Chinatown: Owens Valley and Western Water Reallocation—Getting the Record Straight and What It Means for Water Markets

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In this Article I examine the notorious Owens Valley water transfer to Los Angeles. Not only was it one of the largest private water exchanges in U.S. history, but it remains pivotal in the political economy of western water reallocation. It involved negotiations over land and water rights between representatives of the city of Los Angeles and approximately eighteen hundred farmers and town lot owners between 1905 and 1935. By 1935, Los Angeles had acquired 95 percent of the farm acreage and 88 percent of the town properties in the valley. The water transferred from Owens Valley, a marginal agricultural area, made possible the growth of Los Angeles, and Owens Valley remains the largest single source of water for the Los Angeles Basin. Yet, the Owens Valley transfer has a very negative legacy and has hindered subsequent efforts to reallocate water from agriculture to urban and environmental uses. The negotiations for water rights and land took thirty years to complete and were often acrimonious. I analyze the negotiations between representatives of Los Angeles and Owens Valley farmers to determine the sources of bargaining conflicts. I also evaluate the economic impact of the exchange on both parties to show that each party was made substantially better off. Yet, the notion of "theft" remains. To explain this, I examine the distribution of the economic benefits of the water and land sale. Distributional issues take on greater importance when there are valuation disputes and the gains from trade are shared very unequally. With these insights, I conclude with lessons for contemporary western water reallocation.

> "It seems to us that the importance of the Owens River project to the City of Los Angeles cannot be overestimated."
> —*Los Angeles Board of Water Commissioners, Report on Water Supply, 1906.*[1]

"And at last the drop that fell as a snowflake upon the Sierra's crest and set out to find its home in the sea, shall be taken up from beneath the ground

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1. **L.A. BD. OF WATER COMM'RS, 1905 REPORT ON WATER SUPPLY 6 (1906).**

> by a thirsty rootlet and distilled into the perfume of an orange blossom in a garden of the City of the Queen of the Angels."
> —*Los Angeles Board of Public Service Commissioners*, 1916.[2]

> "Dry Ditches, In a bleaching land, A broken pane, A swinging door, And out upon, A withered field, Where blue blossoms, Once nodded in the sun, A rusted plow, Deep furrow, In the crusted sand."
> —*Marie and Will Parcher*, 1934[3]

> "You have any idea what this land would be worth with a steady water supply? About 30 million more than they paid for it."
> —J.J. Gittes (Jack Nicholson) referring to land in the San Fernando Valley, in the movie *Chinatown*, 1974[4]

> "[F]armers remain suspicious of the 'Owens valley syndrome'. . . . The 'theft' of its water . . . in the early 20th century has become the most notorious water grab by any city anywhere . . . . [T]he whole experience has poisoned subsequent attempts to persuade farmers to trade their water to thirsty cities."
> —*The Economist*, July 19, 2003[5]

I. Introduction

The story of how the Owens Valley lost its water to urban Los Angeles's swelling population in the early 20th century is an integral part of the settlement history of the western United States. More importantly, the story also plays a vital role in shaping contemporary debates over the struggle for access to water. Indeed, Owens Valley stands as a sentence in discussions of the dangers of water transfers from rural to urban areas. It is used as a metaphor by opponents of water reallocations to demonstrate all that can go wrong with these practices. Even proponents of contemporary water exchanges emphasize that their proposals will *not* be another Owens Valley.

Owens Valley was the first large-scale rural-to-urban water transfer, completed between 1905 and 1935; it continues as a pivotal event in the political economy and law of western water. While the story resonates most forcefully in dry regions of western states, the fate of Owens Valley has been

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2. Allen Kelly, *Introductory Historical Sketch of the Los Angeles Aqueduct*, *in* COMPLETE REPORT ON CONSTRUCTION OF THE LOS ANGELES AQUEDUCT 1 (L.A. Dept. Pub. Serv., 1916).

3. MARIE LOUIS PARCHER & WILL C. PARCHER, DRY DITCHES (1934), *quoted in* RICHARD COKE WOOD, OWENS VALLEY AS I KNEW IT 1 (1973).

4. CHINATOWN (Paramount Pictures 1974).

5. *Liquid Assets*, ECONOMIST, July 19, 2003, at 15 (outlining examples of "sensible" water policies in Chile, South Africa, Australia, and California).

invoked as a warning to rural communities throughout the country faced with losing their water to burgeoning urban populations whose expanding demand for water exceeds available supplies.

For all of these reasons, it is worthwhile to examine the Owens Valley story more completely and more objectively than has been done in the past. This Article argues that the common portrayal of the Owens Valley water transfer is (at best) incomplete and (at worst) inaccurate. Historical events are often misinterpreted or misrepresented with little consequence. The inaccurate way of describing the Owens Valley story undermines legitimate efforts to reallocate water in the semi-arid West. The real lessons of Owens Valley are lost. This Article reexamines the relationship between land and water rights owners in Owens Valley and the Water Board of the Los Angeles Department of Water and Power. Its objective is to reinterpret the record and to present the Owens Valley water transfer as a positive contribution to discussions of western water.

II. Background: Potential Social Gains From Rural-to-Urban Water Transfers

The most rapid population growth in the United States is in the urban areas of the semi-arid West.[6] This growth is fueled by shifts from agriculture and extractive industries to service and technology industries. Most western cities, such as Los Angeles, Las Vegas, San Diego, Phoenix, Denver, and Tucson, do not have sufficient local water sources to supply this growth in urban demand. Accordingly, meeting these growing demands provides the impetus for most efforts to acquire water from agriculture,[7] where approximately 70–75% of western water is currently allocated.[8] Nevertheless, rural

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6. *See* U.S. CENSUS BUREAU, ALL ACROSS THE USA: POPULATION DISTRIBUTION AND COMPOSITION, PERCENTAGE CHANGE IN METROPOLITAN AND NONMETROPOLITAN POPULATIONS BY REGION: 1990 TO 2000 at 2-1 (noting that "with an overall 20 percent growth rate, the West grew more rapidly than any other region"), *available at* http://www.census.gov/population/pop-profile/2000/chap02.pdf.

7. *See, e.g.*, Dean E. Murphy, *Pact in West Will Send Farms' Water to Cities*, N.Y. TIMES, Oct. 17, 2003, at A1 (reporting that San Diego's massive population growth spurred the city's recent efforts to secure water from the Imperial Irrigation District; San Diego agreed to pay $258 per acre-foot for water that farmers used for $15–20).

8. WAYNE B. SOLLEY ET AL., U.S. GEOLOGICAL SURVEY, CIRCULAR NO. 1200, ESTIMATED USE OF WATER IN THE UNITED STATES IN 1995, at 6 (1998). *See also* Reed D. Benson, *So Much Conflict, Yet So Much in Common: Considering the Similarities Between Western Water Law and the Endangered Species Act*, 44 NAT. RESOURCES J. 29, 52 (2004) (describing western water allocation patterns). Many authorities address contemporary water reallocation issues, including water transfers from agricultural to urban uses. *See, e.g.*, TERRY L. ANDERSON & PAMELA SNYDER, WATER MARKETS: PRIMING THE INVISIBLE PUMP (1997); ROBERT GLENNON, WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS (2002); NATIONAL RESEARCH COUNCIL, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT (1992); Richard Howitt, *Empirical Analysis of Water Market Institutions: The 1991 California Water Market*, 16 RESOURCE & ENERGY ECON. 357 (1994) [hereinafter Howitt, *Empirical Analysis*]; Ronald N. Johnson et al., *The Definition of a Surface Water Right and Transferability*, 24 J.L. & ECON. 273 (1981); Keith Knapp et al., *Water Transfers, Agriculture, and*

areas have expressed anxiety about any water reallocation. Some of their concerns focus on compensation for potential negative third-party effects on property owners, farm laborers, and others who are not directly involved in the transaction, but whose welfare might be negatively affected by the export of water.[9] Related concerns include the possible broader impact on agricultural communities, especially the loss of rural lifestyles and values should water transfers to urban areas become routine.[10] These fears have resulted in calls for regulation or restrictions on water transfers to protect the public interest.[11] It is admittedly important to keep in mind the value of rural communities and the necessity of compensating negatively affected third parties when considering the regulation and restriction of water reallocation transactions. However, it is also important for decisionmakers to consider the societal benefits of cities and the reasons that water transfers to urban areas so greatly serve the public interest.

In general, cities stimulate much of the economic development and technological innovation that occurs in any society.[12] Cities typically offer the highest real wages, and provide increased opportunities for productivity growth, employment, and upward mobility for all economic groups, including the poor.[13] Accordingly, most people historically have migrated from

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Groundwater Management: A Dynamic Economic Analysis, 67 J. ENVTL. MGMT. 291 (2003); Carol Rose, *Energy and Efficiency in the Realignment of Common-Law Water Rights*, 19 J. LEGAL STUD. 261 (1990). Several sources also address more specifically the legal impediments to water transfers. *See, e.g.*, Charles W. Howe, *Increasing Efficiency in Water Markets: Examples from the Western United States*, *in* WATER MARKETING—THE NEXT GENERATION 79 (Terry L. Anderson & Peter J. Hill eds., 1997); Barton H. Thompson, Jr., *Water Markets and the Problem of Shifting Paradigms*, *in* WATER MARKETING—THE NEXT GENERATION, *supra*, at 1; George A. Gould, *Transfer of Water Rights*, 29 NAT. RESOURCES J. 457 (1989); Kevin M. O'Brien, *Water Marketing in California*, 19 PAC. L.J. 1165 (1988).

9. ELLEN HANAK, WHO SHOULD BE ALLOWED TO SELL WATER IN CALIFORNIA? THIRD-PARTY ISSUES AND THE WATER MARKET (2003) [hereinafter HANAK, THIRD-PARTY ISSUES]. *See also* Ellen Hanak, *Stopping the Drain: Third Party Responses to California's Water Market*, CONTEMP. ECON. POL'Y, Jan. 2005, at 59, 60–62 [hereinafter Hanak, *Stopping the Drain*] (relating and analyzing third-party resistance to water transactions).

10. *See* Joseph L. Sax, *Understanding Transfers: Community Rights and the Privatization of Water*, 1 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 13, 15 (1994) (arguing for redistributionist mechanisms to mitigate the significant losses to rural communities when water is exported).

11. *See* Ellen Hanak & Caitlin Dyckman, *Counties Wresting Control: Local Responses to California's Statewide Water Market*, 6 U. DENV. WATER L. REV. 490, 498–501 (2003) (describing the adoption of county water export ordinances to restrict ground water transfers); Hal K. Rothman, *The State of the Natural Resources Literature*, 42 NAT. RESOURCES J. 211, 215–19 (2002) (describing rural communities' fears and hostilities about transferring water to urban areas).

12. For discussions of the positive economics of cities, see Maryann P. Feldman & David B. Audretsch, *Innovation in Cities: Science-Based Diversity, Specialization and Localized Competition*, 43 EUR. ECON. REV. 409 (1999); Edward L. Glaeser et al., *Growth in Cities*, 100 J. POL. ECON. 1126, 1127–30 (1992) (examining theories of the role of "knowledge spillovers" in the economic growth of cities); and James E. Rauch, *Productivity Gains from Geographic Concentration of Human Capital: Evidence from the Cities*, 34 J. URB. ECON. 380 (1993).

13. *See* JANE JACOBS, CITIES AND THE WEALTH OF NATIONS: PRINCIPLES OF ECONOMIC LIFE 72–74 (1984) (discussing workers' abandonment of rural regions for the economic benefits of cities); SUKKOO KIM & ROBERT A. MARGO, HISTORICAL PERSPECTIVES ON U.S. ECONOMIC

rural to urban areas.[14] Cities derive their economic advantages from increasing returns or agglomeration externalities.[15] Of these, there are three broad categories: technology, public goods, and consumer amenities. For technology, cities facilitate the flow of knowledge and allow for markets to emerge around new innovations. This explains why inventors, innovators, and entrepreneurs have concentrated in urban locations to develop and market their ideas.[16] With public goods, such as transportation and education, there are often high fixed costs that can be better spread in urban areas. Thus, investment in public goods occurs in cities that might not be cost-effective in rural areas. Finally, in the case of consumer amenities, there are lower search costs for new products, processes, and jobs in urban areas because of the clustering of retailers, producers, and employers.[17] As a result, consumers looking for goods and services and workers looking for employment flock to cities.

As cities have expanded, they have spread spatially with different density gradients. While this is often pejoratively referred to as urban sprawl, it is characteristic of historic and contemporary city growth.[18] Perhaps one reason for Owens Valley's notorious reputation is that its rural-to-urban water transfer made possible the growth of the city most associated with sprawl—Los Angeles. Yet, urban demands for water are growing throughout the West, and some reallocation of water will inevitably occur. If the Owens Valley story is examined in an objective and complete manner, its lessons are quite different and more useful than the lessons suggested by the popular portrayals examined in Part III below. Further, the underlying sources of the Owens Valley legacy are different from those described in the literature. This Article strives to provide the reader with an understanding of these different sources, in order that this understanding can be utilized to promote smoother and less controversial rural-to-urban water transfers in the future.

GEOGRAPHY 40–42 (Nat'l Bureau of Econ. Research, Working Paper No. 9594, 2003) (summarizing evidence that throughout most of U.S. history urban wages were higher than rural wages).

14. *See* KIM & MARGO, *supra* note 13, at 3–4, 26–27 (summarizing the history of migration patterns in the United States).

15. "Agglomeration externalities" are economic effects that arise as a result of one enterprise's physical proximity to other enterprises or activities. *See* DAVID W. PEARCE, THE MACMILLAN DICTIONARY OF MODERN ECONOMICS 10, 148 (1981).

16. *See generally* KIM & MARGO, *supra* note 13, at 38–40 (summarizing and interpreting studies of the concentration of inventive and innovative activities in urban areas).

17. *See* Robert W. Helsley & William C. Strange, *Matching and Agglomeration Economies in a System of Cities*, 20 REGIONAL SCI. & URB. ECON. 189, 190 (1990) (explaining that agglomeration economies lead to a "positive ex ante relationship between wages, productivity, and city size").

18. KIM & MARGO, *supra* note 13, at 27–34 (discussing changes in the special structure of cities and metropolitan areas).

III. The Legacy of Owens Valley

The overwhelming view in the academic and popular presses of the Owens Valley water transfer to Los Angeles is decidedly negative. The general themes include theft of the valley's water, destruction of the local agricultural economy, and colonization of the region by a remote, disinterested city. According to this traditional view, powerful, unscrupulous promoters of Los Angeles grabbed the valley's water and immediately "flushed" it down the Los Angeles Aqueduct, converting previously verdant farm land into desert, leaving behind the skeletons of abandoned homesteads, empty school houses, and dry ditches. This powerful image—the "Ghost of Owens Valley"—looms as a grave warning over contemporary rural-to-urban water transfer negotiations;[19] such an outcome is decidedly not what members of rural communities want as they consider possible sales of water today.

An examination of the academic and popular presses' portrayals of the Owens Valley water transfer reveals how the Owens Valley experience has shaped the current conception of rural-to-urban water transfers. Such portrayals include that of William Kahrl, a leading Owens Valley historian, whose body of work includes some of the most commonly referenced accounts of Owens Valley.[20] Kahrl begins by comparing Owens Valley's agricultural potential in the early 20th century to the potential of the Imperial, Sacramento, and San Joaquin Valleys; by Kahrl's account, the promise of Owens Valley once surpassed that of all the others.[21] This promise, however, was derailed when former Mayor Fred Eaton, Chief Water Engineer William Mulholland, and J.B. Lippincott, Chief of Southwest Operations for the Federal Reclamation Service, conspired to block a proposed Bureau of Reclamation project in 1904 that would have provided needed drainage for Owens Valley while securing an alternate right-of-way for the Los Angeles Aqueduct across federal land.[22] In conjunction with this conspiracy, Kahrl notes, a water supply crisis was manufactured by Mulholland in Los Angeles in order to secure a favorable vote by the city's

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19. BRENT M. HADDAD, RIVERS OF GOLD: DESIGNING MARKETS TO ALLOCATE WATER IN CALIFORNIA xv–xvi (2000).

20. WILLIAM L. KAHRL, WATER AND POWER: THE CONFLICT OVER LOS ANGELES' WATER SUPPLY IN THE OWENS VALLEY (1982) [hereinafter KAHRL, WATER AND POWER]; William L. Kahrl, *Part I: The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927*, CAL. HIST. Q., Spring 1976, at 2, *reprinted in* 6 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 239 (2000) [hereinafter Kahrl, *Politics I*]; William L. Kahrl, *Part II: The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927*, CAL. HIST. Q., Summer 1976, at 98, *reprinted in* 6 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 255 (2000) [hereinafter Kahrl, *Politics II*].

21. KAHRL, WATER AND POWER, *supra* note 20, at 38–39.

22. *See, e.g.*, *id.* at 185 (noting an early theory of "an elaborate conspiracy in which Mulholland and Lippincott were seen fabricating drought conditions in 1904 by secretly draining the city's reservoirs through the sewers," and commenting that charges such as these were repeated "through all the attacks on Los Angeles' policies in the Owens Valley that in later years made up the popular legend of the 'rape of the valley'").

citizens on the bonds needed to finance construction of the aqueduct.[23] The bonds were passed, and excavation began in 1907. The aqueduct was completed in 1913.[24]

Kahrl's account continues by asserting that once the aqueduct was in place, the fate of the valley was sealed. Even before the aqueduct was constructed, representatives of the city secretly bought up land and water rights from unsuspecting farmers.[25] Local residents were ill-prepared to meet the hardball negotiating tactics of the Los Angeles officials, which included the undermining of an important local bank in August, 1927. The effects of the bank's collapse included not only the loss of farm mortgages and personal savings, but also the loss of will needed for the residents to resist Los Angeles' unceasing demands for more land and water.[26] Eventually, virtually all of the valley's agricultural land was handed over to Los Angeles, and irrigated agriculture ended as the water was diverted to the aqueduct. The farm economy with all of its potential was crushed, leaving the region dependent on the whims of the LADWP as its colonial master.[27] To add further insult to the valley's injury, more than half of the early water drained from it went not to the urban residents of Los Angeles, but instead to farm land in the San Fernando Valley,[28] fueling land speculation there.[29] Kahrl concludes:

> And so, with money, guns, and a unity of purpose with what they identified as the public interest, the bankers and businessmen of Los Angeles determined to seize the water resources of the Owens Valley 240 miles to the northeast. And, by correcting God's design for their community with the construction of the Los Angeles Aqueduct, they laid the foundations for the modern metropolis.[30]

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23. Kahrl, *Politics I*, *supra* note 20, at 244.

24. *Id.* at 250.

25. *Id.* at 242.

26. Kahrl, *Politics II*, *supra* note 20, at 263–64.

27. *Id.* at 259–61.

28. *See* KAHRL, WATER AND POWER, *supra* note 20, at 183 (discussing a 1911 engineers' report recommending that "the San Fernando Valley should receive first consideration in the allocation of surplus water").

29. KAHRL, WATER AND POWER, *supra* note 20, at 132.

30. Kahrl, *Politics I*, *supra* note 20, at 239. Variants on this theme are found in other books on Owens Valley. *See, e.g.*, WOOD, *supra* note 3, at 64–65 (arguing that Owens Valley is a place where "fine orchards have been deprived of water and reverted to desert" and "that dollars cannot repay the people of Owens Valley for what they were forced to give up"). For more balanced views on the Owens Valley story, see ABRAHAM HOFFMAN, VISION OR VILLAINY: ORIGINS OF THE OWENS VALLEY–LOS ANGELES WATER CONTROVERSY 65–90 (1981) (giving a historical perspective of the initiation of the Owens Valley project); REMI A. NADEAU, THE WATER SEEKERS 126–28 (1950) (describing coverage of the Owens Valley conflict by various journalists and authors); and ROBERT A. SAUDER, THE LOST FRONTIER: WATER DIVERSION IN THE GROWTH AND DESTRUCTION OF OWENS VALLEY AGRICULTURE 109, 124–34, 151–64 (1994) (providing details on the history and agricultural trends of the Owens Valley as they relate to the controversy).

Other legal scholars have incorporated various elements of this bleak account of Owens Valley into their articles about water transfers. For example, David Getches characterized "L.A.'s raid on the Owens Valley's water" as "legendary."[31] David Howard Davis pointed to the alleged secretive way that Los Angeles "bought up the farms and ranches in the valley, so [that] the local people could not organize opposition."[32] Robirda Lyon commented on the demise of Owens Valley, both "economically and ecologically," as it lost its water.[33] Hal K. Rothman claimed that Owens Valley residents lost their culture in a type of "social genocide that render[ed] them not only irrelevant but destitute."[34] And Andrew H. Sawyer described the dashed investment expectations of farmers as the LADWP used monopsony purchasing practices to force them to sell.[35]

The popular press, perhaps not surprisingly, is no more charitable in its description of the Owens Valley water transfer. Although this press includes numerous books, newspapers, and magazine articles, this article focuses on only a representative few.[36] For example, a 1986 editorial in the *Los Angeles Times* stated: "Mention the words *water* and *theft* in one breath, and someone will follow with *Los Angeles* and *Owens Valley* in the next."[37] A 1989 article in the *New York Times*, describing efforts to secure more agricultural water for urban areas, argued that Owens Valley symbolized "the arrogance and disdain of the powerful cities toward the rural areas."[38] In describing water prices offered to farmers in the Imperial Irrigation District, a 2003 editorial in the *Los Angeles Times* claimed that "no one is going to 'steal' the water the way Los Angeles took the Owens Valley's supply in the early part of the last century."[39] Indeed, a 1985 article in the *Washington Post* emphasized the desire of Imperial Irrigation District farmers to avoid an "Owens Valley" outcome: "[g]rowers here remember the Owens Valley, an oasis in the Sierras until a rapacious water grab by Los Angeles turned it into

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31. David H. Getches, *Essays from Askhabad, to Wellton-Mohawk, to Los Angeles: The Drought in Water Policy*, 64 U. COLO. L. REV. 523, 535 (1993).

32. David H. Davis, *Water Diversion from the Great Lakes*, TOL. J. GREAT LAKES' L. SCI. & POL'Y 109, 133–34 (1999).

33. Robirda Lyon, Comment, *The County of Origin Doctrine: Insufficient as a Legal Water Right in California*, 12 SAN JOAQUIN AGRIC. L. REV. 133, 134–35 (2002).

34. Rothman, *supra* note 11, at 216–17.

35. Without any reference to evidence, he claimed "checkerboarding" of purchases by Los Angeles that left ditches too costly for hold out farmers to maintain. Andrew H. Sawyer, *Changing Landscapes and Evolving Law: Lessons from Mono Lake on Takings and the Public Trust*, 50 OKLA. L. REV. 311, 323–24 (1997).

36. For an additional critical discussion of the Owens Valley water transfer, see MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER 64–65 (1986), characterizing the Owens Valley water transfer as technically legal, but deceitful and unjustifiable.

37. *For Shame, San Francisco*, L.A. TIMES (METRO), Sept. 2, 1986, pt.2, at 4.

38. Robert Reinhold, *A Truce in California's Water Wars*, N.Y. TIMES, Sept. 25, 1989, at A14.

39. *It's Still a Desert*, L.A. TIMES, Oct. 20, 2003, at B10.

a parched desert nearly 50 years ago."[40] A 2004 *New York Times* article also stressed the perception of land theft and community destruction, as evidenced by the headline "Los Angeles Mayor Seeks to Freeze Valley Growth. Century-Old Land Grab Still Contentious."[41]

In addition to the books, journal articles, and newspaper stories discussed above, other types of media have also incorporated elements of Kahrl's traditional negative portrayal of the Owens Valley water transfer into their depictions of Owens Valley's story. One example is Mark Wheeler's work for the *Smithsonian*, which claimed that Los Angeles' acquisition practices "may fairly be called ruthless."[42] Of course the 1974 movie *Chinatown*, starring Jack Nicholson and Faye Dunaway, also added to the popular notoriety of Owens Valley by dramatizing alleged conspiracies involving Los Angeles land speculation fueled by acquisition of Owens Valley water.[43]

These gloomy and indeed frightening portrayals of the Owens Valley experience appear to have been harmful for the subsequent development of water markets not only in California, but throughout the West. In fact, several academic researchers and policy experts, including Vincent Ostrom, Brent Haddad, Brian Gray, Bruce Driver, and Richard Wahl, have cited an "Owens Valley Syndrome" as deterring subsequent efforts at rural-to-urban water transfers.[44] Furthermore, writers such as Ellen Hanak, Caitlin Dyckman, Robert Beck, and Dan Tarlock have credited the Owens Valley experience with motivating county-of-origin restrictions on water transfers in California.[45] Pointing to the example of Owens Valley, Aaron Ralph asked whether state regulators should allow one community to use another's water

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40. Cass Peterson, *California's Liquid Asset: Cities Want to Buy Imperial Valley's Water*, WASH. POST, Nov. 3, 1985, at A1.

41. John M. Broder, *Los Angeles Mayor Seeks to Freeze Valley Growth*, N.Y. TIMES, Aug. 8, 2004, § 1 at 1.

42. Mark Wheeler, *California Scheming: Los Angeles' Insatiable Thirst for Water, which Drained the Owens Valley, has Ruined Lives, Shaped the City's Politics and Provoked Ongoing Controversy*, SMITHSONIAN, Oct. 2002, at 104, 105.

43. CHINATOWN, *supra* note 4.

44. VINCENT OSTROM, INSTITUTIONAL ARRANGEMENTS FOR WATER RESOURCE DEVELOPMENT: THE CHOICE OF INSTITUTIONAL ARRANGEMENTS FOR WATER RESOURCE DEVELOPMENT 450 (1971) [hereinafter OSTROM, INSTITUTIONAL ARRANGEMENTS] (noting that the Owens Valley controversy led to statutory reservations prioritizing water rights for counties of origin over those of potential appropriators); Brian E. Gray et al., *Economic Incentives for Environmental Protection: Transfers of Federal Reclamation Water: A Case Study of California's San Joaquin Valley*, 21 ENVTL. L. 911, 981–82 (1991) (citing MARC REISNER, A CATALOG OF OBSTACLES TO WATER TRANSFERS IN CALIFORNIA: A REPORT TO THE SAN JOAQUIN VALLEY DRAINAGE PROGRAM 37 (1990)).

45. HANAK, THIRD-PARTY ISSUES, *supra* note 9, at 123–24; Robert E. Beck, *The Regulated Riparian Model Code: Blueprint for Twenty First Century Water Management*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 113, 139 (2000); Hanak & Dyckman, *supra* note 11, at 495; A. Dan Tarlock, *Reconnecting Property Rights to Watersheds*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 69, 102 (2000).

in order to grow and leave the other behind,[46] while Barton Thompson has stressed concerns about potential negative economic effects on the exporting region.[47]

The story of Owens Valley, then, is of more than just historical interest; it has exerted an important drag on all subsequent discussions of rural-to-urban water transfers in the western United States. Given this, it is advisable to reexamine the Owens Valley story to better understand the relationships between farmers and the LADWP Water Board, the outcomes of the land and water rights purchases, and the sources of the disputes that took place in these early 20th-century negotiations.

IV. The History of the Owens Valley Water Transfer

My analysis of the history of the Owens Valley transfer negotiations between farmers and the Water Board utilizes numerous detailed records—letters, reports, and memorandums from 1905 to 1934 between the Los Angeles Water Board and Owens Valley landowners—deposited in the Los Angeles Department of Water and Power Archives. These documents describe the bargaining history between the Board and farmers as they negotiated over land and water rights. Bargaining positions, strategies, and key issues of contention are described in the data. Additionally, there are detailed records of 869 farm land purchases, including year of purchase, amount paid, location of property, name of owner, and other property characteristics. Other data sets detail sellers' pool membership and town lot sales. This information provides a rich basis for examining the Owens Valley bargaining conflicts in a manner that has not previously been attempted.[48] The archival material augments a large secondary literature on Owens Valley.[49]

The search for additional water in Los Angeles began early. Between 1880 and 1900, the population of Los Angeles grew five-fold, from 50,393

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46. Aaron Ralph, *Drain the Water and Pull the Plug on the Economy of One Community So that Another Community Can Brim Over with Economic Development: Is It Any of the State Water Resource Control Board's Business?*, 34 MCGEORGE L. REV. 903, 906 n.23 (2003).

47. Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 673, 733 n.262 (1993) (describing how residents of the Imperial Irrigation District opposed agreement with the Metropolitan Water District in order to avoid turning it into another Owens Valley).

48. All sources from the LADWP Archives are listed by tape ID number, and copies of all materials from the LADWP Archives are on file with the author.

49. The secondary literature includes HOFFMAN, *supra* note 30; KAHRL, WATER AND POWER, *supra* note 20; NADEAU, *supra* note 30; OSTROM, INSTITUTIONAL ARRANGEMENTS, *supra* note 44; VINCENT OSTROM, WATER AND POLITICS: A STUDY OF WATER POLICIES AND ADMINISTRATION IN THE DEVELOPMENT OF LOS ANGELES (1953) [hereinafter OSTROM, WATER AND POLITICS]; SAUDER, *supra* note 30; Gordon R. Miller, Los Angeles and the Owens River Aqueduct (1977) (unpublished Ph.D. dissertation, Claremont Graduate University) (on file with libraries of the Claremont Colleges).

people to 250,000,[50] and, given the city's climate, links via the intercontinental railroads, and its position as a major West Coast port, prospects for the city's continued growth seemed promising. Yet one major obstacle stood in the way of Los Angeles' continued growth: the absence of sufficient water.[51] The city was in a semi-arid region where annual precipitation was not only extremely variable, but averaged just 15.62 inches,[52] whereas Chicago, by contrast, had a mean rainfall of 34.12 inches.[53] As such, Los Angeles had to rely upon the meager Los Angeles River watershed, rather than rainfall, for its water supply.

But by the turn of the century, there was growing concern among city boosters that more water had to be found if the city were to achieve prominence on the West Coast.[54] And there was water to be found—250 miles northeast in the Owens Valley, on the eastern slopes of the Sierras. Between the Owens River's flow and ground sources in the valley, there was a supply of some 37 million acre-feet of water available, about the same as that held in Lake Mead today.[55]

The water was transported via the Los Angeles Aqueduct, which became one of the nation's largest public works projects at the time, second only to the Panama Canal.[56] By 1920, Owens Valley provided a flow of 283 cubic feet per second of water, whereas the entire Los Angeles basin supplied a flow of just 68 cubic feet per second. The new water supported the city's growth from 250,000 people in 1900 to 2,208,492 by 1930.[57]

The Owens Valley spanned a region of approximately 720 square miles; the narrow valley was almost equally divided by the Owens River, which

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50. CENSUS OFFICE, DEP'T OF THE INTERIOR, STATISTICS OF THE POPULATION OF THE UNITED STATES AT THE TENTH CENSUS (JUNE 1, 1880) 447 (Norman Ross 1991) (1883); CENSUS OFFICE, DEP'T OF THE INTERIOR, TWELFTH CENSUS OF THE UNITED STATES, TAKEN IN THE YEAR 1900, POPULATION PART I 439 (Norman Ross 1997) (1901).

51. The Los Angeles Board of Water Commissioners in its Annual Report for 1904 noted that local sources beyond the Los Angeles River were too limited to be of much help and that the city would have to find more remote supplies of water. L.A. BD. OF WATER COMM'RS, 1904 ANNUAL REPORT 25 (1905).

52. National Service, *Monthly Rainfall Data for Los Angeles*, *at* http://www.wrh.noaa.gov/lox/climate/data/cvc_rainfall.html.

53. Charles Fisk, *Graphical Portrayal of Chicago Daily Temperatures, Precipitation, and Snowfall, By Year (1871–Present)*, *at* http://home.att.net/~chicago_climo/CHIPRCP.gif.

54. *See* OSTROM, WATER AND POLITICS, *supra* note 49, at 23 (providing data on the various sources of water for Los Angeles, 1920–1950).

55. Miller, *supra* note 49, at 49–50.

56. Kahrl, *Politics I*, *supra* note 20, at 250, describes the immensity of the aqueduct project as one of the largest public works ever undertaken. At the time, it was viewed as an engineering marvel. *See also* Henry Z. Osborne, *The Completion of the Los Angeles Aqueduct*, SCI. AM., Nov. 8, 1913, at 364–65, 371–72 (providing an early 20th-century perspective on the planning and construction of the aqueduct).

57. OSTROM, WATER AND POLITICS, *supra* note 49, at 23. L.A. hosted the Olympic Games in 1932. For a discussion of expansion into the San Fernando Valley, see KAHRL, WATER AND POWER, *supra* note 20, at 227–30.

eventually dumped into the alkaline Owens Lake. In 1920, prior to major land purchases by Los Angeles, there were 7,031 people in the area residing on farms and in five towns—Bishop, Big Pine, Laws, Independence, and Lone Pine.[58] There were 140,000 acres of farm land in the valley, of which 39,904 acres were improved.[59] Livestock was a principal agricultural product. The elevation of the valley (ranging from 3,600 to 4,300 feet), short growing season (150 days), alkaline soil, and limited access to markets constrained its agricultural potential, and, as noted above, its production was more characteristic of Great Basin agriculture than of elsewhere in California.[60]

Comparing Inyo County (Owens Valley) farms with a baseline of farms in similar Great Basin counties—Lassen County in California and Churchill, Douglas, and Lyon Counties in Nevada—reveals that in 1920 Inyo farms tended to be far smaller on average (269 acres versus 713 acres) and the annual value of production per farm much lower ($4,759 versus $10,332).[61] These data indicate just how marginal agriculture in Owens Valley was in the 1920s and how anxious those farmers might have been to sell to an interested buyer. The results of those purchases on land values, compared to those in these same base line counties, are examined below.

Between 1905 and 1921, the Water Board purchased land in the southern part of Owens Valley. The Board met two objectives with these purchases: it acquired the right-of-way for the Los Angeles Aqueduct, and it laid claim to rights for excess water that had not been diverted for use in irrigating the northern, most agricultural part of the valley. These purchases did not interfere with irrigated farming, because southern Owens Valley lands were mostly desert, as evidenced by the average purchase prices, which ranged from only $1.25 to $23.86 per acre (by contrast, the mean purchase price for lands bought later in the North was $198 per acre).[62] Once the city's purchases of land and water rights in the southern Owens Valley were

58. *See* U.S. CENSUS BUREAU, POPULATION OF COUNTIES BY DECENNIAL CENSUS, 1900–1990, CALIFORNIA (1995), *available at* http://www.census.gov/population/cencounts/ca190090.txt.

59. The 1925 U.S. Census of Agriculture indicates that there were 144,182 total acres of farm land in Inyo County in 1925, 140,029 in 1920, and 110,142 in 1910. BUREAU OF THE CENSUS, DEP'T OF COMMERCE, U.S. CENSUS OF AGRICULTURE: 1925, CAL. 10 tbl.1 (1926).

60. Miller, *supra* note 49, at 54–55.

61. Gary D. Libecap, Chinatown: Transaction Costs in Water Rights Exchanges (2005) (unpublished manuscript, on file with author) [hereinafter Libecap, Transaction Costs], at 37 tbl.3b. For an example of how the agricultural potential of Owens Valley is described in the literature, see KAHRL, WATER AND POWER, *supra* note 20, at 38.

62. Report from John T. Martin, Right of Way and Land Agent, to Ralph Criswell of Owen Valley Lands (Aug. 6, 1927) (collected in Owens Valley Lands File, Tape GX0007, LADWP Archives) (on file with author); Mean calculated from data in Tabulation Showing Status of Ranch Land Purchases Made by the City of Los Angeles in the Owens River Drainage Area from 1916 to April 1934, Prepared in Right of Way and Land Division by Clarence S. Hill, Right of Way and Land Agent, compiled by E.H. Porter (Apr. 16, 1934) (Tape GX0004, LADWP Archives) (on file with author) [hereinafter Porter File].

announced, successful but contentious elections for two bond issues for $24.5 million to buy land and construct an aqueduct were held in 1905 and 1907.[63] The elections were controversial because of suspicions that land speculation in the San Fernando Valley—not an impending shortage—was the primary motivation for reallocating Owens Valley water.[64]

The reallocation of water from Owens Valley to Los Angeles brought dramatic property value gains in Los Angeles.[65] Although the city subsequently grew more rapidly than predicted, which required more water to satisfy urban demand, much of the initial water went to irrigate lands in the San Fernando Valley.[66] When the aqueduct began flowing in 1913, it supplied four to five times the domestic urban demand, and under the appropriative water rights doctrine the water had to be in beneficial use in order for Los Angeles to retain ownership.[67] Accordingly, water was made available for farming in the San Fernando Valley, and irrigated acreage in Los Angeles County expanded by over 124,000 acres.[68] The Board provided Owens Valley water only to areas that agreed to be annexed by the city, and this provision led to the dramatic increase in the size of the Los Angeles by over 325 square miles.[69] For a time, Los Angeles became the nation's largest agricultural county in terms of value of production.[70] Associated power generation made the Los Angeles Department of Water and Power the largest municipal electric utility in the country.[71] Gradually, as urban water demand increased, agricultural use of Owens Valley water in Los Angeles declined.

At the same time that Los Angeles was planning to acquire water from Owens Valley, Owens Valley's residents were seeking a Federal Reclamation Service project that would improve the valley's drainage and increase its irrigation. Ultimately, these were competing uses for Owens Valley water, and Los Angeles's officials moved aggressively to secure Los

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63. HOFFMAN, *supra* note 30, at 141–45; KAHRL, WATER AND POWER, *supra* note 20, at 148–49; OSTROM, WATER AND POLITICS, *supra* note 49, at 149–54.

64. NADEAU, *supra* note 30, at 29–41; OSTROM, WATER AND POLITICS, *supra* note 49; KAHRL, WATER AND POWER, *supra* note 20, at 154–56. These controversial bond elections were dramatized in the film CHINATOWN, *supra* note 4.

65. *See* NADEAU, *supra* note 30, at 29 (noting that property values in much of Los Angeles doubled in price in 1905 when the Owens Valley project was announced).

66. HOFFMAN, *supra* note 30, at 125; KAHRL, WATER AND POWER, *supra* note 20, at 181–86; OSTROM, WATER AND POLITICS, *supra* note 49, at 149–51.

67. OSTROM, WATER AND POLITICS, *supra* note 49, at 148; SAUDER, *supra* note 30, at 122. Advisory engineers—Quinton, Code, and Hamlin—outlined the proposed distribution of Owens Valley Water. L.A. BD. OF PUB. SERV. COMM'RS, TENTH ANNUAL REPORT 41–63 (1911).

68. KAHRL, WATER AND POWER, *supra* note 20, at 223, 227.

69. HOFFMAN, *supra* note 30, at 157.

70. *See* BUREAU OF THE CENSUS, DEP'T OF COMMERCE, U.S. CENSUS OF AGRICULTURE: 1925, CAL. 18 tbl.8 (1926) (reporting an agricultural value of $14,146,470 for Los Angeles County); NORRIS HUNDLEY, THE GREAT THIRST: CALIFORNIANS AND WATER—A HISTORY 170 (2001) (noting that even before the construction of the Owens Valley project, Los Angeles county had become "the national leader in agriculture").

71. KAHRL, WATER AND POWER, *supra* note 20, at 231.

Angeles access to federal lands for right-of-way and reservoir storage sites. The Reclamation Service investigated prospects in the valley beginning in 1903, but suspended activities in 1905.[72] The view in Owens Valley was that the political influence of Los Angeles had doomed the project.[73]

Much is made of the failed reclamation project in the historical literature as evidence of Los Angeles's political power and lack of concern for the welfare of the valley's residents.[74] But recent research indicates that the Reclamation Service's decision was based on limited funds and the availability of more favorable sites elsewhere in the West.[75] In any event, the loss of the reclamation project and the diversion of Owens Valley water to irrigation in the San Fernando Valley, which generated huge capital gains for the San Fernando region, caused Owens Valley farmers to mistrust and resent the Water Board.[76]

Beginning in 1923, in the face of drought and rising population growth in Los Angeles, the Water Board began to purchase lands in the more agricultural and densely populated part of Owens Valley; it is these negotiations that are the source of the bargaining conflicts that characterize the Owens Valley transfer. From 1923 through 1934, the Board moved aggressively, securing from Owens Valley landowners an additional 863 agricultural properties covering 145,867 acres.[77] Over thirteen hundred town parcels were

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72. *See* HOFFMAN, *supra* note 30, at 69 (noting that early in 1905, the U.S. Reclamation service suspended its surveying activities in Owens Valley after an emergency in the lower Colorado River area).

73. This apparent deception is stressed in all historical discussions of the Owens Valley controversy. *See, e.g.*, OSTROM, WATER AND POLITICS, *supra* note 49, at 117 (noting the resentment of Owens Valley citizens upon learning of J.B. Lippincott's recommendation that "the Reclamation Service suspend . . . consideration of the reclamation project and cooperate with the Los Angeles program").

74. HOFFMAN, *supra* note 30, at 89 (citing correspondence by Richard Fysh and Stafford Wallace Austin, two Owens Valley residents, in which they assert that the discontinuation of the Reclamation Service project would place Los Angeles authorities "in a position to destroy future prospects of the valley and inflict severe loss upon all settlers and property owners"); KAHRL, WATER AND POWER, *supra* note 20, at 78 (noting J.B. Lippincott's belief that the best use of the Owens Valley water would be in Los Angeles, rather than as part of a Reclamation project in which the valley residents would be the primary beneficiaries).

75. *See* KAHRL, WATER AND POWER, *supra* note 20, at 56 (noting that not only did the Reclamation Service have a variety of other projects consuming its energy and resources in California and other western states, but also that the Service did not have "sufficient funds for the construction of all of the projects which appear[ed] to be feasible"); Miller, *supra* note 49, at 66–79 (reporting concerns about a high water table, the need for drainage, and the high elevation of Owens Valley); DONALD J. PISANI, FROM THE FAMILY FARM TO AGRIBUSINESS: THE IRRIGATION CRUSADE IN CALIFORNIA AND THE WEST, 1850–1931, at 302 (1984) (comparing the Owens Valley site with more promising sites in the West).

76. *See* NADEAU, *supra* note 30, at 28–31; Testimony from Mrs. G.L. Wallace, Ladies Committee, to Board of Water and Power Commissioners (Aug. 13, 1926) (transcript of proceedings collected in Owens River and Big Pine Canal File, Tape GX0003, LADWP Archives) (on file with author). *See also* HOFFMAN, *supra* note 30, at 105, 112–19 (discussing the legacy of the Reclamation Service project cancellation). Details on the Owens River watershed are provided in OSTROM, WATER AND POLITICS, *supra* note 49, at 11–12.

77. Porter File, *supra* note 62.

also purchased beginning in February of 1931 using new bond revenues.[78] By 1934, the Board had acquired 95% of the agricultural acreage and 88% of the town properties in the valley.[79]

Among these new purchases, the Water Board was most interested in those parcels that held the most extensive water rights—properties either adjacent to the Owens River or ones that had been formally organized into irrigation ditch companies. The major ditch companies in Owens Valley were the McNally Ditch, the Bishop Creek Ditch, the Owens River Canal, the Big Pine Canal, the Rawson Ditch, the George Collins Ditch, the A.O. Collins Ditch, and Farmers Ditch. Approximately 52,504 acres of land were associated with these ditches.[80] In total, there were 110 miles of primary and secondary ditches lacing the north valley, where most of the agricultural activities took place.[81] The construction of ditches required cooperative investments; farmers joined forces to incorporate ditch companies and to place joint appropriative water claims. The amount of water held by each farmer depended on the number of shares he owned in the ditch company.

Much of the Owens Valley bargaining record reflects conflicts between the Board and the Owens Valley landowners over price; the landowners frequently claimed that Los Angeles had offered them insufficient sums for their land. However, closer inspection of the evidence reveals apprehensions that the city was actually paying too much for the land. For example, land buyer John Merrill asserted in 1927 that while the city had paid an average of $200 per acre for Owens Valley lands thus far, the lands could have been secured for $50 to $75 per acre for a total expenditure of $5 million rather than $12 million.[82] The *Hollywood Daily Citizen* ran an editorial objecting to any payment for town properties beyond appraised values.[83] These allegations were of concern to the Board, as they threatened to harm the Board's

78. Memo from A.J. Ford, land agent (Jan. 5, 1930) (collected in Owens Valley Lands File, Tape GX0007, LADWP Archives) (on file with author); Summary, Status of Town Purchases in Owens River Drainage Area (collected in Town Properties File, Tape GX0007, LADWP Archives) (on file with author).

79. OSTROM, WATER AND POLITICS, *supra* note 49, at 127.

80. Classified Acreage of Lands Under Ditch, Bishop-Big Pine Region of Owens Valley, Based on Surveys by City of Los Angeles, 1922 to 1926 (collected in Misc. File, Tape GX0004, LADWP Archives) (on file with author). Water was apportioned among farmers on a ditch in proportion to their shares in the ditch company. For a discussion of ditch companies, see ORSON W. ISRAELSEN ET AL., IRRIGATION COMPANIES IN UTAH: THEIR ACTIVITIES AND NEEDS (1946). Mutual ditch companies were organized by farmers who held stock in them, and the companies generally held the water rights of the stockowners. Expenses were met by annual assessments. *See, e.g.*, By-Laws of the McNally Ditch Company (collected in McNally Ditch File, Tape GX0008, LADWP Archives) (on file with author).

81. Miller, *supra* note 49, at 53–56.

82. Letter from John A. Merrill to Board of Public Service Commissioners (Aug. 15, 1927) (collected in Correspondence June–September 1927 File, Tape EJ00086, LADWP Archives) (on file with author).

83. Hollywood Daily Citizen editorial (date not available; estimated to be fall of 1929) (collected in Clippings File, Tape GX0001, LADWP Archives) (on file with author).

standing within the political climate of Los Angeles, thus making it more difficult to raise funds through additional bond elections.

As a result, not all bond elections were successful. Further, the Water Board, charged with supplying Los Angeles with dependable water, was under close scrutiny by taxpayers and water ratepayers to manage its funds effectively.[84] For instance, at least two proposed bond issues in 1912 and 1929 were defeated by Los Angeles voters, and as the situation in Owens Valley became more controversial, funding of city purchases may have become more problematic politically.[85]

As stated above, the major sources of the bargaining conflicts which characterized the Owens Valley water transfer were the Water Board's purchases of land in the more agricultural and densely populated parts of Owens Valley. Once the Board finalized one of these purchases, the water contained by the parcel—its ditch water allocation, riparian claim, or groundwater—could be released to flow down the river to the Los Angeles Aqueduct. During the course of these negotiations, if Water Board land agents could not reach agreement with one land owner, they would turn to another. In certain circumstances, as discussed below, landowners often received higher sums for their parcels by engaging in a holdout strategy. However, negative effects on holdouts were also a possibility. The Board often suspended its land purchasing activities (such as when it concluded that negotiations had reached an impasse, it had insufficient funds for further purchases, or the city currently had adequate water rights to meet its needs), which exposed the holdout landowners to the risk of bearing additional costs. Besides the opportunity cost of the lost sale revenue, holdouts who were on ditches could be left isolated with higher ditch maintenance and operating costs, since the city did not contribute once the ditch water was released from its properties. Holdout farms were also at risk of being infected by weeds and insects from neighboring properties left uncultivated after purchase by the Board.[86]

It was alleged by some farmers that the Board deliberately exploited these potential holdout costs by engaging in a checker-boarding strategy, buying properties around holdouts to force them to sell.[87] Although this strategy may have been used, it is difficult to assess just how pervasive or important it might have been. As shown below, data reveal that on average,

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84. OSTROM, WATER AND POLITICS, *supra* note 49, at 59–63. In 1925, under a new City Charter, the Water Board was required to cover all interest and principal charges on outstanding bond debt from its revenues, not from taxpayers.

85. *Id.* at 51, 63.

86. *See, e.g.*, Letter from Owens Valley Apple Growers Association to Los Angeles Board of Water and Power (July 28, 1926) (collected in Correspondence June–December 1926 File, Tape GX0001, LADWP Archives) (on file with author).

87. Miller discusses the spillover effects among ditch users when some parties sell their water for export, raising the costs for remaining ditch members, noting that concerns about these costs may have motivated owners to sell. Miller, *supra* note 49, at 164.

farmers who held out earned *more* per acre for their lands.[88] Accordingly, there could not have been much capitulation and acceptance of lower prices among Owens Valley holdouts who had initially rejected Board offers. Indeed, the negotiating history between the Board and farmers indicates that the former moved as quickly as possible to acquire properties, using a pricing rule of paying the same prices for comparable properties in an area. There is no evidence that it strategically selected a few properties for purchase in order to pressure others to sell.[89]

V. The Bargaining History Between Farmers and Representatives of the LADWP

Negotiations between the Water Board and Owens Valley landowners took place in an agricultural land market. As such, water rights were bundled with the land under the common law doctrines of appropriative and riparian rights. Under the appropriative rights doctrine, the amount of water available and the ability to use water from a common supply were linked directly to the property.[90] The riparian doctrine allocated rights to stream water to lands adjacent to the streams. Accordingly, the Water Board had to purchase farm land in order to acquire water for the aqueduct.

The negotiations between the city and Owens Valley landowners were often acrimonious. In total, the negotiations took some 30 years to complete, though the key period was from 1923 to 1934. That period witnessed not only most of the land and water rights transfers, but also most of the violence that accompanied the negotiations over those transfers. The aqueduct was periodically dynamited during bargaining impasses, which attracted the attention of the local and national press. As a result, the governor, state legislature, and Los Angeles Chamber of Commerce sent investigative committees to the region in attempts to resolve disputes between the landowners and the Water Board. These events thus bring into sharp focus some of the major questions surrounding the Owens Valley water transfer. First, why did the negotiations over land and water rights take so long? And second, why were the negotiations so rancorous, leaving a harmful legacy for later water transfers? The answers to these questions can be found by closely examining three circumstances present in the negotiation process: (a) continuous disputes over the accurate measure of property values; (b) the existence of bilateral monopoly bargaining conditions; and (c) concern about

88. *See infra* note 145 and accompanying text.

89. Absent detailed maps of property location and purchase patterns, it is hard to determine whether there was a deliberate checker-boarding purchase strategy by the Board. Even then, observed checker-boarding of purchases might have been due to holdout strategies of farmers and not to the actions of the city.

90. Under appropriative water rights that dominated in the West, water could be diverted from its natural source to a particular property, with priority among competing claimants based on the date of diversion.

possible effects on third parties to the transactions. The record of the Owens Valley transfer underscores the potential complexity involved in these land and water transactions, especially with respect to search, measurement, and negotiation.[91]

A. Valuation Disputes

There were two conflicts in determining prices for Owens Valley lands.[92] One was the basis for general valuation of farm properties—whether the estimated water supply on a farm should have been valued by its worth to agricultural production in Owens Valley or by the amount that the water supply increased land values in Los Angeles. The second was the determination of the value of any particular property when farms were heterogeneous. In addressing the first problem, the Water Board naturally wanted to use Owens Valley farm values in determining the prices it offered landowners. Landowners, however, wanted to use much higher Los Angeles land and water values to determine the prices they demanded for their properties. For example, in testimony before the Board, one landowner claimed that she set the price for her farm according to what the farm's water was worth to the city of Los Angeles, telling the Board "we know you want water and not the land . . . . [T]hat is what you want and all you want . . . ."[93]

The second problem, the valuation of particular properties, was a continuing and important source of contention because the properties were so heterogeneous with respect to productivity and water. Some Owens Valley farms had access to neither irrigation ditches nor the Owens River. Others were located along small seasonal streams without access to irrigation ditches. These scattered farms were naturally the least productive in the region.

Cultivation generally required irrigation, and water was directed through ditches to those parts of the valley with the most fertile soil, the lowest elevation, and the most level terrain. Such lands were scarce, and although the most productive farms tended to be clustered in riparian areas or along ditches, even there, good land was not uniformly distributed across farms. This condition raised conflicts regarding the valuation of individual properties because there were few clear benchmarks for comparison. Further, a critical problem was how to value "excess water," amounts of which also varied across farms. In other words, a great deal of water was

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91. For summaries of transaction cost issues and concepts, see Douglas W. Allen, *Transaction Costs*, *in* 1 ENCYCLOPEDIA OF LAW AND ECONOMICS 893 (Boudewijn Bouckaert & Gerrit De Geest, eds., 2000) and THRÁINN EGGERTSSON, ECONOMIC BEHAVIOR AND INSTITUTIONS 20–32 (1990).

92. For a similar discussion of valuation disputes, bilateral monopoly, and third-party effects, see Libecap, *Rescuing Water Markets: Lessons from Owens Valley*, PROPERTY & ENVIRONMENT RESEARCH CENTER POLICY SERIES 24–27, Jan. 2005, *available at* http://www.perc.org/pdf/ps33.pdf. *See also* Libecap, Transaction Costs, *supra* note 61, at 7–20.

93. Testimony from Mrs. G.L. Wallace, *supra* note 76.

concentrated in certain parts of Owens Valley while other parts were comparatively dry. With limited arable land throughout the valley, not all of the water in well-endowed areas could be translated into additional cultivated acreage and significant agricultural production. As a result, water-intensive flood irrigation was common on the limited land available, and early observers commented on the profligate use of water by Owens Valley farmers.[94]

The problem of how to value "excess water" in the agricultural land market was especially troublesome for the small farms that had access to large quantities of the valley's water. Since the value of agricultural productivity in Owens Valley was the basis for water valuation, farmers with large amounts of water would be penalized because their extra water did not correspondingly increase agricultural output and was instead devoted to low-value uses. These farmers typically held out for higher prices, and were thus at the center of the negotiating disputes with the Board.

These negotiation disputes between the Board and the Owens Valley farmers were exacerbated by the parties' unequal bargaining positions. The farm owners, for example, had the most complete information about the agricultural potential and the amount of water held on their respective properties, and thus had the incentive to exaggerate these values. This placed the Board at a disadvantage since it had less complete information. Accordingly, to more accurately assemble offer prices, the Board relied upon a committee of expert appraisers to assimilate local farm productivity and price information. To reduce disputes with the landowners, the Water Board selected a committee that it thought would be viewed as credible and acceptable to both parties.

In 1925, the Water Board assembled its special Appraisal Committee, choosing three of the leading citizens of Owens Valley: George W. Naylor, Chair of the Board of Supervisors of Inyo County (Owens Valley); V.L. Jones, Inyo Assessor; and U.G. Clark, former County Assessor.[95] However, since the Board employed the committee, the landowners viewed it with suspicion. During negotiations in 1926, Owens Valley farmers demonstrated their suspicion by questioning the credibility of the committee's prices: "You hired that committee; we had nothing to say about it . . . . [I]f you people

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94. J.S. Cotton, Agricultural Conditions of Inyo County, California 4 (1905) (unpublished manuscript, on file with the Eastern California Museum, Independence), *in* SAUDER, *supra* note 30, at 94. For all Owens Valley farms, the mean number of acre-feet of water available per cultivated acre of land was 28. This figure ranged from 18 to 69 acre-feet per cultivated acre for farms on irrigation ditches, while farms not on irrigation ditches averaged just 14 acre-feet per cultivated acre. Not all of this water would be used, but these figures far exceed current irrigation levels in California, which range from 3 to 6 acre-feet per cultivated acre. *See* Libecap, Transaction Costs, *supra* note 61, at 35, tbl.1.

95. Letter from Purchasing Committee to Board of Water and Power Commissioners (Sept. 10, 1926) (collected in Correspondence June–December 1926 File, Tape EJ00086, LADWP Archives) (on file with author).

hire these men, you expect them to go into the field and do as you tell them don't you?" As a result of these concerns, both the appraisals and the committee often were rejected: "They have been your committee for a long time. Let us forget them."[96]

During the valuation process, Board land agents would collect information about each farm—location, water rights, amount of irrigated land in cultivation, pasture, brush land, orchards, improvements—and submit the information to the Appraisal Committee. The committee, in turn, would compare this information with that for similar farms that had already been purchased to arrive at an "appraised value." The Water Board generally used a fixed multiple, usually 4.1 times appraisal value, to determine its offer or bid price.[97] The Board wanted its offer prices to be based "on the fair average prices which the city had paid for substantially similar property in that region."[98] It repeatedly resisted adjusting prices beyond what it had offered for comparable lands in an area. When asking the Appraisal Committee to determine offer values for properties under consideration, one of the Board's land agents stated: "It is also to be understood that these properties are to be appraised in the same manner and on the same basis that you have appraised other properties of substantially the same character and in accordance with previous values . . . ."[99]

Nevertheless, landowners challenged the committee's appraised values and called instead for outside arbitrators to settle price disputes. The landowners had two bases for their complaints. First, they disputed the committee's practice of using the price paid for similar properties as a method for determining the value of their land. Second, the landowners often disagreed with the committee's assessments of the worth of individual farm characteristics. For example, one owner, who had been offered $3,100 for her property, complained that a neighbor had been offered $10,500, even though the neighbor's property was slightly smaller and provided access to less water.[100] Another wanted her land appraised against a different group of properties, selecting five farms whose owners had received more than she had been offered.[101]

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96. Testimony from Mrs. G.L. Wallace, *supra* note 76.

97. Resolution, Board of Water and Power Commissioners (July 20, 1925) (collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author).

98. Memo, Board of Water and Public Service Commissioners (July 21, 1926) (collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author).

99. Letter from E.F. Leahey, Water Board land agent, to Owens Valley Appraisal Committee (Oct. 10, 1925) (Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author).

100. Testimony from Mrs. R.C. Clapp, Ladies Committee, to Board of Water and Power Commissioners (Aug. 13, 1926) (transcript of proceedings collected in Owens River and Big Pine Canal File, Tape GX0003, LADWP Archives) (on file with author).

101. Testimony from Mrs. G.L. Wallace, *supra* note 76.

Measurement disputes often resulted in large disparities between the offered price and the requested price. For example, owners of the 160-acre Parker ranch asked for $30,000 for the property and improvements; land agents for the Water Board offered $11,496. The absence of comparison purchases in the area accounts for at least part of the gap. Although the owners later lowered their asking price to approximately $23,000, negotiations nevertheless languished for at least four years.[102] In another case, J.T. Otey rejected a bid of $11,200 for his 50-acre farm, claiming that the Board's assessment undervalued the water and improvements on his property. Using prices paid by the Board for neighboring properties with and without water, he estimated the added value of water, incorporated it into his calculation, and countered with an asking price of $18,338.56. He then held out for two years, eventually selling the farm to the city for $19,000.[103]

In 1925, Owens Valley farmers who were in conflict with the Board over price asked that the two sides set up a "valuation commission" to resolve their valuation conflicts. Even the special Appraisal Committee agreed, but the Board rejected this offer, claiming that "valuation by [a] third party would mean abandonment of [the] purchase plan adopted with [the] concurrence of your committee and thus far followed in dealing with your neighbors."[104]

B. Bilateral Monopoly Disputes

Disputes over valuation of critical water-bearing properties often took place within a bilateral monopoly context. This condition increased the costs of negotiation independent of the measurement issues discussed above. The Los Angeles Water Board generally was the only purchaser of Owens Valley lands and water rights. Furthermore, once the Los Angeles aqueduct was constructed for over $23 million, the city had a large, fixed, immobile investment that depended upon Owens Valley water. While Board officials could walk away from stalled negotiations with one landowner, they could not walk away from Owens Valley as a whole. Landowners, in turn, formed sellers' pools to collude in their negotiations with the Board. Although these pools never included all of the farmers in Owens Valley, they did involve those with the most water. So by the latter part of the 1920s, in the face of drought and continued population growth, Los Angeles was dependent upon

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102. Search of the Porter File, *supra* note 62, shows no entry for the Parker ranch to indicate that a final sale agreement was reached.

103. Letter from J.T. Otey to E.F. Leahey, Water Board land agent (Feb. 4, 1927) (collected in Sale of Lands File, Tape GX0004, LADWP Archives) (on file with author); Porter File, *supra* note 62.

104. Telegram from the Keough Pool Committee to W.B. Mathews, Special Counsel (July 22, 1925) (collected in Special Owens Valley Committee file, Tape GX0004, LADWP Archives) (on file with author); Telegram from Board President R.F. Del Valle to Karl Keough (July 28, 1925) (collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author).

securing those lands for filling the aqueduct. Under these circumstances, bilateral monopoly conditions developed, which served to frustrate and lengthen the negotiation process.[105]

The farmers who held shares in ditch companies had a ready organizational tool for colluding with one another in their negotiations with the Board—one that was not available to those scattered farmers lacking ditch access. Three sellers' pools were formed along two of the ditches: the Keough pool on the Owens River Canal with 23 members, the Watterson pool of 20 members on Bishop Creek Ditch, and the Cashbaugh pool of 43 members on Bishop Creek Ditch. These pools were negotiating groups, each dominated by the largest land owner. The pool leaders were recognized by the Board as bargaining agents for all pool members.[106] Members may have had to pay a commission to pool leaders for any higher prices they received.

At most, the pools involved about a quarter of the farms along the major ditches in Owens Valley. However, these farms contained a large amount of Owens Valley's irrigated acreage. The limited number of pools likely reflected the landowners' efforts to maintain more homogeneous negotiating groups, as well as the Water Board's aggressive efforts to buy ditch properties before landowners joined a pool. In 1923 and 1924, the Board responded to the strengthening influence of sellers' pools and the formation of a larger collusive bargaining organization (the Owens Valley Irrigation District), by aggressively buying up properties with ditch access. It acquired virtually all of the farms on the McNally and Big Pine ditches for $1,000,000 and $1,100,000, respectively, effectively ending efforts in Owens Valley to form an encompassing irrigation district across the major ditches.[107] The effects

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105. Bilateral monopolies have indeterminate pricing outcomes because they depend upon the relative bargaining power of the parties. Each party has incentive to misrepresent its position in order to extract a greater share of the gains from trade in such negotiations, and there is little competitive pressure to force more accurate information revelation. Accordingly, negotiations often break down and take a long time to complete. RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 62 (4th ed. 1992). *See also* OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS 238–47 (1975) (discussing the difficulties inherent in the negotiation and enforcement of oligopolistic agreements); Rodger D. Blair et al., *A Pedagogical Treatment of Bilateral Monopoly*, 55 S. ECON. J. 834–41 (1989) (advancing the proposition that achieving an optimal outcome in a bilateral monopoly "requires joint profit maximization," which is impeded by the disincentives to provide accurate information).

106. For an example of sellers' pool negotiation, see Memorandum, first Owens Valley trip of Committee appointed by Board of Public Service Commissioners by Resolution of October 14, 1924 (Collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author).

107. The role of the purchase of the McNally and Big Pine Ditches in thwarting the effective organization of the Owens Valley Irrigation District that would have united all of the sellers' pools is described in HOFFMAN, *supra* note 30. *See also* KAHRL, WATER AND POWER, *supra* note 20, at 279 (describing the extension of the city's reach into Owens Creek and media condemnation of the Board's principal actors); NADEAU, *supra* note 30, at 70–76 (describing the breakdown in efforts to form an organized water district that included the Big Pine Ditch, and the subsequent wholesale purchase of that land by the Water Department); SAUDER, *supra* note 30, at 140–43 (detailing the maneuverings of the Los Angeles Water Department, and other municipal entities, which would

of these preemptive purchases on relevant land prices are demonstrated below.

The Board paid $1,389,364 to buy out the properties in the Cashbaugh pool between 1924 and 1927. William Cashbaugh, the largest land and share owner in the pool, held out through 1927, and received $174,680, a 21% premium over the city's initial offer price of $145,180.[108] The Keough pool was led by Karl Keough, one of the largest landowners on the Owens River Canal. Of the 8,200 acres on the canal, the Keough Pool covered 4,482 acres, or 60%. In 1926, Keough pool members demanded $2,100,000 for their properties. The Board, however, first offered them only $1,025,000, though it later increased its offer to $1,250,000. The pool countered with a price of $1,600,000; the Board rejected that price as well.[109] Price negotiations for Owens River Canal properties, both in and out of the pool, continued on between 1925 and 1931. By the end of 1927, 60% of the 4,837 shares in the canal company had been acquired by the Board. The remaining 40% held by pool members was not secured until 1931. G.L. Wallace offered his lands in 1926 for $417 per acre; the city countered with an appraised price of $254 per acre. Final agreement was not reached with him until 1931, when the parties settled on a price of $466 per acre.[110]

Pool leaders often resorted to violence to pressure the Board to meet their price demands when negotiations broke down. Their destructive tactics threatened the security of the city's water supply. Between 1924 and 1931 the aqueduct and city wells were repeatedly dynamited, although the aqueduct was never seriously damaged.[111] These episodes of violence attracted state and national attention, and compelled the Board to reach price agreements with remaining property owners.[112] The Board realized that the dynamiting was a negotiating tactic, but it was extremely worried about

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eventually dismantle the Owens Valley Irrigation District and end resistance to land acquisition efforts by the LADWP).

108. Documentation of monetary distribution for the Cashbaugh Pool (collected in Fish Slough File, Tape GX0001, LADWP Archives) (on file with author).

109. Memo, Board of Water and Public Service Commissioners (July 21, 1926) (collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives) (on file with author); Owens River Canal Properties (collected in Sale of Lands File, Tape GX0004, LADWP Archives) (on file with author); Letter from Purchasing Committee to the Board of Water and Power Commissioners (July 21, 1925) (collected in Owens River and Big Pine Canal File, Tape GX0003, LADWP Archives) (on file with author).

110. Owens River Canal Properties, *supra* note 109; Letter from Karl Keough to F. Del Valle, President, Los Angeles Water Board (Feb. 24, 1926) (collected in Sale of Lands File, Tape GX0004, LADWP Archives) (on file with author); Porter File, *supra* note 62.

111. OSTROM, WATER AND POLITICS, *supra* note 49, at 121–24; WOOD, *supra* note 30, at 30–37.

112. *See, e.g.*, *California's Little Civil War*, LITERARY DIG., Dec. 6, 1924, at 15 (recounting the dramatic change in the negotiating tactics of the Water Board members following public acts of violence and defiance directed at the Los Angeles Aqueduct).

disruption of the aqueduct flow.[113] Indeed, in November of 1924 the Aqueduct's Alabama Gates Spillway was seized and opened, dumping the water into the desert and leaving the aqueduct dry. A nervous Board responded by increasing efforts to secure additional Owens Valley lands.[114]

By contrast, the Board's sales negotiations with those farmers without ditch access or sellers' pool affiliations appear to have gone smoothly. Many of the 869 farm properties purchased between 1916 and 1934 were not on ditches or in sellers' pools, and there is no evidence in the record of discord in those negotiations. In the data set described below, 228 of 595 farms were not on ditches. These properties tended to be the least productive in the region and thus received the lowest prices.[115]

Part of the reason for the smooth purchase negotiations between the Board and those landowners lacking ditch access was the Board's fear of adverse court rulings under *City of San Bernadino v. City of Riverside*.[116] In that case the California Supreme Court held that any land owner who could demonstrate damage to the water table from the pumping of water by another party could enjoin *all* groundwater pumping in the region. To maintain the flow of groundwater to the aqueduct, the Board quickly purchased properties whenever pumping injunctions were threatened by landowners.[117] Another reason for the ease of negotiations with these farmers was that the value of their farms was more closely linked with the available water supply, as their farms had less "excess water" (water not directly used in agricultural production) to be valued.

C. Third-Party Effects

Concern about possible effects on third parties to the Owens Valley water transfer transactions was the third circumstance present in the negotiation process that contributed to the negotiations' long length and rancorousness. These third-party effects involved issues of search (determining the relevant parties), measurement (assessing the extent of damage), and negotiation (agreeing on compensation). As Los Angeles purchased properties in Owens Valley and took them out of irrigated agriculture, townspeople complained that this action hurt the local economy and dam-

113. If the farmers had wanted to drive the Board out of the valley, they might have blown up the aqueduct. But this never happened. Most of the damage was minor. The Dynamite Holdup, Statement by the Board of Water and Power Commissioners (collected in Miscellaneous File, Tape GX0001, LADWP Archives) (on file with author).

114. WOOD, *supra* note 30, at 33–37; *see generally* HOFFMAN, *supra* note 30, at 185–88 (discussing the events surrounding the opening of the Alabama Gates Spillway, and the subsequent negotiations).

115. Porter File, *supra* note 62.

116. 198 P. 784, 788 (Cal. 1921). *See also* Katz v. Walkinshaw, 74 P. 766, 773 (Cal. 1903) (holding that the reasonable use doctrine applies to underground water, thus limiting watershed depletion through pumping).

117. Miller, *supra* note 49, at 161.

aged property values within the valley's five towns. The Board and landowners disagreed as to the magnitude of the third-party effects; local merchants claimed to have lost as much as one-third of their trade due to the decline in the agricultural economy.[118] The general deterioration of the national agricultural economy in the early 1920s also hurt the community, and this effect may have been difficult to separate from those generated by the Board's purchases. Including declining commodity prices, the value of Inyo County farm production fell by 34%, from $2,479,257 to $1,644,809, between 1920 and 1925.[119] This decline, however, occurred prior to most of Los Angeles' Owens Valley purchases. Further, during that same five-year period, the number of farms in the valley fell only 7.5%, from 521 to 482. Thus, it is unlikely that the Board's purchases during this period can alone account for the observed fall in the value of agricultural production.[120]

Nevertheless, town property owners blamed the actions of the Water Board for the deterioration in economic conditions. The Board countered by pointing to the beneficial effects of its investments in the valley, such as the development of water and power sites and the growth of recreational tourism made possible by the construction of new roads. Indeed, automobile registration and bank deposits in the region increased.[121]

California State Board of Equalization annual reports on the total value of all property within municipalities (real estate, personal, monetary) support the claims of the Water Board. In 1920 the total value of property in the largest Owens Valley town, Bishop, was listed as $1,027,792. By 1929 it had risen to $1,355,666 (a gain of 32%), and in 1930, even with the onslaught of the Great Depression, Bishop town property values totaled $1,228,709, 20% higher than their 1920 values.[122] Hence, any negative third-party effects resulting from the Board's purchase of farm lands may have been quite small.

Nevertheless, in 1925 the Owens Valley Reparations Committee demanded either that the Board pay $5.5 million for the loss in town lot value, or that the city purchase the properties for $12 million.[123] Not only were the prices for town properties well above what Los Angeles had been paying for other lands, but they carried few or no water rights. Hence, the Board was uncertain whether or not it had the legal authority under the city charter to purchase lands which did not provide the City with an adequate

118. NADEAU, *supra* note 30, at 96.

119. Owens Valley was the only agricultural part of the county.

120. Miller, *supra* note 49, at 164.

121. KAHRL, WATER AND POWER, *supra* note 20, at 297–98.

122. 1929–1930 CAL. ST. BD. OF EQUALIZATION ANN. REP. schedule E; 1919–1920 CAL. ST. BD. OF EQUALIZATION ANN. REP. schedule E. There was virtually no inflation in the 1920s that could have affected appraisals.

123. OSTROM, WATER AND POLITICS, *supra* note 49, at 123.

supply of pure water.[124] Members of the Los Angeles Water Board concluded that they would be personally liable if they made such payments.[125] Further complicating matters, there were disagreements over valuation of the town lots, given both the export of water from the region and the deterioration in the national agricultural economy in the late 1920s.

Legislation was enacted by the California Legislature in 1925, at the behest of Inyo County representatives and other rural legislators, requiring cities to compensate rural communities for damages incurred by businesses and property owners as a result of water reallocation.[126] "An Act Providing for and Relating to Damage Resulting from or Caused by the Acquisition of a Water Supply or Taking, Diverting, and Transporting of Water from a Watershed . . . by a Municipal Corporation" passed overwhelmingly, with 78% in favor in the assembly and 88% in the state senate. The greatest support came from legislators from northern California, who not only were more likely to represent rural areas, but were also concerned about the growing political influence of southern California. Support from southern California legislators was more tepid, with 50% voting "no" or abstaining in the Assembly.[127] The statute added pressure on the Board to buy the town properties or be faced with hard-to-measure-and-agree-upon reparations demands. Indeed, the Bishop and Big Pine Reparations Committees presented the Board with 548 property damage claims totalling $2,813,355.[128] Los Angeles officials held off the purchase of town lots until there was a state supreme court ruling in 1929 that authorized the purchase of town properties by the Water Board. After that, negotiations between the city and town lot owners were rancorous, requiring various appraisals, offers,

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124. Statement by Special Owens Valley Committee of the Board of Public Service Commissioners to Mayor's Advisory Committee (Dec. 16, 1924) (collected in Special Owens Valley Committee File, Tape GX0004, LADWP Archives).

125. *See* HOFFMAN, *supra* note 30, at 187–88 (noting the Board's conclusion that it would be without power to expend public funds to pay claims on account of shrinkage or depreciation, even if it could be proven that the city's purchase had caused the shrinkage); Report of the Special Owens Valley Committee to the Board of Directors of the Los Angeles Chamber of Commerce (Aug. 30, 1927) (collected in Correspondence, June–October, 1927 File, Tape GX0086, LADWP Archives) (on file with author).

126. Act of May 1, 1925, ch. 109, 1925 Cal. Stat. 251. Support was dominantly from rural and northern California legislators. The latter were concerned about the growing political influence of southern California. Legislature of California, Assembly Daily Journal, 46th Sess. (1925), *available at* http://192.234.213.35/clerkarchive.

127. Most opposition was shown through abstentions. In the Assembly, there were only 3 "no" votes, all from Los Angeles, but 15 abstentions. Southern California, where opposition was greatest, included Los Angeles, Santa Barbara, Riverside, San Bernadino, San Diego, Orange, Imperial, and Ventura Counties. Overall representation in the Legislatures still heavily favored northern California with 56 of the 80 members of the Assembly and 28 of the 40 members of the Senate. Votes from the Legislature of California, Assembly Daily Journal, 46th Sess. (1925), *available at* http://192.234.213.35/clerkarchive.

128. LADWP, Facts Concerning the Owens Valley Reparation Claims for the Information of the People of California, (collected in Printed Material, 1906–1931 File, Tape EJ00085, LADWP Archives) (on file with author).

and counteroffers.[129] The Water Board was obligated to buy the properties, and town owners knew that. The Board, however, was constrained by available bond funds.

A Committee of Ten, composed of two representatives from each of the five interested Owens Valley towns, was set up to negotiate town lot prices with three representatives of the LADWP (the "Special Owens Valley Committee") appointed by the Department to administer the town lot purchase program.[130] But the property value appraisals prepared by the Board's land agents were rejected by the town representatives. Negotiators for the towns offered counter-appraisals that raised proposed values in the towns of Laws and Independence by 45–50%, in Bishop by 120%, and in Big Pine by 60%.[131] Two members of the California legislature owned properties in the towns, and at least one, Senator Joe Riley, threatened to pass new legislation in 1931 unless the new appraisals were accepted.[132] Ultimately, a compromise was reached and Los Angeles paid $6,102,667 to 827 owners for 1,431 town parcels, most of which brought little or no additional water to the city.[133] The prices paid were based on 1923 values that existed prior to major purchases by the city in the valley, and they did not reflect the effects of the Depression on land values.[134] Funds to buy town lots and remaining agricultural properties in Owens Valley required a special bond election for $38.8 million that passed in 1930.[135]

VI. Analysis of the Outcome of the Bargaining—The Prices Received by Farmers and the Year of Sale

To better understand why the traditional negative view of the Owens Valley water transfer is incomplete at worst and inaccurate at best, it is helpful to analyze the statistical data generated by the negotiations. For purposes of analyzing the bargaining process between the Water Board and Owens

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129. *See* OSTROM, WATER AND POLITICS, *supra* note 49, at 126 (describing the negotiation process as one of appraisal, proposal, and compromise).

130. *Id.* at 125.

131. *Id.* at 126.

132. Letter from LADWP general manager to Senate Conservation Committee (Mar. 13, 1931) (Investigating Committee File, Tape GX0002, LADWP Archives) (on file with author); Letter from LADWP Legal Division to Senator Evans (Mar. 14, 1931) (collected in Investigating Committee File, Tape GX0002, LADWP Archives) (on file with author); Statement of status of Owens Valley ranch and town property purchase program by City of Los Angeles (collected in Investigating Committee File, Tape GX0002, LADWP Archives) (on file with author) (detailing land purchases by Senators Joe Riley and Don Williams of Inyo County).

133. OSTROM, WATER AND POLITICS, *supra* note 49, at 126; Summary, Status of Town Purchases in Owens River Drainage Area, Aug. 31, 1932, Tape GX0007, Town Properties File, LADWP Archives.

134. NADEAU, *supra* note 30, at 125.

135. HOFFMAN, *supra* note 30, at 253. Note that only $6.6 million of the bond revenue was used for Owens Valley purchases; the remainder was used for land purchases in Mono County.

Valley farmers, the data set of farm properties purchased between 1916 and 1934 by the Board includes 869 observations.[136] Dropping those properties of less than ten acres as not being farms, but most likely town lots, as well as dropping incomplete entries, leaves 595 observations. Of those, 367 were part of formal ditch companies, while 228 were not, and were instead scattered throughout Owens Valley.[137]

Farms on ditches sold for higher prices per acre, and greater total prices, than those that were not on ditches. The mean per acre price for farms lacking a ditch access was $82, between one-third and one-fifth of what was received by farmers with ditch access in various groups.[138] Ditch farmers had higher percentages of cultivated land, had more water per acre of land, and their owners were more likely to be in a sellers' pool. Those farmers who were in the Keough pool commanded the highest price per acre of land (receiving $443 per acre as compared to an average of $198 for all farms), they sold the latest (held out the longest), and had the most water per acre to offer Los Angeles.[139] Members of the other two pools, Cashbaugh and Watterson, also did better on average in terms of price per acre with $242 and $237 respectively.[140] Even non-pool members who were on ditches earned more in total and per acre of land than did the non-ditch farmers. These farmers benefited from the early actions of the Water Board to purchase their farms before joining a pool.

In contrast, properties lacking ditch access sold for less. They typically had a smaller share of cultivated farmland, carried less water, and their owners were unorganized. Although they received less for their land, these farmers earned *more* per water acre-foot than did farmers more favorably located on ditches, $473 per acre-foot as compared to $77 per acre-foot for Keough members, for example.[141] This outcome reflects the purchase of a bundled asset in the land market. At minimum, the Board had to pay a price that equaled the agricultural value of a farm in order to secure it and its water from the owner. If not all additional water on a farm translated directly into increased agricultural production, then farmers with less water were likely to receive more per unit of water than did their counterparts who had larger water endowments. The issue of pricing for water was a key one in the contentious negotiations between the Water Board and those Owens Valley farmers who had the most water.

For less productive farms without ditch access, the average farm sale price was $19,890.[142] This average price is somewhat less than the mean

136. Porter File, *supra* note 62.
137. Taken from Libecap, *Chinatown*, *supra* note 61, at 35 tbl.1.
138. *Id.*
139. *Id.*
140. *Id.*
141. *Id.*
142. *Id.*

1925 census farm value for the four comparable Great Basin counties (Lassen, California; Churchill, Douglas, and Lyon, Nevada) of $21,167,[143] but these farms were the least productive units in Owens Valley.[144] A sale value of nearly $20,000 corresponded to roughly six years of gross farm receipts for Inyo County farms during a time of agricultural depression. It is no wonder then that farmers without ditch access sold quickly whenever they had an offer, without discord.

Controlling for other factors, econometric analysis reveals that the per-acre price received by a farmer increased by $32 for every year sale was delayed.[145] The Water Board on average paid more for properties the longer the owner held out for higher prices. This return was the basis for the holdout strategy that was most effectively used by the Keough pool members.

All told, the record outlined here is one of commercial negotiations between parties seeking to maximize their returns from the sale of land and water under different bargaining settings. It is not a record of unwitting farmers being exploited by an all-powerful city. In bargaining with the city, some farmers sold quickly without dispute. But the pool farms were involved in the most contentious negotiations, as those negotiations were plagued by water valuation disputes and the bilateral monopoly conditions characteristic of the Owens Valley process. The negotiations over these properties helped to give the Owens Valley water transfer its reputation as a transfer with a contentious history.

VII. The Impact of the Water Transfer on the Agricultural Economy of Owens Valley—A Comparison With Other Regions

A key part of the Owens Valley story is the myth that Los Angeles stole the valley's farmland and water and left it a wasteland. Data exist to analyze those claims. The Water Board spent more than $18,580,000 through 1934 for agricultural properties, and more than $6,102,667 for town parcels.[146] As the Water Board purchased Owens Valley lands and sent its newly acquired water down the aqueduct to Los Angeles, irrigated agriculture was replaced by livestock raising. Farms and ranches were leased from the Water Board and consolidated into larger ranches. The evidence suggests that landowners in Owens Valley did better in selling their farms than if they had stayed in

143. *Id.* at 24.

144. *Id.*

145. *See* Libecap, Transaction Costs, *supra* note 61, at 37 tbl.3b (indicating that the coefficient of the estimated year of purchase equals $32.39). To ensure that the estimation was not biased, a two-stage simultaneous system was used. *See id.* at 24, 47 n.62.

146. Farm properties total from Porter File, *supra* note 62; Town properties total from Summary of Town Purchases (collected in Town Properties File, Tape GX0007, LADWP Archives) (on file with author).

agriculture. This assessment conflicts with the usual view of the water and land sale as one of "theft" by Los Angeles.[147]

Census data reveal that between 1900, before the aqueduct was planned or had delivered any water, and 1930, when most farms were purchased, land values in Owens Valley rose by around a factor of 11, increasing from an average of $13 per acre to $143.[148] By contrast, land values in Lassen County, California, a similar Great Basin agricultural county, rose by a modest two times over the same 30-year period, from $10 per acre to $21.[149] These data suggest that most of the rise in land values in Inyo County (Owens Valley) was due to land purchases by Los Angeles and not due to changes in agricultural commodity and livestock prices.

Census data also provide evidence of the gains from trading Owens Valley water. Between 1900 and 1930, the value of agricultural land and buildings in Los Angeles County rose by $407,051,000,[150] an increase of nearly 600%, mostly due to the increased migration and development opportunities made possible by arrival of Owens Valley water. During that same time period, the value of agricultural land and buildings in Inyo County rose by $11,568,000, an increase of over 650%.[151] By contrast, farm property values in Lassen County increased by $6,306,000, or 172%, from 1900.[152] Again, the baseline Great Basin county does not do as well.

If one uses property value data from the California State Board of Equalization a similar picture emerges. Each year the Board of Equalization reported the "Grand Total Value of All Property" by county and municipality. The data include the value of real estate (farm and non-farm), improvements, personal property, money and solvent credits, and railroad assessments.[153] Between 1900 and 1930, the total value of all property in Lassen County rose by 640%; in Inyo County by 917%; and in Los Angeles

147. *See, e.g.*, Broder, *supra* note 41, at A18 (referring to the Owens Valley transfer as a "stealthy and fateful land grab" that occurred a century ago).

148. FARM REAL ESTATE VALUES IN THE UNITED STATES BY COUNTIES, 1850–1959, at 68 (Thomas J. Pressly & William H. Scofield eds., 1965).

149. *Id.*

150. *See id.* (listing the price per acre in Los Angeles County as $907 in 1930). *See also* The University of Virginia Library Historical Census Browser, *at* http://fisher.lib.virginia.edu/collections/stats/histcensus/ [hereinafter Census Browser] (providing census data for Los Angeles County for 1900 and 1930).

151. *See* Census Browser, *supra* note 150 (providing census data for Inyo County for 1900 and 1930). The value of agricultural land and buildings rose from $1,801,810 in 1900 to $13,559,534 in 1930, an increase of 653%.

152. *Id.* These figures are only representative of the actual gains from trade. The data for Los Angeles do not include increases in urban land values; the amount of agricultural land in Los Angeles declined by approximately 369,000 acres between 1900 and 1930. Similarly, the amount of farm land in Inyo County declined by approximately 46,000 acres, whereas in Lassen County farmland grew by approximately 92,000 acres. Nevertheless, the data are indicative of the values involved.

153. *See, e.g.*, 1900 CAL. BD. OF EQUALIZATION ANN. REP. schedule D, at 25; 1930 CAL. BD. OF EQUALIZATION ANN. REP. schedule C, at 48.

County by 4,408%. While the growth in Los Angeles dwarfed that in the other two rural counties, the value of all property in Inyo County grew by 43% more than in Lassen County during the thirty-year period of major Los Angeles land purchases in Owens Valley.[154]

An alternative way to assess the impact of Owens Valley land sales is to consider the following counterfactual scenario: Los Angeles purchased no Owens Valley lands and exported no Owens Valley water, Inyo County farm acreage expanded at the same rate as the acreage in Lassen County, and Inyo County land prices increased at the same rate as the Lassen prices. Under this plausible hypothetical, farm land values would have been $4,547,738 in 1930 in Owens Valley.[155] But this value is over $9,000,000 *less* than the actual census valuations at that time.

Regardless of how the gains are measured, using Lassen County as a baseline reveals that Owens Valley landowners did better on average by selling to Los Angeles than they would have had they remained in irrigated agriculture. Owens Valley landowners captured part of the same aggregate gains of trade as the property owners in Los Angeles did. These data are indicative of the dramatic size of the same aggregate benefits of this early water exchange, even when none of the increase in urban land values in Los Angeles is included.

In total, the census and state Board of Equalization data suggest a more positive bargaining outcome than is commonly suggested for Owens Valley. The export of water reduced crop production as a share of overall agricultural output and encouraged a shift toward livestock. But this pattern also took place elsewhere in the Great Basin. The comparative advantage of the region lies ultimately with its potential for successful livestock raising, so there would have been a gradual shift away from crops in Owens Valley even had the aqueduct not been built. Owens Valley was not left a wasteland as is sometimes alleged. Nor would its small orchards and other crops have likely remained competitive in the long term even had water remained in the valley. The export of water did change agriculture and life in Owens Valley, but it was not dominantly a negative change, nor was it decidedly different from that which occurred in agriculture throughout the Great Basin.

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154. These figures were calculated using data gathered from the sources listed above in note 153.

155. These values are calculated from 1900 and 1930 census data as follows: Inyo County had 141,059 acres of farmland in 1900; Lassen County had 381,109. In 1930, Lassen had 473,268 acres, an increase of 24%. Had Inyo farm acreage grown in the same proportion, then in 1930 Inyo would have had 174,913 acres. The value of Lassen farm acreage doubled from 1900–1930; Inyo values were $13 per acre in 1900. Using the Lassen value increase just mentioned, Inyo values would have increased to $26 per acre. Multiplying the hypothetical $26 per acre value by the hypothetical 174,913 acres, the estimated 1930 value for Inyo Valley farmland equals $4,547,738. For the Lassen Valley census data, see Census Browser, *supra* note 150.

VIII. Concluding Remarks: Fairness Issues and the Origin of the Notion of "Water Theft"

The positive assessment of the outcome of the Owens Valley water transfer outlined in the previous Part contrasts sharply with the usual highly negative view of the Owens Valley land sale and water transfer. Given this finding, the following question arises: Where does the notion of "water theft" come from?

In part, the sense of theft of property from the land and water transactions comes from the pool farmers' inability to capture more value from their water holdings as they negotiated in an agricultural land market. They wanted prices that more closely reflected water values in Los Angeles, as opposed to the water's value to Owens Valley agriculture. But they were not able to do so. Their "cartel" was not strong enough. Pool farmers were at the center of negotiation conflicts with the Water Board. Within this group were those who held out the longest before agreeing to sell, who mobilized opposition in the valley to Board offers, and who were implicated in the periodic dynamiting of the aqueduct that attracted local and national press attention. Although these pool members had some of the largest water holdings in Owens Valley, they received less per acre-foot of water than did either the farms lacking ditch access or those farmers on ditches who were rewarded by the Board for selling and not joining a pool. In the bilateral monopoly negotiations that ensued, pool farmers were able to secure higher per acre land prices, but not by enough to fully compensate them for their greater water endowments.

As described above, the "implicit" prices for water purchased range from $473 per acre-foot for non-ditch farms to $77 per acre-foot and $69 per acre-foot for Keough and Cashbaugh pool farms, respectively.[156] These figures translate approximately into prices for an annual flow of raw water of $20.47, $3.33, and $2.99 per acre-foot, respectively.[157] During the same period, Los Angeles was willing to pay about $9.50 per acre-foot for water from the Colorado River.[158] If the figures are representative of the

156. Libecap, Transaction Costs, *supra* note 61, at 35, tbl.1.

157. The implicit prices also of course include other farm property. The conversion is based on the present value of an annuity at 3% for 40 years (3% being the mean high-grade municipal bond rate between 1920 and 1960). *See* U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 73 (2003) (listing the high grade municipal bond interest rates for each year from 1900 to 2003, and showing a mean of 3.23% after computing the mean using the rates from the period of 1920 to 1960), *available at* http://www.census.gov/statab/hist/HS-39.pdf#search='Municipal%20bond%20rates%2019201960'.

158. *See* NORRIS HUNDLEY, JR., THE GREAT THIRST 229 (2001) (noting approval of a bond issue for $220 million). This was to bring 1.1 million acre-feet to the city, although only 550,000 acre-feet ultimately arrived. At 3% for 40 years, the implicit acre-foot price for an annual flow was $9.50. Colorado River water required pumping to maintain the aqueduct flow. *See* Steven P. Erie, *Mullholland's Gifts: Further Reflections upon Southern California Water Subsidies and Growth*, 37 CAL. W. L. REV. 147, 155 (discussing the apportionment of California's share of Colorado River water).

distribution of benefits of trade, they demonstrate that only a few non-ditch farmers came close to capturing the gains of trade for water, while none of the pool farmers who were at the heart of the conflict did.

The second and related source of the notion of theft of property comes from the huge imbalance in the distribution of the total gains from trade. The census data presented above indicate that the overall gains to Los Angeles from the redistribution of water were 40 times more than those of Owens Valley.[159] The perception of unfairness over the terms of trade was also driven by the nature of supply and demand for water. Urban users had relatively inelastic demand, whereas farmers competing for sale had comparatively elastic export supply. Hence, Los Angeles residents gained considerable consumer surplus from the transaction. The effort of farmers to obtain more of the gains of trade in negotiation explains the formation of and greater relative success realized by the sellers' pools. Even so, a disproportionate share of the returns went to Los Angeles.

When the gains from trade are very large, distributional outcomes move to the forefront as they did in the Owens Valley negotiations. Generally, trades are smoother when the benefits are shared reasonably equally, and encounter more difficulties when the distribution is very skewed toward one party.

In the Owens Valley case, those farmers who expected to unambiguously benefit from outside purchases by Los Angeles—non-pool farmers without ditch access who had the least productive farms and status quo opportunities—concluded transactions quickly and smoothly based on the agricultural value of their lands. On the other hand, those farmers with the most water and productive farms and greatest status quo opportunities were the ones on the margin. When they entered into transactions with the Water Board, they attempted to secure prices based on the value of water in Los Angeles, not in Owens Valley agriculture, although actual translation of Los Angeles values to their properties would not have been clear cut. These farmers formed sellers' pools to increase their returns through bilateral monopoly bargaining. Knowledge of the value of water in Los Angeles was limited and what was known was asymmetrically held by the Water Board. Additionally, because of defections, these pools never involved enough of the farmers in Owens Valley to extract a much larger share of the gains of trade. Most of the gains went to Los Angeles, and bitterness over the negotiation process and the distributional outcome remains today.

Similar fairness concerns over the distribution of the gains from trade arise in other settings. Richard Epstein points to incomplete compensation in government taking of private property for infrastructure investments. Compensation is based on market valuations of properties, but these may not

159. This figure is based on the difference in the rise in value of agricultural land and buildings in Los Angeles County and Inyo County between 1900 and 1930—$407,051,000 as compared to $11,568,000. Census Browser, *supra* note 150.

offset subjective values held by owners.[160] This situation would be comparable to that of the Owens Valley landowners who believed that their excess water holdings were not properly valued in the land market transactions with the Water Board. Distributional disputes also arise in ultimatum games where an exogenously provided sum of money must be divided between two parties for either to get anything. In laboratory experiments, minimal offers from the first player to the second are rejected as unfair, even though the latter is better off with any positive amount. Observed distributions are close to half for each player, rather than low initial offers from the first player and high acceptance rates by the second.[161]

Fairness in compensation issues is important in contemporary water transfer efforts. Valuation disputes, bilateral monopoly factors, and concern over possible third-party effects complicate measurement and negotiation between representatives of urban areas and irrigation districts in water negotiations.[162] The long and tortuous record of negotiations in Owens

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160. RICHARD EPSTEIN, BARGAINING WITH THE STATE 88–89 (1993). Subjective valuations are very difficult to measure, credibly convey, and agree to in voluntary transactions, let alone in forced ones, and the state is unlikely to agree to them. Wiggins and Libecap make a similar point regarding disputes over valuation of oil field leases in voluntary efforts to unitize, when it is difficult for all parties to verify the claims made by individual owners. Steven N. Wiggins & Gary D. Libecap, *Oil Field Unitization: Contractual Failure in the Presence of Imperfect Information*, 75 AM. ECON. REV. 368, 369–71 (1985). Gurr tests a causal model of civil strife and discontent across countries, and among the statistically significant variables are legitimacy of the regime and deprivation, where deprivation is defined as the difference between actors' perceptions of the difference between their value expectations (what they expect to receive) and value capabilities (what they actually receive). Ted Gurr, *A Causal Model of Civil Strife: A Comparative Analysis Using New Indices*, 62 AM. POL. SCI. REV. 1104, 1104–24 (1968).

161. *See* Colin Camerer & Richard H. Thaler, *Anomalies: Ultimatums, Dictators and Manners*, J. ECON. PERSP., Spring 1995, at 209, 210–13 (discussing the phenomenon of players in the "ultimatum game" rejecting low offers regardless of self interest, and how perceived fairness influences these rejections); Erte Xiao & Daniel Houser, Emotion Expression in Human Punishment Behavior 7–10 (2005) (unpublished manuscript, on file with author) (reporting that in laboratory experiments, people are not happy with "unfair" offers, and that this unhappiness has behavioral consequences). It remains to be determined how far these laboratory results carry to actual market settings. Nevertheless, they seem instructive for understanding the Owens Valley legacy.

162. There are other efficiency concerns if the export of water involves the extraction of subsurface, common-pool ground water basins. For a discussion of these additional concerns, see HANAK, THIRD-PARTY ISSUES, *supra* note 9, at vi–vii (discussing the lack of state level protection of third-party ground water users in California, and the rural community response to this issue); Hanak, *Stopping the Drain*, *supra* note 9, at 59–77 (highlighting the efficiency concerns raised by the absence of statewide regulation of ground water use in California); and Knapp et al., *supra* note 8, at 298–99 (discussing the efficiency implications of active ground water management). For further discussions of third-party effects on water transfer negotiations, see Bonnie G. Colby, *Regulation, Imperfect Markets, and Transaction Costs: The Elusive Quest for Efficiency in Water Allocation*, *in* HANDBOOK OF ENVIRONMENTAL ECONOMICS 475 (Daniel Bromley ed., 1995); Howe, *supra* note 8, at 92–93 (discussing the tradeoff between individual property rights and regulation for protecting third-party interests); Richard E. Howitt, *Effects of Water Marketing on the Farm Economy*, *in* SHARING SCARCITY: GAINERS & LOSERS IN WATER MARKETING 99–103 (Harold O. Carter et al. eds., 1994) (noting the inevitable balancing of property rights against third-party interests); and Howitt, *Empirical Analysis*, *supra* note 8, at 364–70 (reporting on a 1992 case study of the third-party impacts attributable to water markets in two California counties). Major

Valley, despite large ex post aggregate gains from trade, provides evidence of the importance of resolving distributional conflicts in determining the timing and ultimate success of water transfers. Given the likely surpluses generated from the reallocation of water, the basis for addressing such concerns seems to be at hand. The allocative benefits will most likely swamp distributional demands.[163]

ongoing negotiations in the U.S. West involve the Imperial and Palo Verde Irrigation Districts in California. Third-party effects on these negotiations are discussed in THIRD PARTY IMPACTS OF THE PALO VERDE LAND MANAGEMENT, CROP ROTATION, AND WATER SUPPLY PROGRAM (Northwest Economic Associates ed., 2004).

163. Dellapenna also points to the importance of distributional concerns in water markets. Joseph W. Dellapenna, *The Importance of Getting Names Right: The Myth of Markets for Water*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 317 (2000).