggressive smaller competitors [White, 1962, pp. 439-44; Beaton, 1957, pp. 76-80, 96-97]. An abundance of cheap crude, domestic or foreign, would certainly have been in Standard of California's interest, and after 1917 it tried prospecting in the Rockies. It also sought oil in western Mexico and in the Philippines. The motive was explained clearly by one company official: "We cannot afford to have others find oil along this [Mexican] coast and threaten our market" [White, 1962, p. 558]. Heading off competitors, then, seems to have been as important in Standard of California's strategy in this instance as acquiring reserves: it looked for oil in Mexico lest others would find it.

Left much less well-supplied with crude after 1911, the Standard Oil Company of Indiana also looked to pick up reserves, doing so at home or abroad, particularly after 1920, when it found itself pinched for feed stock. It bought Dixie Oil in 1919, picked up Midwest Refining in 1920, and entered into a close connection with Harry Sinclair. The Teapot Dome Scandal, however, showed the political liability a Standard company faced if it concentrated on domestic acquisitions. This lesson, also demonstrated by Standard Oil's bitter disputes in Kansas with independents before dissolution and Standard of Indiana's frays in the Rockies immediately after the war, inclined directors to seek reserves where drill bits might hit fewer hornets' nests. Thus in the mid-twenties Standard of Indiana picked up a major part of E. L. Doheny's Pan American Petroleum and Transport, which gave it reserves in Mexico and Venezuela. Like Standard of California, its need for crude probably would have made foreign reserves attractive, regardless of conservationist discourse [Giddens, 1955, pp. 216, 218-19, 238-39, 242-48].

Because it was most prominent in both advocating and acquiring foreign reserves, the Standard Oil Company of New Jersey offers the

most interesting example of a business strategy linked to such an objective. Jersey Standard emerged from dissolution with production sufficient for less than 8 percent of its refinery through output [Gibb and Knowlton, 1956, pp. 44, 75, 108; Wilkins, 1970, p. 85]. But Jersey's directors, easily the most politically sensitive in the industry, were aware that they could not simply buy up vast domestic reserves; that would lend fuel to Senator Robert M. La Follette's recurrent cries of "Monopoly Resurrected!" Jersey had to find an abundance of cheap crude, and the answer to its problem lay in foreign countries. With its refineries at tidewater, as E. J. Sadler would argue, it could import crude from virtually any source, providing the oil was cheap to begin with. Mexican crude at ten cents a barrel filled the bill admirably [Gibb and Knowlton, 1956, pp. 107-08].

As Jonathan C. Brown has pointed out, market share also figured in Jersey's foreign strategy. After Mexican oil began to flood world markets in 1911, both Jersey and Shell had to acquire Mexican production to hold market position; they got in because they "could not afford to stay out of Mexico" [Brown, 1992, p.10]. For Jersey, market considerations became all the more pressing after E. L. Doheny built a refinery for his Mexican oil in Baltimore. When Mexican production began to wind down, the need to maintain supplies and market share led Jersey to look for other foreign reserves [Brown, 1985, p. 377]. These moves had a logic independent of the idea that America was running out of oil, but if using conservationist discourse would bring public opinion to pressure the United States government to help Jersey pick up overseas oil, so much the better. And if, as his most recent biographers indicate, Walter Teagle did not believe that America was running out of oil, using conservationist discourse emerging from that premise nonetheless served his company's interests [Wall and Gibb, 1974, p. 177].

While oilmen did win government support for their drive to acquire overseas reserves [Randall, 1985, pp. 13-42; Wilson, 1973, pp. 184-85; Lieuwen, 1954, p. 19], any hope for a new era of amity and cooperation between industry and government was dashed in 1922 by Senator La Follette's renewal of his antimonopoly crusade. With ammunition in the form of the Federal Trade Commission report that oil, particularly in the Rocky Mountain region, was "practically monopolized by the Standard Oil interests," La Follette launched an

investigation of the oil industry, sending out questionnaires to 350 companies and organizing hearings [OGJ, July 6, 1922, p. 73; July 20, 1922, p. 105]. Notwithstanding voluminous testimony to the contrary, in 1923 La Follette reported that his committee found that the U.S. oil industry was "in complete control by the Standard companies;" that Standard companies fixed all petroleum and product prices; that oil companies made excessive profits by overcharging consumers; and that, unless something was done, Americans would soon pay the outrageous sum of one dollar for a gallon of gasoline. Among other remedies, La Follette recommended more investigations, pipeline divorcement, ending petroleum exports, and more data-gathering by the government. But oilmen feared that the senator from Wisconsin saw this campaign as a prelude to some form of government takeover of the industry and that he would make federal control of oil part of his presidential campaign in 1924 [OGJ, April 12, 1923, p. 101; October 4, 1923, p. 20].

La Follette's tocsin of one-dollar-a-gallon gasoline not only made excellent newspaper copy, but it also encouraged anti-oil campaigns outside of Washington. The American Automobile Association called on the Justice Department to curb further gasoline price increases until Congress could act on the La Follette Report. The National Conference of Attorneys General echoed the La Follette Report's recommendations and asked for federal control of oil production. The governor of South Dakota decided to challenge high gasoline prices by opening state gasoline stations to undersell anyone asking more than sixteen cents for a gallon; the governor of Nebraska announced that if gasoline prices were not lowered, he would launch a campaign to nationalize the oil industry. And as if all this were not enough, the Teapot Dome Scandal unfolded. No wonder that in February 1924, the *Oil and Gas Journal* told its readers that "the biggest and bitterest fight ever waged against the oil industry is on," "the gravest crisis in the history of the industry." Its columnists expected La Follette to push for nationalized oil [OGJ, October 25, 1923, p. 82; November 22, 1923, p. 22; February 21, 1924, p. 24; March 6, 1924, p. 20; March 27, 1924, p. 20].

The immediate problems of an aggressively hostile political climate thus joined with industry economic problems to occupy oilmen's attention. A record number of prolific discoveries in 1923 flooded

markets with crude, repeating the market debacle of 1921; and industry leaders like Amos L. Beaty and E. W. Marland began to talk about what could be done to halt what Beaty called "economic waste." Here oilmen were talking about conservation in terms of keeping oil in the ground that would otherwise swamp the market and push prices below the costs of replacement and production; confronting a deluge of crude, oilmen had little reason to pay much heed to the prophets of shortage [OGJ, July 26, 1923, p. 118; October 11, 1923, p. 122]. They began to talk of modifying the law of capture, which held that oil belonged to the person producing it and which resulted in a rush to drill and produce the maximum amount in the minimum time. They longed to be able to make agreements to limit production. But they also realized that if they were to make such agreements, in the name of conservation or anything else, they would, as the *Oil and Gas Journal* noted, "be charged with conspiracy" in restraint of trade--particularly in the political climate of 1923-24 [OGJ, May 15, 1924, p. 28]. Better to live with overproduction and low prices than bring down federal control or--worse yet--ownership. Thus, when industry maverick Henry L. Doherty came forward late in 1923 with a cry for reform and government action to end overproduction, the API was not prepared to give him a hearty welcome. But when its directors refused to endorse his position, Doherty took his campaign to the public.

What Doherty said brought most of the familiar themes in conservationist discourse together and added a new element: that all the problems conservationists described could be solved by unitized operation of oil fields. Stating his position in an open letter to President Calvin Coolidge in August 1924, Doherty affirmed familiar ideas: that America was running out of oil at an alarming rate and that production methods were "viciously wasteful." Neither reliance on the industry nor the naval reserves policy insured oil for future military uses; operators needed to keep more oil underground. This would be achieved if oilmen produced oil more efficiently. If operators replaced competitive drilling, where each oilman scrambled to produce his oil before his neighbor got it, with orderly, slow development under one management, waste and shortage would be avoided. To achieve unit operation, however, legal reform was essential because the cooperation necessary for unitized operations trespassed on both corporate autonomy and on state and federal antitrust laws. Thus, according to

Doherty, unitization would require coercion of producers and direction provided by a board consisting of the secretaries of War, Navy, and Interior, joined by the heads of the USGS, Bureau of Mines, and Bureau of Standards [Hardwicke, 1948, pp. 179-90].

Coolidge's response to Doherty was both rapid and positive. His letter appointing the Federal Oil Conservation Board embodied Doherty's perspective on oil waste, though not on unitization. Given the current political climate, there was reason for all participants in the lengthy discourse on shortage to believe that government would impose some form of production regulation on the petroleum industry, thus realizing the longtime goal of conservationists, but in a grander way than had been achieved with timber, soil, and water. To avoid this coup, the industry mounted a belated counteroffensive to challenge the conservationist argument, working through the American Petroleum Institute. Early in 1925 the API put to work a committee of eleven of its leading members to develop a report on petroleum reserves and supply. Ostensibly, the API did so to cooperate with the FOCB; it mainly intended, however, to disprove the conservationist argument and redirect petroleum-related discourse away from justifications for federal control. The API report, *American Petroleum Supply and Demand*, appeared that summer.

Chief among the report's conclusions was its assurance that America was not running out of oil. Exposing defective forecasts from Day onward, the API estimated readily recoverable reserves at 5.3 billion barrels, but it stressed that producing those reserves would still leave 26 billion barrels of oil unrecovered in known reservoirs, awaiting improved recovery techniques. Enhanced recovery, as well as deeper drilling in known fields, would thus bring vast additions to supply--if price warranted them. Prices permitting, there was an "almost unlimited" additional supply of oil available in oil shale and coal. But America's ace in the hole was over a billion acres of land with geological promise, characterized by the API as a "billion acre reserve." America would continue to have ample supplies of oil for both military and civilian uses [API, 1925, pp. 3-4, 7-8, 11].

What separated the API's forecast from the conservationists' was more than figures. As in discourse over natural resources, while the conservationists separated supply from demand and sought to discipline demand with sumptuary standards by restricting supply, the

oilmen asserted that the incentives and disciplines of markets were adequate to control demand and production. The API thus tied conservation to economics and technology rather than to normatively based prescriptions for consumption. For the API, "the greatest field for conservation in oil" lay in improving refining to yield more marketable products from a barrel of crude and in changing engine designs to make them more efficient [API, 1925, p. 17].

Turning to waste, the API held that when operators put petroleum to any economic use, they were not wasting it. Thus, when oilmen allowed gas to escape from producing oil wells, they were not wasting it because the gas had performed the useful work of moving oil to the well head. The API conceded that some oil was lost in spillage or evaporation, but such waste was negligible. Competitive drilling and unrecovered oil left in the ground represented economic loss to operators, but under current legal conditions that was unavoidable. Economic loss, not physical waste, was the major operational problem for oil producers [API, 1925, pp. 23-6, 55, 74-75].

Judged as an attempt to change petroleum-related discourse, *American Petroleum Supply and Demand* was a failure. Not only did journalists give it little notice--in effect, its good news was not news--but critics like Doherty seized on the fanciful "billion-acre reserve" to discredit the report [FOCB Hearings, 1926, pp. 42-43, 48; Hardwicke, 1948, pp. 193-201]. Its "stonewalling" approach to conservationist criticism, in part the product of the industry's siege mentality of previous months, provoked Interior Secretary Hubert Work to complain that the report "barely mentioned conservation." But since the API in effect said nothing was wrong, it could scarcely suggest remedial measures of the sort the FOCB fished for. The editors of the *Oil and Gas Journal* complained that having said it was not guilty, the API was being asked why it was not guilty [OGJ, November 26, 1925, p. 26]. The extent of the API's failure to inject market perspectives into conservation discourse was readily apparent when Interior Secretary Work opened the FOCB's first public hearings on oil conservation in February 1926 by repeating familiar conservationist alarms about wasteful exhaustion of vital national resources [FOCB Hearings, 1926, pp. 4-5]. The hearings themselves afforded well-publicized opportunities for critics like Doherty and Requa to take the limelight; oilmen were left in the difficult position of defending an industry that had

long labored under a cloud. And, in the end, the API's effort failed even to moderate another conservationist indictment of oil, in the FOCB's first report.

The report told Americans what they had been hearing for almost twenty years; America was wasting petroleum, uses needed prioritization (read "federal regulation"), new discoveries probably would not keep up with demand, and America could run out of oil--this time, in about six years! It turned the API's "billion acre reserve" upside down; where the API saw 57 percent of American land as promising for exploration, the FOCB stressed that 43 percent was "positively barren." By contrast, the FOCB was optimistic about undrilled prospects in Latin America and gave hearty endorsement to the strategy of acquiring foreign reserves [FOCB Report, 1926, pp. 4, 6-10, 12, 14].

What the FOCB emphasized most, however, was control of production at home, developing the established conservationist perspective of the need to keep more oil and gas underground. This could be accomplished by "freeing owners and operators from the present pressure of a competitive struggle" [FOCB Report, 1926, p. 14]. Such a phrase, acceptable enough to oil men when they were using it, had quite different connotations when used by a federal board. The FOCB allowed that voluntary agreements to limit production were one alternative to competitive drilling, but it devoted more attention to ways in which states could regulate production, a function it stressed would be legitimate. The *Oil and Gas Journal* thought this sounded "more like Moscow than Washington" [OGJ, September 16, 1926, p. 40].

Once the FOCB effectively dismissed the API position, some industry commentators struggled to find a response to its report that would work for the industry. In particular, they tried to head off suggestions that the report argued for federal control of the industry, so they played up the report's tepid endorsement of voluntary agreements, developing this into ammunition against antitrust laws. Humble Oil's W. S. Farish, for example, agreed that his industry suffered from "excessive competition" and said it was "encouraging" to see the FOCB approve agreements to curtail drilling and suggest modification of antitrust laws [OGJ, November 4, 1926, p. 31]. In fact, with the exception of Board member and former oil investor Herbert Hoover, the FOCB did little to encourage oilmen's hopes in this

direction, and most oilmen were skeptical that antitrust barriers to cooperation could be overcome. Voluntary agreements conjured up the dreaded M-word, "monopoly." As Walter van de Gracht of Shell told AIME members in 1927, "If a thing like that is started our attorneys have to tell us that if we want to keep out of jail we had better stop . . . we are accused of trying to hold back trade the minute we start such cooperation"[AIME, 1927, pp. 193-94]. For that matter, as the attempt to limit East Texas production in the early thirties would show, state regulation to limit production called forth antimonopoly opposition; warnings of shortages and their consequences sustained the traditional Progressive antimonopoly ideology in public discourse. When it spoke of limiting production, then, conservationist discourse ran afoul of antimonopoly ideology. It came as no surprise to oilmen in 1929 when the Justice Department refused to sanction voluntary agreements for limiting production.

Though the FOCB decided in 1928 that oil famine was not imminent, overall, conservationists continued to control public discourse on petroleum and to insist that America was running out of oil [FOCB, 1928, pp. 11-12]. Whether or not forecasts of shortage encouraged overproduction as oilmen charged, they did form part of a government position that blocked effective cooperation between the FOCB and the industry to resolve production problems. In the long run, the liabilities of such a barrier to cooperation would become evident after discovery of the great East Texas oil field. In the short run, the triumph of conservationists in discourse meant the FOCB could get little done, for its stated position was at odds with operational conditions in the petroleum industry.

Still, one could ask why conservationist bureaucrats like those at the USGS were so determined to maintain forecasts of shortage, not only in the face of mounting discoveries but also when oilmen pointed out how wrong their prior forecasts had been. USGS expert David White's statement at the AIME's 1925 meeting offers a partial answer. Forecasts of shortage, he explained, were necessary because the American public had been "contentedly satisfied" with petroleum supply and the industry had shown "equally dangerous complacency." The estimates of reserves had to be low "for to have encouraged the expectation of a yield greater than might later have been realized would have been to court hazard of economic harm . . ." [AIME,

1925, pp. 69-70]. Or, in other words, the experts intentionally misled the public for its own good. The public insisted on using petroleum products for the "wrong" reasons, and oil producers abetted their wasteful consumption. In view of this corrupt relationship--in fact, the operation of the market--it was the burden of government experts to control public discourse in order to reshape public opinion, through distortion and deception, if necessary [Summers, 1993].

The key elements of the conservationists' campaign to convince Americans they were running out of oil were traditional and occasionally incompatible strains of anti-industrial and antimonopoly discourse, both heavily laden with value judgments of nineteenth-century liberal moral economy. To counter that campaign, oilmen argued from economic, technological, and operational channels of discourse. The major outcome of the conservationist campaign, had it succeeded, would have been the substitution of regulated consumption and production for the democratic "disorder" of the market place. That was the general goal of the first attempt of government bureaucrats to create a federal energy policy. It failed, not from industry connivance, but from the deep gulf between what conservationists could reify and oilmen could do. Conflict in discourse stood in the way of constructive cooperation between government and industry on conservation-related problems in the twenties, and it continues to be a barrier to constructive national energy policy.

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