

What Price Water Marketing?:

California's New Frontier

By Mason Gaffney*

ABSTRACT. We can multiply the value of output from limited natural water supplies by allocating them to higher uses. To this end we need a market in raw water, but existing markets work badly, for several reasons. Sellers are undermotivated, absent taxes or debt. Free groundwater subverts the pricing of surface water. Loss of elevation, and damage from effluents, and instream uses are not charged for. Obsolete subsidies abound; obsolete entitlements dominate allocation. Some trades extinguish public rights. Rent-seeking distorts allocation. Needed public agencies have been subverted by organized land speculators. Recommendations are given.

I

The Delayed Coming of Water Marketing

THIS WRITER HAS A LONG TRACK record, from 1960, championing water marketing. In those days we were beset by those saying we already had it, others saying it would be a disaster if we did, and some saying both things at once. Now, however, market champions are popular—even legitimate—and their philosophical burden is light. This might seem a blessing, but doctrinaire marketeers may have carried a good idea too far. The first step toward the market solution is always to convert existing tenures, which are now conditional and temporary, into absolute property rights. This move wipes out obligations to the public—yet usually includes within the property obligations so created duties by the public to subsidize the owners. Firm up property rights, the market champions say, give out negotiable titles on all water sources, declare a free market, and let the good times roll (Phelps et al. for the RAND Corporation, 1978; Anderson, 1983b).¹

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At this time, water marketing is the rage. In 1982, a forward-thinking legislator, Richard Katz (D-Sylmar), sharing in part the Anderson-RAND viewpoint and seeking more water for Southern California, carried a statute to remove certain ancient legal barriers to selling or leasing water permits.² The Environmental Defense Fund, originally a reforming group, has turned into more of a brokerage house, combing the state to negotiate deals. In 1986 a new Katz bill passed, letting private water sellers use conveyance facilities of public agencies.³

A third Katz bill died in 1991. Senator John Seymour, during his brief tenure, tried a bill to let federal water be sold, with existing subsidies firmly attached. Senator Bill Bradley along with Congressman George Miller tried a bill with at least token recoupment of public costs required, and stricter acreage limitation. It has been a busy time for water marketing legislation.

II

Water Is The "Yield-Cutting Substitute"

CRITICS OF WATER MARKETING FRET that areas losing water may become unproductive. No doubt there are cases in point. Elsewhere, however, overall potential gains from reallocating water actually exceed what simple calculations predict. That is because water, in many areas, has been used as a "yield-cutting substitute"—a term I have had to coin for lack of standard theoretical treatment of what should be a basic tool of economic analysis. Water is such a potent substitute for labor and capital that more water often means lower yields from each acre. The productivity of water is measured, not in higher yields, but in lower labor and capital costs that raise net rents in spite of *lower* yields. I am not aware that farm production economists have ever faced up to this phenomenon and its implications.⁴

Thus, *less* water per acre may mean *more* output per acre, an uncommon and momentous relationship. Conversely, when water is cheap it is substituted for labor and capital. The effect of cheap water may be seen in Fresno, Kings, and Tulare Counties, California. Their populations grew by 32 percent during the 1940's when water was expensive. Then they received an influx of cheap water from two federally subsidized projects: The Pine Flat Dam on the Kings River and the Friant-Kern Canal of the Central

Valley Project. For the next 30 years their populations stopped growing and even fell through outmigration (Ballard, 1980, p. 30).

In Tulare county, in 1974, wages and salaries accounted for only 50 percent of income payments (*California Statistical Abstract*, cit. Ballard, 1980, p. 28). Farms receiving the federal water subsidy were 7.2 times larger, on the average, than other California irrigated farms (calculated by Villarejo, 1986, p. 20). By 1980 California's Central Valley contained six of the ten American cities with the highest proportion of people on welfare (*Metropolitan Area Fact Book*, 1984, cit. Villarejo, 1986, p. 109). Two of them were Visalia and Fresno, in the region receiving federal water.⁵ Cheap water has not converted the Great Valley into a beehive any more than cheap power has converted the Tennessee Valley. Indeed, it has degraded life in the Great Valley.

When water is dear, and users perceive that dearness, less is used. Less is used because users switch from primitive furrow irrigation to sprinklers, spitters, and drip methods, thereby conserving water. This in turn allows for innovative techniques such as growing avocados on steep hillsides formerly considered wasteland. These water conservation efforts produce a yield representing more dollars of product for less water.

The fact is, farmers cannot afford to dump high-priced water on barley, or alfalfa, or rice, or irrigated pasture. Yet today, these low-valued crops still drink up most of California's water (Dean's Committee, 1968, p. 48) while using under 10% of its farm labor (Mitchell, 1993). A number of fairways and even cemeteries would also give way to higher-valued uses if water were priced dearly.⁶

Professor Mark Kanazawa correctly reminds us that the U.S. Bureau of Reclamation (BR) uses non-price rationing in many service areas, so its projects may have less surplus to export than its pricing policy alone suggests to the theorist who looks only at price. However, in this case the price theorist is basically right. There are leaks in the non-price rationing system. There is no effective limit on the amount of land for which an individual may obtain water rights but he may apply that water to less land, and pump groundwater for the rest. Groundwaters replenished from BR imports are not considered supplied by the project, hence this water usage is not limited or counted. Besides, the BR is serving whole farms and huge districts that cannot pay the true social cost of storing and delivering water. In other words, the opportunity cost of using water is in many instances not covered

by the subsequent (marginal) value that is produced by the extra water consumed.

All of this leads to a wonderful corollary: You can tax water withdrawals without hurting the water-based California economy. A simple solution to many of our intractable water problems would be a severance tax on water withdrawals.⁷ Legally, if you can regulate it you can tax it.⁸ A tax, properly gauged, is an economic price charged by the owner of water (the State of California) for using its scarce property. If the market champions, along with Chicago-School economists and allied "new resource economists," were more thorough in their support for the price system (and less mistrustful of the taxing power of legislatures), they would boost this application of basic price theory with all their influence and talent.

III

Barren Results of Water Marketing

SADLY, THE RESULTS OF THE WATER MARKETING MOVEMENT thus far have been meager, considering the pent-up pressures for economical transfers.⁹ There are offers and refusals but a wide gulf still exists between negotiation and any consummation of a deal. The water market is still only as fluid as glue, if that. Only one of the larger deals has reached a final result, and that only partially and haltingly.¹⁰ This was true even during and after five years of drought from 1986 to 1991, with severe crises in Santa Barbara and Marin Counties, whose respective abilities to pay cash for water are substantial.¹¹

In 1991 Assemblyman Katz moved a third time, seeking to remove still more obstacles to water sales (Ellis, 1991b; Ellis, 1991c). His latest proposal was to let individuals sell without the approval of the water districts that serve them. This tracked a major RAND recommendation (Phelps et al., 1978). Katz's proposal enjoyed editorial support of the *Los Angeles Times*, ever thirsting.¹² This move failed.

Water marketing is a worthy goal and deserves support. Katz's 1991 move, however, carried this doctrine beyond reasonable limits. The problem is, this change would have subverted the integrity of rural district distribution systems.¹³ It would not tap a new artery, but rather only tap a scatter of local capillaries.¹⁴

Actually, some Mutual Water Companies already provide long experience with alienable individual shares. It took a state constitutional amend-

ment, but irrigation districts can and do buy and hold shares in these companies (Gaffney, 1961). It would be prudent to observe the results. In the Kaweah Delta, this has resulted in Balkanized, intertwined, overlapping, money-wasting, water-wasting distribution lines and service areas that cry out for rationalization and economy (Gaffney, 1961). Frustration over market torpidity could lead to damaging, ill considered measures. This one, fortunately, died.¹⁵

Senator Katz, in this case, did not identify the basic causes of market torpidity. Water is already legally alienable, after a fashion, and has been for many years. California Water Code Sections 1700–05 spell out the procedures. According to a 1942 California case, “The appropriative right is—separable and alienable from the land to which it became initially appurtenant; . . .” (*Wright v. Best*, 1942, cited in Hutchins 1977, Vol. III, p. 191). In 1940 the Madera Irrigation District (I.D.) sold its water “filings” on the San Joaquin River to the U.S. Bureau of Reclamation for the Central Valley Project (Downey, p. 6). More generally, galloping urban sprawl in southern California has been watered by continual urbanization of indigenous farm supplies, using legal condemnation procedures and the legislated domestic priority where necessary.

“Water banking,” too, has been around a long time. In the 1940s and 1950s bureaucrats in the BR tried to implement water pooling along California’s Friant-Kern Canal (a facility well suited to it). They were implementing a policy of President Franklin D. Roosevelt, who consistently ordered that “all units of the plan should be fully coordinated on a regional basis” (Maass 1951, p. 233 et passim). They promoted the “9(e)” or utility form of contract under which water ownership never vested in the land-owner-customer, but only in the seller, who provided it to customers for a price: no pay, no water. Water had to be measured. Water could be exchanged. There was room for periodic review, renegotiation, repricing, and reallocation (Graham, 172–90; Taylor, 1949; DeRoos, Chap. 11).¹⁶

The BR’s avowed aim was to act like a public utility, so each reservoir and canal “would be operated in coordination with other reservoirs and canals in the comprehensive plan to deliver water to all areas in the most economical manner” (U.S. Bureau of Reclamation, 1949, p. 127; California Farm Bureau Federation, p. 62 ff.). The concepts of planning, coordination, and integration were not federal impositions, as later alleged, but had originated in California in the 1920s as “The Marshall Plan,” promoted by Rob-

ert Bradford Marshall and other private Californians (notably Rudolf Spreckels the sugar grower).¹⁷ The disputed 9(e) or utility-type contracts had also originated in California in 1935. The U.S. did not authorize them until four years later. It was California itself, represented by the very persons who had defeated Upton Sinclair and his programs, that invited the Federal Government into the state in order to get federal money.¹⁸

The BR's personnel wrote and spoke of "pooling" and "integration" and sending water "to whichever demand develops first." "Conjunctive use" of surface and ground reservoirs was a buzzword. They were, in short, to act on a regional scale the way city water departments act locally, and rationalize a Balkanized system. They were doing so only with new waters they developed, leaving existing uses undisturbed and unpriced.¹⁹ They were doing so only as a wholesaler, leaving retailing to existing local districts (Maass, 1952, p. 546). The contracting local districts could and did sell surplus contract waters outside their boundaries. Much of it was used for recharge.

In the 1977 drought there was active banking along the California Aqueduct (ironically, from south to north, and from urban to farm use) (Angelides and Bardach, p. 17; Robie, p. 49). In 1977, the American Congress authorized the BR to broker water sales (Robie, p. 49; Saliba and Bush, p. 113; Wahl, pp. 136–38).

There is more to reallocating water than the simple "free trade in water" philosophy imagines. What obstacles are really gluing up the market?

IV

Under-Motivated Sellers

AS WATER HAS LONG BEEN legally alienable and transferable, something else must be wrong. A major flaw in the market is this: the sellers are not motivated to sell. Water flows are perpetual; sellers do not feel much urgency. Unmotivated sellers may dally coyly, while every year the demand for their water rights rises. Real estate brokers understand this very well from costly experience. They learn to screen out unmotivated sellers, who waste everyone's time dallying. The broker's delight—the motivated seller—is typically an ordinary family moving to Pennsylvania. Anyone with surplus land subject to debt and/or property taxes will also be moti-

vated. The *cash drain* is what attracts the attention of any seller and motivates him to sell.²⁰

Farm water districts are the broker's despair. They are not moving to Pennsylvania, even if the particular individuals in those districts do. The lands they serve are not moving. Water permits are free of debt (banks don't lend on precarious tenures), and generally *free of property tax*. Water districts with surplus waters are like hoarders during an energy crisis except that the condition is perpetual. Demand keeps growing—so why not hold out another few years?

Another factor described by the Westlands Water District Public Relations officer Mr. Rob Leake is the "general reluctance" of growers to sell water, thereby creating "the perception that there are surpluses . . ." (Levin, 1988.) Those with precarious tenures know they are insecure, and tiptoe accordingly.²¹ Water marketing champions have a simple answer, they want to make all tenures secure and all tenures marketable. It is not so simple to do this, in practice however.

The few big deals that eventually will be cut will not achieve much. The real estate market works because there are hundreds of thousands of deeds recorded every year. Ownership rights are clearly defined and publicly proclaimed at the Registry of Deeds in the county court house. Title transfer procedures are (relatively) cheap and easy to accomplish. An efficient water market would call for the same level of activity; but such a market and its attendant institutions is nowhere in sight. What is necessary to change the motivation and get this market working is some constructive use of taxation: property taxation, severance taxation, or even water royalties are obvious sticks to supplement the selling-price carrot.²² With such reforms even the water districts might be motivated to sell and not hold on.

V

Leaks in the Market System

THE MARKET RATIONALE CARRIES LITTLE conviction when applied only partially and half-heartedly. The water market leaks badly.

V.1 Unpriced Withdrawals

Unconstrained Pumping. Whether by taxation or regulation, we must control pumping in some manner if any system of surface control is to succeed. While California rations and conserves surface water, landowners

in the arid San Joaquin Valley just punch more and more wells into the aquifers and pump up free water which the state and federal projects recharge at high cost. In the drought of 1976–77, 10,000 new wells were drilled in the San Joaquin Valley (Weatherford et al., p. 1031). Thus they play out their destined role in *The Great Water Treadmill*: subsidized water supplies followed by overdrafts followed by emergency state rescue projects followed by new overdrafts, and so on until bankruptcy.

This treadmill started in 1913 when Los Angeles tapped the Owens Valley waters to supply free water in the San Fernando Valley. The lands there were timely prepurchased by insiders before annexation, giving a clue to the forces behind the premature seizures and diversion of water. The treadmill drill is often now labeled the “Chinatown Syndrome.”²³

And the treadmill keeps turning. The Metropolitan Water District of Southern California (MWD) keeps pressing for more water sources, wringing its hands over the drought, preaching domestic conservation and imposing rationing on its old customers—and annexing new desert lands to water. “It’s hard for the public to understand how you can annex and talk about a water shortage,” stated Lois Boylan Krieger, MWD Board Chair, as the Board approved another drought-year annexation (Metzler, 1991).²⁴ It is hard indeed, and not just for the lay public. A month later she proposed making more water available for farmers in her district (Bankole, 1991). MWD maintains a balancing fund to subsidize waste by keeping prices low during droughts and to prevent peak-load pricing (Krieger, 1991).

Excess landowners in and around Central Valley Project service areas routinely gain from recharge that others pay for. CVP contracts even “declare that such water shall not be considered as furnished by the project” (*Ivanhoe v McCracken*, 1958, p. 296–97). Kern County landowners keep irrigating desert lands, overdrafting, and petitioning Sacramento for “emergency” aid. The landowners even oppose metering city water, fearing that if cities get slapped with meters, their wells are next. (News Services, 1991.)²⁵ They summarized their position this way:

The existence of overdraft in the southern San Joaquin Valley does not indicate an “unmanaged” situation, but only the absence of an adequate supply of supplemental water . . . (Weatherford, p. 1038).

V.2 Loss of Elevation

We don’t use water consumptively, but return it to the river, says the rice-grower. Of course, rice growers lose 3–4 feet per acre to evaporation

but by appealing to the Law of Conservation of Matter they pretend to show the loss of other water is more apparent than real. In terms of the Conservation Laws we consume nothing—we just turn it into useless or baneful forms.

To properly understand the meanings of “use” or “consume” in economics we must think in terms of The Second Law of Thermodynamics, the law of entropy. The water user adds entropy (chaos, disorganization) to water. He takes in pure water, at a high elevation, at a time and place of his choice. Next, he returns less pure water at a lower elevation, at another time and place of *his* choice, however inconvenient for those below.²⁶ August water is worth many times September water; rice growers hold August water on their land and release September water.

More importantly, power drops are also “non-consumptive,” a term of art that exonerates power companies from the onus of “using” any water. Actually, this “non-consumptive,” use is worth more than all the rest of the consumptive uses and competes directly with them. The aphorism is that “people will vote for water but pay for power.” Canadians harvest large public revenues by taxing power drops; and so might we in California.

Water users also often preempt water from those above. On many streams the senior permits are downstream. Many legal careers have been made as downstream seniors enjoined upstream juniors from diverting water, to be sure a suitable amount reached the downstream intakes. A good deal of valuable elevation is thus dissipated to the benefit of no one.²⁷

V.3 Unpriced Effluents

As to water quality, many return flows are worse than no return at all. Up north, the notoriety of the Kesterson swamp says it all. Down south, manure piles around Chino say a lot, too. Abundant groundwater in the Chino Groundwater Basin “is currently untouchable because of poor quality.” It is “contaminated with nitrates, byproducts of animal waste and fertilizers from the dairies and other farms in the area” (Salamon, 1991).²⁸

Then there is the drainage problem. Every irrigation opportunity is also a drainage problem, usually for someone else. There is no simple market solution. The runoff is “non-point” and difficult to trace.

V.4 Unrepresented Demands

Environmentalists see economists as ignoring or trivializing their form of demand for water. Demands for instream uses, recreational uses, fishing, wildlife, saltwater repulsion, amenities, protection against non-point pol-

lution, drainage, abatement of common pests like mosquitoes, public health, aquifer management and protection are often ignored by the economist (Gaffney, 1989). Too many economists are guilty as charged. Economics should deal with how best to meet *all* human wants, including those listed plus amenities, pure water, sustained resource supply, watershed protection, public health, and conservation. Many water marketeering economists, however, think only of maximizing GNP measured in the old-fashioned way developed during World War II for war's emergency purposes and never revised. Worse yet, some others are totally oriented to property and politics and don't even follow the market. They write only of sustaining farm land values, disregarding the cost to fish, wildlife, and the taxpayers (Knapp and Vaux, Jr., 1982).²⁹ The writings of Professors Buchanan and Tullock offer a convenient philosophical basis for such a myopic attitude (Buchanan and Tullock, 1975). Others, however, are developing an environmental and resource economics.

V.5 Economizing Is Conserving

The proper aim of economics is inherently prudential. Economics jibes with conservation especially when dealing with the problem of optimal water usage. For example, if we put the Santa Ana River of southern California to its highest and most valued uses, it would eliminate the need for most water imports, the associated multi-billion dollar costs to the public along with most of the environmental damage. This river rises naturally in an area of intense water shortage, yet its claimants waste it. Why? There is only a trivial variable charge. Instead, there is a yearly fixed cost, at about \$30 per acre foot for a "standard" amount.³⁰ The standard amount has not changed in a century and is much more water than one properly needs for any reasonable purpose.

Meanwhile, the state is importing water here at a true social cost (at the margins) of about \$3,000 per acre foot, one hundred times above the \$30 amount the holders of ancient quotas pay. If there were a market where a person could sell his quota for a tenth of that \$3,000 price, he surely would. But there is no such market, so people don't trade. Thus, thousands keep wasting water.

V.6 Subsidy Wastes Both Dollars and Ecologies

Abuse of local waters in arid areas of high demand, like southern California, results in "hydro-imperialism."³¹ Local waters are doing much less work than they might, leading to a steadily increasing demand for imported

water. Hydro-imperialism is the common enemy of both Sierra Club enthusiasts and economists. "You have no right to stop growth," says the hydro-imperialist. True, but neither have we any duty to subsidize growth. Hydro-imperialists and allied land speculators have no right to demand subsidies from the general public. Unfortunately, they do demand them, and they do get them.

Water supply, flood control, and navigation projects, the traditional kinds, are heavily subsidized. Subsidy generates waste almost by definition, in the amount of the subsidy. If it is a subsidy to withdraw water it also creates scarcity of water where nature may have given us plenty. Consider the lower Colorado River. Every major user is subsidized, mostly by the American Congress. No one pays for water at the source, but everyone gets paid to pump it up and take it home. It is no wonder there is a shortage. It is also no wonder why there are 82 golf courses operating in the Coachella Valley, a Sonoran desert, and 50 more planned for the future. It is no wonder the BR can not even find takers for water carried to Phoenix, Arizona in its multibillion dollar Granite Reef Aqueduct. All these dubious ends are served by impairing our natural habitat and pretending it costs nothing to do this.

V.7 Correct Economic Analysis Prescribes More Water for Fish

Twenty-five years ago a study³² on the Fraser River in British Columbia prescribed sacrificing the fishery to a proposed power project, reasoning as follows: the fishery has no value because it is overcrowded; its "rent has been dissipated by the tragedy of the commons." The value of the catch is only great enough to pay the fishermen and no one else. The fishery as such therefore has no residual value; it adds nothing to the total value. Take it away and nothing of value is lost to the economy, that is, nothing net of costs.

That is a profound fallacy. The fallacy is to say you should remove water from the use in which it is most scarce, precisely because it is scarce. This violates the basic law of diminishing returns. It violates good marginal analysis, the bedrock of economics. It also "dehumanizes" fishermen and assumes away their readjustment costs, but this is not my major point here.

The crowding of a resource and the reduction of economic rents does not mean that the resource is worthless. Rather, it has become extremely scarce to those crowded onto it, and the *marginal* value of water added to that use is extremely high. In terms of redressing unbalanced factor

proportions, adding water has the same effect as subtracting some fishermen from the congested fishery, which the writer of the Fraser River study would have approved.³³

VI

The Distribution of Entitlements and the Allocation of Resources*VI.1 The Myth That Water Trades Are Win-win Deals*

Giving away the store hurts the owners. There are “win-win” outcomes in water trading, but too many of them are “win-win-lose” outcomes. The loser is the general public which is not adequately represented. The “win-win” slogan bantered about by most water marketing advocates unconsciously rules the unlicensed majority out of the game. What the majority loses is its beneficial ownership of water.

It is wonderful when trading moves water from lower valued to more highly valued uses. Every economist applauds the better allocation of scarce resources. As to the distribution of the gains, the economist is trained to think that it hardly matters at all. The distribution of the gains does matter—indeed it matters quite a bit.

However, every sale or trade of existing licenses creates another “innocent purchaser” to legitimize and sanctify the seizure of common property by powerful individuals and the “public” water districts they control. The trouble with markets, as currently envisioned, is that “. . . markets reflect and reinforce the existing distribution of water rights and wealth. . . .” (Saliba and Bush, p. 252).

It is not just common water property that is thus traded away by the water marketing zealots. Subsidies attached to the water are traded as well. In December 1988, the U.S. Department of the Interior issued a water marketing policy to allow recipients of subsidized water from its projects to sell the water and keep the profit. The “innocent purchaser” would seem now to have secured a right to be subsidized by the Federal Government in perpetuity because he paid for it.

You would think no one could miss the fallacy. “Because I was robbed yesterday, . . . is it . . . any reason . . . that the robber has acquired a vested right to rob me?” (George, 1879, p. 365). Once you deny Henry George’s point and buy into the premise that purchase creates property, much that is absurd follows. The policy follows the prescription published

by The Institute for Contemporary Studies: "The water bank concept protects farmers from losing water they now have, and from paying more money for it" (Angelides and Bardach, p. 33). "The policy was hailed by the Environmental Defense Fund, . . ." (Levin, 1988). Phelps et al. of RAND (p. 38) show a more muted propensity to vest the subsidies and carry on. Resources for the Future chimes in with no muting at all. ". . . federally subsidized water supplies have become property rights . . . the most effective way to confront the issue of inefficient usage is to recognize those rights. . . . Rather than attempting to reduce the subsidies embodied in existing contracts, federal policymakers should seek to make the current property interests in federally supplied water more secure and to allow voluntary market trading of the resource among water users" (Wahl, pp. 3, 5).³⁴

To "get government out of the market," these writers would make government subsidies the very basis of their revised market system! They would make every giveaway, however, basely originated, into a property right.³⁵ They would bind taxpayers now and in the future to spend up to \$ 3,000/af to sell and deliver water for as little as \$3.00 /af to landowners who can resell it for as much as \$300 /af today and more in the future.³⁶ This is an outcome that will produce perpetual financial ruin to the general public who must foot the bill for these subsidies out of income and other taxes.

There is added damage from the message thus sent to future rent-seekers. In the name of the market, these advocates would announce to the world this policy: "Once get on the dole and you have established an entitlement to take forever, and call it 'property'." Economists who helped originate the idea of water marketing 35 years ago (Hirschleifer et al.) were not out to sanctify subsidies. Their objective was to obviate monumental new development projects, not foster more. Two points about privatizing rights that are currently subsidized come to mind. First, the motive to agitate for new subsidies would be multiplied and second, the state would be rushed to fiscal bankruptcy.

A supplemental subsidy has gotten into the system by water "banking." A state agency buys water at a good price, and risks selling it for less, or not at all. This was the fate of the California Water Bank, 1991. In spite of a five-year drought, the Bank found a seller, the Yuba County Water Agency, with a "phenomenal water surplus." The Yuba agency charged

\$45/af (Bowman). The Bank and its major contractor, MWDSC, then incurred heavy losses. Late in August 1991, even at the peak of seasonal water shortage, MWDSC virtually gave away its contracted bank water, at bargain winter rates. The water went into ground storage (Muir).³⁷

“Win-win” has a constructive ring. However, the ring cannot drown out the basic fiscal truth: *no one taps the Treasury or grabs part of the public domain without hurting everyone else*. Those who seize public property in the name of the free market are not promoting the market, but exploiting its good name for private monopoly. They are the market’s worst enemies: They stigmatize it, and give arms to its critics. As Theodore Roosevelt said, we must save the rich “from the ruin that they would bring upon themselves if they were permitted to have their way” (cited in Seckler, p. 262).

What we need is a “win-win-win” deal. In the spirit of Henry George, we can have water banking *and* common rights: make water permits transferable, but make permittees and contractors pay for what they get. First, contractors getting subsidized water from federal and state projects should pay the full cost of project services, that is without subsidy. LeVeen and King, for example, have outlined a workable program for the BR (LeVeen and King, 1985, pp. 148 ff.).

Second, the basic privilege of withdrawing rent-bearing water, surface or ground, should be subject to a user charge—either as taxation or as a royalty paid over to the state. With growing demand and scarcity this, rather than cash operating costs, is the larger matter.³⁸ This way Smith wins, Jones wins, and the public wins, hence win-win-win.³⁹

VI.2 Water as Public Domain

“Water right” is another term of art, promoted to protect licensees under color of property. “Right” is the wrong word for a claim on water. A right is something like free speech, possessed by everyone. Water rights, properly speaking, are common property. Blackstone wrote, “. . . water is a movable, wandering thing, and must of necessity continue common by the law of nature; . . .” (Roy Huffman, p. 38). Private water interests are claims, licenses, permits, holdings, reservations, privileges, or possessory interests. Water is public domain, the property of the states.⁴⁰

Most private water claims are licenses, at least in the 17 U.S. western states. Most state constitutions read that the water of a state belongs to the state (James Huffman, 1993). Of course, it is in trust for the people of the state. In California it is Water Code Section 102: “All water within the State

is the property of the people of the State,” The 1879 Constitution declared, “No special privileges or immunities shall ever be granted which may not be altered, revoked, or repealed by the Legislature,” (Article I, Sec 21). In Oregon, “It does not seem to me that water use in this country ever rose above the dignity of a mere privilege over which the state had complete control” (Oregon Chief Justice McBride, *In re Hood River*, 1924, 190–91).

There is a good deal of paltering on the matter. Lawyers labor studiously to secure licensees the benefits of owning property without the social obligations. The bottom line, however, is that a water license has about the same standing as the privilege some airlines have to occupy certain airport gates and time slots; the privilege of a cab to work the streets of New York; a license from the FCC to use a specified frequency; or a grazing permit on federal lands. It is like the old Oregon and California Railroad land grant which was revested when the grantee failed to perform. It is subject to *conditions*, and to *forfeiture* for failure to comply with them.

If water licenses were real property, they would be recorded along with title deeds to real property—but they are not. Rarely are they on the property tax rolls.⁴¹ Some water claims, if not excessive, are taxed indirectly through the value of taxable land the water serves, but unused and misused water reservations (the problem at hand) do not much raise the value of any land anywhere, and are not taxed even indirectly.

Generally, the licensees’ dual interest is to make permits seem solid and “real” property, *except* when the subject is property taxation, or moving the place of use—at these points the permits collapse into something else. The resulting “double-talk” has been deplored (Gaffney, 1962).⁴²

The legal concept of “appurtenancy” is an example of such double talk. Water rights are said to be “appurtenant” to the lands they serve, meaning they disappear into the land and are not listed separately for taxation. However, when the owner wants to sell water separately from land, appurtenancy is no problem (Hutchins, 1956a). Appurtenancy is a pliable term of art that is used: (1) To give landowners preferential claims on water in proportion to their acreage; (2) To bolster the standing of water claims under color of real property; (3) To protect water claims from taxation; and (4) finally to let surplus water claims be moved around and cashed out.

The upshot is that the legislature has great latent power. As electors and citizens, our hands are not tied—just our minds. Most lawyers are on hire

to represent licensees. A notable few law professors like Professors Harrison Dunning and Joseph Sax help let citizens know their latent powers over water permits (Dunning, 1982a; Sax, 1990; see also Huffman, 1993).⁴³

VI.3 The Rent of Water

Water is worth a great deal more than the costs of labor and capital to divert, store, regulate and distribute it. That is why people fight over it. It costs \$30/acre-foot to deliver the water that Gage Canal shareholders get from the Santa Ana River in southern California. Meanwhile, the state is wholesaling imported water just across a survey line for ten times as much. MWDSC is preparing to reclaim polluted groundwater for more than that. The prevailing idea of water economy is that pure, sweet water rising naturally in this arid region is only worth what it costs to withdraw it from the river; at the source it has no value and may be wasted. It makes more sense to say water at the source has a high value, proven by people's willingness to spend \$300/unit to buy other water just like it.

The true social cost of withdrawing water is the cost imposed on others by preempting it from them. It is the same as what the Federal Energy Regulatory Commission today calls "avoided cost," that is, the cost of providing a substitute for what is taken. The concept of "avoided cost," like so many good ideas in economics, harks back to Henry George. He wrote that the value of a thing is not the past labor that went into it, but the future labor avoided by owning it (*Science of Political Economy*, p. 249). The Federal Energy Regulatory Commission has made good use of this concept, making electric utilities buy co-generated power from independent sellers at a price equal to "avoided cost."

That's not the half of avoided cost, however, because state water is heavily subsidized. Its wholesale price of \$300 is far below the full cost of bringing it down south. State water comes from the Feather River, 600 miles north and is pumped over the Tehachapi and San Bernardino Mountains. Its true social cost, at the margins, is more like \$3,000 per acre-foot, give or take.⁴⁴ Notice \$3,000 is ten times what the state charges for it, and 100 times what the Gage Canal charges for local water.

A variation on this basic theme is to admit water has value at the source, but trivialize it by saying it is the historical purchase price, if any. Those few water holdings that are assessed as taxable property seem to be valued on this basis (LaBahn). This is like saying Manhattan is worth no more than the \$24 Pieter Minuit once paid for it.

Santa Ana River water, rising where demand is high and supply short, yields rent. Rent is a taxable surplus. Tax it, and the state can let people sell it for an economic price without cheating the general public that really owns it (Gaffney, 1988).

VII

Fundamental Economic Ideas

VII.1 Entitlements, the Public Trust Doctrine, and Allocation

Correct economic analysis has to presume or prove something about who should own water: either a public trust doctrine, or a giveaway doctrine.⁴⁵ “Entitlements”—the initial assignments of property rights—have a major effect on the relative bargaining power of different parties. For years economists would ask, say, canoers, what they as individuals would pay to keep a river wild. They got rather low valuations and duly reported them as the scientific measure of the value of recreation. This was an effective defensive strategy for dam builders since the value came out quite small.

One day it occurred to some unsung genius to invert that question. Ask not what canoers would pay for the wild river, but ask instead what is the maximum amount the power company would have to pay the canoers to take it away from them.⁴⁶ The second question presumes that canoers, as citizens, already own the wild river. In fact, the citizens do own that wild river.

In the current lingo, one arguing *ex parte* the canoers stresses that canoers’ Willingness to Accept Price (WTA) is the relevant dollar value, and that is higher, perhaps much higher, than their Willingness to Pay Price (WTP). WTA is also called a “compensation-demanded valuation.” In its basic CERCLA⁴⁷ legislation in 1980, the U.S. Congress specified it wanted measurements of WTA, not WTP (Carson & Navarro, 1988, p. 830). Many pollster-theorists fret that “received theory” has “been unable to explain . . . the persistently observed differences between WTP and WTA measures” (Cummings et al., 1986 p. 41).⁴⁸ The problem is that “received theory” was received damaged.

Pro-privatizing economists dismiss the matter by alleging that $WTP = WTA$ (Mitchell and Carson, 1981),⁴⁹ so initial entitlements do not matter. They lean on Ronald Coase, perhaps overlooking the qualifications he put in the fine print in his famous article (Coase, 1960). In this mindset, distri-

bution does not matter, only resource allocation matters. Then just start the game of "Free Market" and let the opportunistic exchange of property rights begin. Everything works out so long as private property rights are firm and clearly defined. Resources end up allocated to their most valued uses, no matter who starts the game with all the chips. Why? Because $WTP = WTA$.⁵⁰

That is wrong. In fact, *distribution dominates allocation*. An owner often says "My home is not for sale. I will not sell at any price, don't call again." She can take that attitude when she holds the entitlement. Buyers never say "I will pay any price, call any time." That is, the WTA is often much higher than the WTP. It must be so, or real estate would be constantly on the market.

"Modern" microeconomics, now dominated by Coasians, is a reincarnation of the old Manchester School whose members prescribed "free trade in land" as the solution to all resource problems. The trade they called "free" was to begin with existing entitlements inherited from centuries of conquest, corruption, theft, confiscation, negligence, deception, cunning, and fraud. In this narrow view, exchange launders all. Everything is for sale; everyone has his price; all values are determined at the margin, and efficiency inevitably wins out.

Mitchell and Carson use Coasian concepts in survey research: They poll people to put a value on environmental damages.⁵¹ One review faulted "the high rate of unusable responses" (Fischhoff, p. 287). Why "unusable"? Mitchell and Carson throw out WTA answers when they exceed WTP answers by more than 5 percent (Mitchell and Carson, 1981; Carson and Mitchell, 1988; see also Mitchell and Carson, 1989, pp. 32–35, p. 226⁵²). Sometimes over 50 percent of the responses are "invalid." They don't fit the Coase model; they must be, in Carson/Mitchell's phrases, "methodological artifacts," or "outliers," or "protest responses," or "aberrations."⁵³

The native American aborigines are one such aberration, and a stark object lesson. Some Indian tribes have Treaty Rights to fish. Their WTP for those rights is minimal, partly because their *Ability to Pay* is minimal. On the other hand, they will not sell "at any price": their WTA is sky high. They may be unreasonable, but that's the point: *ownership lets you be as unreasonable as you please*. Call that "revealed preference."⁵⁴ We notice mainly when it is someone else, especially someone different.⁵⁵

Politics and institutions are involved: Treaty rights are the most valuable

mode of holding property. They enjoy legal supremacy as high as the Constitution itself (Article VI, Section 2), preempting contracts and ordinary legislation. All those and other important institutional and sociological considerations are outside the “perfect-markets” ambit of Carson and Mitchell.

American Indians are an extreme case, but most of us have a streak of their psychology. Not many generations back we shared the same kind of culture, a dependence on traditional family lands we held in common, in implied trust for our descendants. These traditions are still part of the cultural subconscious, and affect current attitudes. They are disregarded in mechanistic micro modeling in the modern style (except perhaps as tautological “revealed preferences”).⁵⁶

Distribution dominates allocation. Economists who belittle the question of entitlements deserve the paranoia⁵⁷ they evoke in environmentalists. The proper answer to them is, “If entitlement doesn’t matter, give it all to me: Then let’s talk and trade.”⁵⁸ Most of them want to give it, fully laundered, to whatever private party has a license now. This is another version of the doctrine “might makes right.”

VII.2 Rent-seeking Perverts the Market

Scarce waters, where demand exceeds supply, yield rent. With demand growing, even abundant waters, where demand is now low, are expected to become scarce and yield future rents. Waters currently rentable are expected to yield still higher rents. In anticipation, persons and organizations with an eye to future rents are ready to do what is needed today to lay claim to future waters.

“What is needed today,” by case law, is to divert water and put it to “beneficial use.” This is the prevailing appropriative doctrine of water law, under which no one pays a state to take its water, now or in the future. Rather, one acquires a permit that ripens into something resembling perpetual ownership, by the very process of taking. In practice, “beneficial use” is a token, an economic bad joke. Private taking is the essence of what is happening. Local water boosters call this “foresight,” and hail it as a cardinal virtue.

This appropriative doctrine is the *locus classicus* of “rent-seeking,” i.e., distorting present investment to secure future rents. The motive is to divert, develop, and half-use water before its economic time to lay claim to its future.

The concept of prescriptive rights is even more perverse. Here, own-

ership is established essentially by adverse use, that is, interfering with someone else's use. The taker's beneficial use becomes even more incidental. In 1949 the California Supreme Court triggered a "race to the pump house" (Krieger and Banks, 1962) when it proclaimed the doctrine of "mutual prescription" for groundwater basins (*City of Pasadena v. City of Alhambra*, 1949). This "encouraged defensive ground water overdrafting by pumpers in other basins who anticipated ground water adjudication" (Gleason, 709).

Modern privatizers tell us to firm up property rights. Accepting existing entitlements is their first step; then, and only then, will the market work its magic. They glide too easily over the *process* of firming up. They offer no process but giveaways to privatize resources.⁵⁹ Yet, claims to water are constantly being made, expanded, and firmed up, and any giveaway process violates the virtues a market is supposed to possess. Indeed, giveaway is the essential precondition for "rent-seeking" behavior which, in most other realms, economists deplore (Krueger, 1971). The rule for prior appropriators and adverse possessors is particularly counterproductive: "Waste today, want not tomorrow."⁶⁰

As we segue toward a market system we see a gray area between older, stationary water licenses and the coming new, portable ones. A class of speculators is moving in to acquire permits from present holders who still value them in their fixed, traditional places and uses. The speculators visualize commercializing the water for distant growing cities or industries, using their political influence to secure needed rights-of-way, and litigation/legislation to modify the water permits to make them more tradable. Some publicized examples are PG&E Properties in northern California, Peter Hensen and John Huston near Denver, BCE (Bell Canada), Cadiz Land in Riverside County, Tenneco in Kern County, a few major oil firms, the Maurice Strong consortium in New Mexico, and the Bass Brothers in the Imperial Valley (Fulton, 1996; Gaffney, 1997).

This is a new modified, more sophisticated form of rent-seeking, blended with old-fashioned land speculation.⁶¹ It is raising great anxiety and resentment among environmentalists, egalitarians, and other concerned citizens (Gottlieb, 1988, pp. 261–80). It causes many to reject the idea of water marketing, saying "A water market just means a plague of speculators." Ownership of irrigated land is already more concentrated than ownership of other land (Gaffney, 1992a). Wealthy buyers like Sid and Lee Bass, oil

billionaires from Fort Worth, quickly amassing 45,000 acres in the Imperial Valley, make it more so.

There is a better way. A policy of taxing water withdrawals, based on the full opportunity cost of water, will do the job without giving away the benefits that belong to the public to private usurpers (Gaffney 1992b). That does mean our own governments must take an interventionist hand and assess the market value of water, probably using existing county assessors. It's that or the absentee speculators. Thus far the choice has gone to the speculators; the results are neither just nor efficient.

VIII

Bureaucracy, Private Property, and Water Markets

VIII.1

The Misleading Devil Theory of Bureaucracy and Angel Theory of Private Property

It's easy, too easy in today's *Zeitgeist*, to demonize government "bureaucrats" and beautify private property and markets. "Bureaucracy" is a stereotype. To be fair, let's look at the other side.

Irrigation Districts along the Friant-Kern Canal were selling surplus Federal water in the 1950s, with federal blessing (Maass, 1952). Water filings by the feds were granted by the State not to certain lands, but "for the use and benefit of said Central Valley Project," to further a "general or coordinated plan . . ." (California Farm Bureau, pp. 58, 60). The U.S. Supreme Court upheld the mobility of these filings decisively in 1958 (*Ivanhoe v. McCracken*).⁶² Such pooling and banking was inherent in the ambitious Marshall Plan, the comprehensive statewide plan of the 1920s that devolved into the present Central Valley Project.

Who opposed these market-oriented proposals? Big landowner lobbies pushed for undis severable attachment of specific waters to specific lands. Apart from acreage limitations, "the principal public attack . . . has been focused on the employment of the so-called 9(e) (non-appurtenant) form of contract . . ." (Graham, 172; Crampton, 99).⁶³ "Appurtenancy" was their slogan.⁶⁴ The big landowners' concern has been with the distribution of water rights, not their efficient allocation.⁶⁵ They advanced "a moral claim to water in proportion to their landholdings, . . ." (Taylor, 1955, p. 478).

When Federal bureaucrats tried to create a flexible market in water, it was "Communism," "fellow-traveling," and the baleful influence of Henry

Wallace and James Roosevelt (Downey, pp. 30, 40, 41, 49, 167). A California trial judge ruled that the BR was "Marxian" (*Albonico v. Madera I.D.*, 1951, p. 10, cit. Graham p. 74, n. 236). "What partisan motives, what ideology, what pathological processes, what mysterious political influence . . ." was at work (Downey, p. 49)? Thus did private property greet the idea of water marketing.

An ancillary policy, acreage limitation, also offended big landowners.⁶⁶ It is not clear which issue aroused them more, but the two together made the Federal Government, which had been invited to subsidize their water supply, their target (Cooper, pp. 154–66).⁶⁷ BR personnel were "Communists," supported by the *Daily People's World* (Worster, p. 251, 254; Downey, p. 41; Kirkendall, 1964, pp. 200–01). Efforts to pool waters and integrate the system are ". . . a careful, fully conscious and deliberately planned attempt to bring about in the U.S. the same kind of collectivization they have in Russia" (Kings River Water Association, 1950, p. 15). Covering all bases, they add ". . . Fascism is exactly what we will get" (*op cit*, p. 19).⁶⁸ Trading on the anti-Federalist pathos helped people forget that full integration of all Sierra rivers was the essence of the California Marshall Plan of the conservative 1920s, approved by the State Legislature.⁶⁹

U.S. Senator Sheridan Downey was the landowners' leading spokesman. Here is what he demanded in 1947. ". . . *that the land and water should be joined together, never to be cut asunder*, that the farmers should enjoy in perpetuity the use of the water . . . ; that when the land is sold, the right to water shall also be sold with it, and that *neither should be sold separately*" (Downey, 1947, pp. 226–27, emphasis supplied).

An allied writer found "the clue to the bureau's arbitrary and seemingly stupid actions" was its hidden agenda to transfer water to cities. "Sober Californians, however, realize that agriculture is the basis of the state's wealth, and that it must not be jeopardized" (Crampton, 102). In its 1957 *Ivanhoe* decision (later reversed by the United States Supreme Court, in 1958) the California Supreme Court covered unappropriated waters with a right based on landownership, that is, a new right modeled on the riparian law making water "part and parcel" of the land to which applied (Taylor 1957 p. 83).

An earlier spokesman for private property rights, Mr. Henry Miller, the riparian, had successfully demanded that waters be made "part and parcel" of his riparian lands, letting him monopolize most of the San Joaquin River

(Lux v. Haggin, 1886). Just so again, today's landowners want and get farm price supports, preferential tax exemptions, export subsidies, protection against foreign sugar, control of the cow colleges, and subsidized water.⁷⁰ By now we should have gotten the picture: Private property is a distributive, not an allocative arrangement. The owners want their unearned increments first. Then maybe later a little, free competition will do, carefully measured out when it adds to their rents, otherwise not.⁷¹

Further to frustrate flexible water marketing, Sheridan Downey and the landowners invoked the U.S. Army Corps of Engineers, the historical vehicle for "rivers and Harbors" pork-barrel appropriations. The Flood Control Act of 1944 turned over to them several key rivers: The Kings', Kaweah, Tule, and Kern, their flows never to be integrated with the San Joaquin or each other (Morgan, pp. 70, 404; Kahrl, 1978, p. 50; Maass 1951, pp. 215–59; Gaffney, 1960; Cooper, p. 158). Arthur Maass and Arthur Morgan describe this as "an enormous financial grab."⁷² President Franklin D. Roosevelt complained "of the desire of certain large land interests in California to obtain irrigation and other benefits without being subjected to the repayment requirements . . ." (Maass, 1951, p. 235). Contrary to the cliché, allocative efficiency was sacrificed for distributive *inequity* and pilfering.⁷³

The Kings River Water Association made 15 demands on the BR in 1946. One demand was that "*all Kings River water remain within the presently irrigated area.*" Another demand was that the Kings River remain a *separate entity* from the Central Valley Project (Kaupke, 1957, p. 51). In 1956, according to Wahl, they secured permanent rights to federal project water "within the boundaries of the contractors' district" (Wahl, p. 175). In 1979 they were still fighting the BR and their neighbors—going to great lengths to distance themselves from the neighboring Westlands Water District (Leake and Barnes, pp. 19–20). Rigid Balkanization was identified with private property rights.

Traducement anticipates persecution The lobbies played hardball. The Bureau of Agricultural Economics (BAE) was singled out for attack in Budget Hearings for 1946–47. Its offense was to shelter Mr. Marion Clawson, Ms. Mary Montgomery, Mr. Edwin Wilson and Dr. Walter Goldschmidt in its Berkeley office. They had supported the BR by conducting landownership surveys and planning studies of the project area, and reporting on the unequal distribution of land to receive project waters (Worster, pp. 245–49). "The upshot of this . . . was that Congress made deep cuts in the BAE

budget . . . With budget cuts resulting from their objectionable work they (Marion Clawson and Mary Montgomery) were dropped by BAE, as was natural" (Downey, p. 52). Goldschmidt and Wilson were also "separated from the Bureau" at this time (Downey, p. 256; for Clawson's perspective, v. Clawson, 1987, pp. 150–60; for more on Goldschmidt, see Taylor, 1976).

It was the McCarthy era style politics. State Senator Jack Tenney ran an inquisition in Sacramento.⁷⁴ The University made its professors sign a loyalty oath. Senator Downey published long *ad hominem* attacks on Mr. Richard Boke, Bureau Chief in Sacramento, and caused his salary to be suspended for nine months, a virtual Bill of Attainder that was revoked only upon the surprise election of Harry Truman in 1948 (Taylor, Vol. II, p. 193). Mr. George Sokolsky and Mr. Fulton Lewis, Jr., inflammatory columnists, joined the pack in full cry (Kirkendall, 1966, pp. 223–25). The BAE was never forgiven and "disappeared" in 1953. Heads rolled, careers were broken or made, survivors cowed.

Even Clawson, a strong man who survived and prospered, became cautious and cynical. Reviewing the matter, he wrote retrospectively that he learned this lesson: "Follow not too closely at the heels of truth, lest she kick your teeth in" (Clawson, 1987, p. 160). Donald Worster sees young Clawson as a "devoted New Deal liberal" (Worster, p. 245). Sober-sided, scholarly Richard Kirkendall, reviewing Clawson's correspondence in the National Archives, described him as having been "passionately involved" (Kirkendall, 1964, p. 206). Clawson's later career has been productive and creative, but "passionately involved" he has not been. According to Worster, he had "surrendered" as early as 1944 (Worster, p. 253), although that did not stay the persecution.⁷⁵ He never again touched the region or the issue.⁷⁶

Goldschmidt, too, has prospered, even within the University of California system. He adapted, however, by transferring his studies to Africa, far from the AES⁷⁷ and its turf. From the grave, Sheridan Downey⁷⁸ inhibited his survivors. The treatment of Wells Hutchins was friendlier. Hutchins wrote U. S. Department of Agriculture and AES bulletins about the sanctity of property rights in water. The waterlords found these materials useful. "State's Rights" was their theme, and they needed legalistic writings from a reliable source. After Hutchins reached 65, The California Water Council and the National Reclamation Association asked Secretary Ezra Taft Benson to keep Hutchins on a "retired annuitant" basis, which Benson did (*Western*

Water News, February 1958, p. 1) Hutchins was kept on the USDA payroll 17 more years until his death in 1970, aged 82. It took seven more years for two other writers to complete his *Water Right Laws in the 19 Western States*. The handsome, expensive publication of these three volumes breathes endorsement, legitimacy, and approval. In contrast, Wilson and Clawson's classic BAE study of landownership concentration is cheaply mimeographed, barely legible, and hard to find;⁷⁹ Goldschmidt's classic study was suppressed and had to be published privately.

If you want to credit private property with supporting free markets and fair play in water, land, outputs, ideas, or promotions and retirements, pause and review this object lesson. Theodore Schultz wrote of it, "To understand the vulnerability of the BAE one has to appreciate the profound unfriendliness which these organized political forces . . . feel for agricultural economics research that does not provide the 'right' answers." (Schultz, 1954, p. 19.) Schultz had been there, having been bounced from Iowa State University for a study finding oleo as good as butter. Now he is a Nobel Laureate.

Many bureaucrats are fallen angels, granted, but we have to ask "who pushed them." "Government" water agencies become private agencies masquerading as public ones. They enjoy government powers and immunities but carry water for the private landed establishment. This in turn harks back to the original distribution of land ownership, when politicians corruptly distributed public lands to favored private parties. Just as distribution dominates allocation, it also dominates politics. Subsequent laws are twisted in application by the political weight of the original beneficiaries and their successors interlocked in power at the apex of the pyramid.⁸⁰ They get away with it because the original land grab gives leverage and power to get more, and most people go along to get along, some weakly and meekly, some apologetically,⁸¹ some avariciously seeking their private cut. Only a few stand out for the public interest, and they are systematically traduced.

More recently, in 1978 both the RAND Corporation and the Governor's Commission to Review Water Rights Law proposed a few mild and politic controls on waste, and facilitating transfers. Senator Nejedly's proposals in SB 1361 were so mild that even DWR supported them, "but the powerful agricultural and land development interests"—Private Property—blocked legislation to implement them (Dennis, p. 60).

VIII.2 Water Districts as Pocket Boroughs

The Metropolitan Water District of Southern California (MWDSC) is run by a board of 50 directors representing 27 cities and districts that it serves. These directors are not elected but appointed, resulting in an old-boys' club where some directors sit for more than 30 years. Business is conducted by committees; seniority is a ruling factor. "Not a single member of your board is elected by the people, yet you collectively assert the right to pass on statewide policy" (Governor Pat Brown to MWD Board, 1960). Half the directors are developers or landowners; others own engineering or construction firms, or banks that lend to them (Dennis, p. 128).

As for the elected officials who appoint the directors, those from cities are elected on the basis of "one-person-one-vote"—well and good. However, those from several outlying districts are elected by a land-based franchise: one-dollar one-vote. Here is the heart of antidemocracy. Sacramento has delegated the people's sovereign powers to these landowner controlled districts.⁸² Control may be completely nonresident. Representatives from landowner-owned districts remain the same from election to election, gaining seniority to dominate the 50-person Board and its ruling committees (Goodall et al., 1978, pp. 97–98. Bradley and Morales, 1981.) "At times the control of public government—in this case the water district—by private organizations may be complete." (Goodall, et al., p. 98. Hall et al., *Stipulation*, p. 7.)

Thus a handful of speculative landowners, some living in other countries, have as many votes as millions of city residents. Accordingly, MWDSC preaches water conservation to the guilt-ridden middle classes in the cities while it continues to annex new speculations and serve new developments with artificial lakes and golf courses. They plunge ahead, heedless of five years of drought and their own water-conservation jawboning. MWDSC's former chair, the one who frets that some voters just "do not understand," was appointed a director of MWDSC by the board of the Western Municipal Water District of Riverside County, an area dominated by thirsty land speculators.⁸³ Many economists have criticized MWD's persistent refusal to consider any kind of economically rational, cost-justified rate structure.⁸⁴

To give a notion of how this works, consider the Newhall Land Partnership. It holds 123,000 acres, mainly in Los Angeles and Ventura Counties, from Valencia and Magic Mountain west down the Santa Clara Valley of the south toward Piru and Fillmore. The Newhall family controls the public

partnership, with 40 percent of the shares [*L.A. Times*, 3–86, 8–87]. The Newhalls are developing the city of Valencia, but slowly: 7,000 of its 10,000 acres remain undeveloped.

The Newhalls were early, major financial backers of the political campaigns for the 1982 Peripheral Canal bond issue to bring more northern water south.⁸⁵ MWDSC was the front. The Newhalls also work through the Castaic Lake Water Agency which is a major lobbyist and, some believe, their own fiefdom (Gaffney, 1997). The purpose of this proposed project was to valorize speculative landholdings on the fringe of the southern megapolopolis. They joined in this campaign with other large development interests: the Irvine Company, Southern California Edison, Security Pacific Bank, Rockwell, Mission Viejo (the O'Neills), Bixby Ranch, and Union Oil [*L.A. Times*, 1–80]. Yeager Construction Co. (highways and landholdings) led the campaign in Riverside County.

MWDSC solicitude for speculative landowners does not stop at its boundaries. It has a history of releasing a large part of its entitlements in California Aqueduct water to a few water districts in Kern County.⁸⁶ It has gone along from the start with pricing policies egregiously unfavorable to its own people to subsidize the Kern County Water Agency (Storper and Walker, 1984). This agency serves lands straddling I-5, owned by a few major oil companies in which MWDSC Directors have significant interests.⁸⁷ Another huge owner is the Chandler family, whose interests include the *Los Angeles Times*, and the vast Tejon Ranch and (part of the) J.G. Boswell landholdings of the southern and western San Joaquin Valley (Gottlieb and Wolt, pp. 500–509; Villarejo, 1981, pp. 3–10).⁸⁸ The *Times* spearheaded the Peripheral Canal campaign.⁸⁹

All that is not to disparage the MWDSC ideal. It's the practice that is faulty, and the problem is the same as with the U.S. Bureau of Reclamation: landowner domination of what should be a democratic institution. The remedies are the same as those advanced by Progressives like Hiram Johnson (R) and Woodrow Wilson (D): democratic control with professional leadership.

That seems so long ago as to be irrelevant, but don't despair. What destroyed Progressivism was The Cold War, which really began in 1919 with The Palmer Raids and is only now just ending. This seems a good time to pick up where The Progressives left off. The old bones are stirring. Merrill Goodall's studies have analyzed the problem. The Center for Law in the

Public Interest, representing the disenfranchised citizens of Irvine, won its 1979 case forcing reform of voting in the Irvine Ranch Water District. It's a matter of marshaling a few troops to win the battles of democracy. As Clarence Darrow said, "Authority is nothing more than what the rich and powerful can put over on the rest of us." It is not to despair that we must turn; rather, let us learn the right lesson for future guidance. Do not look to big landowners to give us free markets. The white hats were a handful of idealistic populist battlers who persevered against ridicule, libel, indifference, the press, the landed/monied establishment, and daunting odds. We have always suspected democracy depends on such die-hards; "New Resource Economists" and other water marketeers need to learn free markets depend on them, too.

Notes

1. Nancy Moore now speaks for RAND Corporation. She is partial to the pink-slip metaphor. She and her former co-author Charles Phelps, in telephone interviews, are more temperate in their claims and open to dialogue. However, their basic monograph (Phelps et al., 1978) seems based on a "hard-line" Chicago-Rochester doctrine. It contains no distributive philosophy other than converting conditional tenures into absolute property.

2. AB 3491. The statute lets water districts act as brokers for individuals, and mandates state agencies to encourage and provide technical help. The State Department of Water Resources has set up a Water Transfers Committee to do so.

3. AB 2746. See Saliba and Bush, 1987, p. 178.

4. Other examples might be sheep in sixteenth century England during the first enclosure movement, and wheat during the second. Timber replacing small farmers in the Appalachians is another example. Cheap energy has sometimes helped giant farm machines displace workers, and often lower yields.

5. This is a shift from the dream of "Water, Wealth, Contentment and Health" that was promised *and delivered* to the people of Modesto from 1887 to 1950 or so, when they were struggling and paying to develop their waters. Modesto today is prosperous and secure—but a third member of the ten highest-welfare cities.

Modesto has delivered water without variable charge from an early date. However, in its earlier days it levied steep land assessments to pay for ambitious dams and canal systems. It was these that kept the landowners hopping. Now the bonds are retired, land yields a surplus that attracts absentee buyers with a lesser propensity to husband land intensively.

6. Such common sense is obscured by the clumsy apparatus of "production possibility curves" and "frontiers" that micro-economists stylize their thinking with today; ditto for "Cobb-Douglas functions." Wearing those blinders, economists generally presume that higher input prices must lead to lower output. However, it is a three-factor world. The

"product" of cheap water to many farmers is not the increase of yields, but the drop of costs other than water.

7. Such a tax has been proposed by White, p. 5; Boulding, p. 91; Brewer, pp. 240–42; Young and Martin; Young, Daubert, and Morel-Seytoux; Billings; Gaffney 1969, 1973, 1977, 1988; and indirectly, by van Schilfgaarde, p. 114. It is possible but not confirmed that it was also proposed by RAND Corporation, cit. Dennis, p. 79. Possibly there was division among the many RAND people putting out studies. Phelps et al., p.17, seem negative, because the "tax would heavily redistribute wealth away from current water users" . . . and so "is likely to meet heavy political opposition . . ." That is an oddly non-efficiency reason to bear weight in a study otherwise exclusively concerned with and entitled *Efficient Water Use*, but it serves them to dismiss the matter.

8. Colorado applies such a tax along the S. Platte River, calling it an "augmentation charge." The approach "has operated for several years, . . . with little problem or controversy" (Young, Daubert and Morel-Seytoux, p. 790).

9. For \$180/year one can keep current with *Water Market Update*, Santa Fe.

10. It now seems likely that Imperial Irrigation District will transfer a small part of its large surplus to MWD. This deal has been in the making for some 40 years, and should probably not be attributed to recent legislation, according to Myron Holburt, representing MWD. The "deal" was made in 1989, but no water is expected actually to be shifted until, (and who knows what glitches await) (Warren, 1991a). The amount proposed for transfer, 100,000 a.f., is only about 3 percent of the nearly 4 m.a.f. taken by irrigators on the lower Colorado, California side—more than a token, but just barely.

11. I refer here to emergency or "spot market" water. As to permanent supplies, they themselves have avoided acquiring them, to stifle unwanted growth. In Santa Barbara in 1989 there was a six-year line-up for water for detached homes; twelve years for multiple units (Evans, p. 2).

12. This support is found on its Editorial page, June 5 and July 3, 1991.

13. Water districts have prospered by serving compact blocks of land, thus minimizing conveyance costs (Gaffney, 1969). Forced inclusion of lands in the service perimeter is at the heart of Irrigation District history, economy, and success.

14. Procedures for severing water from specific lands are still so clumsy and uncertain that MWD plans to rely mainly on buying lands outright and idling them, to get their waters (Warren, 1991). This extreme "meat-axe" procedure dates back to 1907: it is how Los Angeles got its Owens Valley waters (Kahrl, 1982; Ostrom). Coupled with Katz's latest bill, it could seriously inflate distribution costs in rural districts.

15. This occurred in the Senate Agriculture and Water Committee (one hopes for the right reasons) in mid-August, 1991 (*L.A. Times*, 26 August 91).

16. For a long bibliography see Graham, p. 172, n. 440.

17. Marshall was a former Colonel in the Engineer Corps who had retired to promote his dream as a private California citizen (Kahrl, 1978, p. 51). For a less rosy view of Marshall, and a discussion of Spreckels, see Angel, 1944, 60–67.

18. Later yet, in 1959 California revived utility-type contracts in the Burns-Porter Act and the State Water Plan (Graham, 184–88), coming full circle. The State's position has not been marked by philosophical consistency.

19. In this the Feds were much less radical than the home-grown Marshall Plan, in which the Kings River was fully integrated in 1927 (Jopson and Giannelli, Plate 2). The State Water Code, Section 105, says “. . . the State shall determine in what way the water of the State, both surface and underground, should be developed for the greatest benefit” (*op. cit.*, p. 1).

20. A common misuse of theory is the notion that people react to opportunity cost as promptly as they do to cash costs because that is what “rational” people “should” do. This belief is a severe case of doctrine overriding observation.

21. The point was raised by Gaffney, 1961, pp. 38–40, who called it the “heirloom attitude”; attacked in Trelease, 1961, who called the reasoning “subliminal”; and defended in Gaffney, 1962. The point is also observed by Phelps et al., 1978, p. 28.

22. A water license is not real property, but a privilege. Privileges are less protectable than property. Recall that Congress passed a corporation income tax in 1909 as a license fee for the *privilege* of doing business as a corporation. Congress did this at a time before the 16th Amendment when it could not (practically) tax the income from property. On such nice wordplay do mighty issues turn.

California’s tax limit applies only to “real property.” This raises the interesting possibility that a tax based on water licenses—privileges—would be exempt from California’s tax limit. Where there’s a will there’s a legal way (Gaffney, 1988).

Another possibility is levying a special benefit assessment on lands with special access to waters. A California court has ruled that benefit assessments are not taxes and therefore not limited by Proposition 13 (*American River Flood Control District v. Board of Supervisors, Sacramento County, 130 Cal Ap. 3d 707, 1982. Also, County of Fresno v. Malstrom, 94 Cal. App. 3rd, 974, 1979.*)

23. The episode was dramatized in the film *Chinatown*, although key names like Mulholland, Van Nuys, Sherman, Huntington, Otis, and Chandler are occidental.

24. “I weep for you,” the Walrus said; “I deeply sympathize. With sobs and tears he sorted out those of the largest size, holding his pocket handkerchief before his streaming eyes.”—Lewis Carroll

25. Seeking to avoid the treadmill effect in Arizona, the Carter Administration required the state to control farm overdraft as the price for the subsidized Central Arizona Project. In result, Arizona water is being urbanized much faster than California water (Peterson, 1986). Earlier, pioneer water economists Robert Young and William Martin had been traduced and penalized at The University of Arizona for recommending the same thing. They did not have Federal billions behind them (Young and Martin, 1967).

26. Power companies, of course, are the greatest consumers of elevation. The tax on water “withdrawals” proposed herein would include a tax on power drops (British Columbia has long raised revenues from such a tax). It has often been alleged that power companies used “pigmy dams” to preempt power drops while underutilizing them (*Legislative Analyst, 1947, p. 8*). If so, the proposed tax, based on putative full development, would prompt such development.

27. *Consolidated People’s Ditch Co. v. Foothill Ditch Co., 1928, cit. Gaffney, 1961.* Elevation of water has great value, even if not used to generate power, because it is used to move water hundreds of miles, by gravity.

28. Heaping irony upon manure, these malodorous piles in an urban area result from preferential low assessment of farmland, to enhance the environment.

29. These authors, under color of technical analysis, actually base their findings on the political premise that no pump tax should be considered unless the result is to raise overlying farm land rents and prices. Their model is tailored to the west side of Kern County, California, province of a few giant landowners whose political power and militant opposition to metering water use are well known.

30. The small charges cover expenses of the Gage Canal Co., which delivers in the cheapest old-fashioned way, by gravity, in rotation with other users. The Canal Co. pays nothing at the source for water as such.

31. Apologies to etymological purists for combining a Greek with a Latin root.

32. There is no need to embarrass the author, long retired, by naming him or her.

33. The good instinct behind the writer's point was that access to fisheries needs to be limited or otherwise better managed. That much of the work is valid.

34. Wahl is silent on the standing of those who have been getting water for excess lands in violation of federal law. His clear implication, however, is in their favor on all points. This is no small matter. For example, Southern Pacific Land Co. owns 81,200 acres in the Westlands Water District alone (Villarejo and Redmond, p. 46). Boswell has 24,000 acres. Both have larger holdings elsewhere getting more subsidized water.

35. Compounding the offense, Wahl wrote this at exactly the time that 40-year contracts on CVP waters were expiring and up for review. The whole point of those contracts, and the strife in 1948 on, and the Ivanhoe decision, was that subsidies were *not* to be perpetual. Congress has waffled since then, but there is no need to encourage them.

36. This is the main policy pushed in the otherwise scholarly and useful study of Wahl, 1989. He premises it on pp. 3, 5, repeats the point several times, and concludes with it on p. 295.

37. The plot thickens when we consider that ground storage is a traditional route whereby small users cross-subsidize large ones (Fellmeth, 1973, 168; Teitz and Walker, 59–67). This is because overlying landowners have pumping rights proportional to their acreage.

38. Severance taxes, property taxes, and gains taxes need to be combined optimally. We leave the details moot here.

39. U.S. Senator Bill Bradley promoted a bill in 1991 that would include a gains tax of 25 percent on transfers (Ellis, 1991a).

40. There are issues among states, and between states and the United States. Here we confine our attention to one state.

41. There are exceptions, too trivial to pursue here. The legal ambiguity is betrayed when some licenses are taxed as personal, others as real property.

42. Wells Hutchins authored a pamphlet on water law for California farmers in which boldface headings read "Water Rights Are Real Estate." These headings were apparently added by someone else; Hutchins' text says no such thing (Hutchins, 1956b). His full-dress book of the same year states that the 1928 Amendment to the California Constitution *limits* water claims previously considered property, and these limits "apply to the use of

all water under whatever right . . ." (Hutchins, 1956a, p. 19). ". . . the (new) appropriator may take the surplus without giving compensation" (*op. cit.*, p. 18). Those are not attributes of property.

43. The peroration of Sax's scholarly, documented treatise is quite stirring, as though inspired by Moses, Tolstoy, and Henry George.

44. No one ever could figure it out to the dollar, so cooked are the books. A major effort was made by Alan Post, 1982; a minor one by Mason Gaffney, 1982.

45. In *Ivanhoe* the USSC rejected the doctrine that the state holds water in trust specifically for excess landowners, opining instead that "The project was designed to benefit people, not land" (357 U.S. 296). In *Sporhase* (458 U.S. 941 [1982]) it rejected the use of trust doctrine to stop interstate transfers. I do not presume to enter the technical side of the law of trusts, but neither decision seems to have inhibited the flowering in the 1980s of the *public* trust doctrine to protect instream uses. In all three instances, the courts seem to be sorting things out as well as I could ask.

46. The point is made in Herfindahl and Kneese, 1965, rpt. 1974, p. 287.

47. Comprehensive Environmental Response, Compensation and Liability Act.

48. Hanemann (1991) uses "received theory" to refute Carson/Mitchell et al.

49. In the 1981 work they find the difference is only 1%. They cite this approvingly, 1989, pp. 32-33.

50. For a flagrant example of the genre see Wahl, p. 130. Economists today are trained to toss this off without thinking and even come to believe it themselves.

51. It's called the "contingent valuation method," or CV, because the questions are hypothetical.

52. Mitchell and Carson are a challenge to decipher. The "fine print" is scattered. It comes down to this, however. High-valued answers to WTA questions are an "artifact," and not "meaningful." "[WTP] and [WTA] *should* be within 5 percent of each other . . ." (pp. 22-23, emphasis supplied). To say "I want an extremely large . . . amount of compensation for agreeing to this" is a "protest answer," and they trash it. 50 percent or more of all answers are often such "protest" answers. These answers are "outliers" (p. 34). They remove "outliers" either outright or by using statistical devices that have the effect of discounting them (p. 226). See Mitchell and Carson, 1989.

53. The case is something like that of NASA's Goddard Space Flight Center and why they missed detecting the ozone hole before Farman found it in 1985. "Their instruments had recorded the losses (of ozone), but the computer interpreting the results had been programmed to ignore readings that deviated so far from normal" (*BW*, 22 July 91, p. 10).

54. Status-quo theory is shaken to the foundation by survey findings that $WTA \gg WTP$. Its criterion for acceptable policy changes is based on Pareto's and Edgeworth's notion that you mustn't deprive one rich landowner, even to help a thousand starving orphans, because you can't compare their subjective feelings. When, however, we acknowledge common birthrights to a clean environment, the shoe is on the other foot. Now you can't pollute anyone's air or water because the victims own it. They can be as unreasonable as any great landlord. This explains the busy-ness of theorists seeking to plug the dike.

55. Another large group to consider are the rural Hispanics of the southwest, who put

a high value on preserving their communities. A survey in Taos and Questa, N.M., found 80.6 percent were "Opposed and don't want to sell." Only 6.1 percent answered yes to "Would sell if price is right" (Brown and Ingram, p. 79). We are talking here about very poor people and very expensive water.

56. It was 1974 when a survey first showed $WTA \gg WTP$, "in contradiction to received theory (i.e., Coase)." This sent dozens of professors scurrying to torture the data until it confessed otherwise and saved Coase. Mitchell and Carson slog through a long literature survey, apparently impartially, but in the end find ways to stick with WTP after all (1989, pp. 37–38).

57. Some paranoia may be in order. According to Carson and Navarro (p. 830), Congress wanted measurements of WTA for CERCLA, but the U.S.D.I. overrode Congress and used WTP because of the "admitted difficulty by economists of measuring WTA . . ." That seems to say that economic consultants overrode the Congress of the United States by snowing them with technicalities!

58. That cuts at the root of the Pareto concept that is used as a bulwark against challenges to concentrated private property. According to Pareto, nothing may be changed if anyone is injured, unless that person be compensated. Only win-win changes are allowed, beginning from the status quo. The influence of rent-takers has worked this idea into the center of economic theory.

59. Vernon Smith wants to give away "water deeds" based on histories of pumping; Terry Anderson wants to give them away in proportion to land ownership (Terry Anderson, 1983b, pp. 101–02). The idea of firming up titles by actually charging for them seems taboo.

60. ". . . farmers or cities first divert and use water by crude systems. Conservation measures often are delayed until the pinch is on" (Patterson, 1991). In 1962, The Orange County Water District sued every upstream diverter on the Santa Ana. In the 1969 judgement, "each water agency's allotment is based on historical use" (Patterson, 1991). With that in mind, Riverside Mayor Davison boasted that "Riverside's water use doubled during my term of office" (1941–48). He deemed it an achievement. It reminds one of the university chancellor who boasted his greatest achievement was creating four new vice-chancellorships and several associate deanships.

61. This writer believes plain old-fashioned land speculation is an example of market failure. Some others see it as a wholesome, functional, integral part of the market. The writer's position on this is in the following. "Tax Reform to Release Land." In Marion Clawson (ed.), *Modernizing Urban Land Policy*. Baltimore: Johns Hopkins Press, 1973, pp. 115–52. "Land and Rent in Welfare Economics." In Marion Clawson, Marshall Harris and Joseph Ackerman (eds) *Land Economics Research*. Baltimore: The Johns Hopkins University Press, 1962, pp. 151–67. "The Unwieldy Time-dimension of Space." *AJES* 20(5):465–81. October 1961. "Land Rent, Taxation and Public Policy." *Papers of the Regional Science Association* Volume 23, 1970, pp. 141–53. "Privatizing Land without Giveaway." Conference of Social Collection of Rent in the Soviet Union, August 1990, pp. 1–58 (published in Russian by Ekograd, St. Petersburg, 1995). "Economic Aspects of Water Resource Policy." *AJES* 28(2):131–44 (April, 1969). "Ground Rent and the Allocation of Land among

Firms." In Frank Miller (ed.) *Rent Theory, Problems and Practices*. North Central Regional Research Bulletin 139 (University of Missouri Research Bulletin 810). Pp. 30–49; 74–82. "Land as a Distinctive Factor of Production." In Tideman, Nicolaus (ed.), *Land and Taxation*. London: Shephard-Walwyn, 1995.

62. In 1958 the U.S. Supreme Court, under California's former Governor Earl Warren (R), stunningly reversed the trial and appellate courts and a divided California Supreme Court, when it unanimously ruled that the BR held water in its own right, not in trust for landowners of the contracting districts. If there were any implied or constructive trust, it was on another principle: "The project was designed to benefit people, not land" (*Ivanhoe v. McCracken*, 357 U.S. 275, 1958, 296–97). The 9(e) contracts were valid (*op cit*, 299–300).

Thanks to that decision it is possible to market federal water today (Graham, 172–90). The California Supreme Court, shot down, had to admit their misuse of the trust doctrine. "(I)t was established that the title of the U.S. was or can be made unlimited" (53 Cal. 2d at 716, *cit.* Graham 101). Arguably, it is also the *Ivanhoe* decision that makes it possible to market state water. In the Burns-Porter Act of 1959, the state's answer to *Ivanhoe*, the state elected to use utility-type contracts on the 9(e) model (Graham, 188–90).

63. For a bibliography on 9(e) contracts see Graham, p. 172, n. 440.

64. They were invoking Section 8 of the Reclamation Act of 1902 which makes federally supplied water be "appurtenant to the lands irrigated." Big landowners sought to use this to establish permanent ownership in proportion to their holdings. Now they want to sell their surplus waters—that's different (Wahl, p. 148). Ironically, the concept of appurtenancy originated with folk-hero John Wesley Powell (Terrell, pp. 198 ff.), whose aim was quite the reverse. Powell was assuming the land would be divided into small tracts, so to him appurtenancy was a way of assuring subdivision of water.

65. On the Kings' River, Pine Flat Dam developed new waters never usable before, called "overschedule water." The locals demanded it all (Maass, 1951, p. 218). They also demanded full control of all storage space in the reservoir. They also demanded the power drops at Pine Flat and elsewhere (Kings' River Water Association, 1950, p. 11).

66. John Wesley Powell's idea had been to induce subdivision of land by subdividing water. This idea had been incorporated in the Reclamation Act, 1902. Although deeply subverted, it has never been repealed. George Chaffey in 1882 at Etiwanda and Ontario had developed another approach, subdividing land and water at the same time through the device of the mutual water company (Alexander, pp. 32–34), dominant in southern California. Mutuals, in spite of the name, are not true coops because voting is based on acreage.

67. I have discarded the vituperative pamphlets that used to flood the mails. For a long bibliography of this "literary exchange of unpleasantries" see Graham, 196, n. 528. It begins: "Kaupke Denounces Reclamation Bureau as Communistic and Untrustworthy," and runs on at that level of discourse.

68. The Kings River Water Association, publisher of those unpleasantries, is organized much like the MWDSC (analyzed below). Power is insulated from the voters in tiers, with an appointed board weighted to under-represent populous, democratic irrigation districts

(Fresno, Alta and Consolidated) (*op cit*, p. 6), and give power to a few big downstream landowners through landowner fronts without any democratic franchise. There is an executive committee appointed by the appointed board, and a powerful watermaster-spokesman at the apex.

69. Specifically, there was to be a Friant-Kings Canal, serving the lower Kings from the San Joaquin; and a "Kings-Earlimart" Canal tapping Pine Flat and using the elevation thus conserved to carry water south (Jopson and Giannelli, Plate 2).

70. In 1982 they got the residency requirement repealed; in 1984 they were still working through Congress to force the Bureau to weaken enforcement of repayment provisions (Wahl, pp. 149, 66).

71. A complete survey of political forces would include private power companies, who opposed independently generated and distributed power from public multipurpose projects, and had spiked state water power development in 1922 and 1925 (Sinclair, 1933, p. 43). Their position was clearly anticompetitive.

72. According to Morgan, the Corps next grabbed Maass, put him on the payroll and silenced him. I have no first-hand opinion on how fair that appraisal is, but Ballard (1980) later finds Maass indulgent toward the Corps and its clientele; Worster finds him "sympathetic toward agribusiness and its values" (Worster, p. 255).

73. The cliché among standard economists is that we must choose between equity (for the poor) and efficiency (for the general good). With landowner subsidies like these, they have it backwards. Given time and space one could headline that as another Grand Fallacy.

74. In Kern County this era may never end. In the 1980s, Stuart Pyle, longtime Director of the Kern County Water Agency, was still calling people "communistic" if they suggested controlling or taxing pumping.

75. Worster may be harsh. Clawson was outnumbered and tried to salvage what he could in a compromise. It didn't work: the opposition refused to sign anyway (*Acreeage Limitation*, 1944).

76. I saw him nearly daily from 1969–73. He did not warm to discussing this topic.

77. The AES has long sided with the big owners (Kirkendall, 1964, p. 201; Worster, p. 251). ". . . agricultural economists . . . have a vested interest in continuing their present relationship with farmer clientele which could be jeopardized if the agricultural economists were viewed by farmers as opposing the interests of farmers" (Scott, Jr., and Chicoine, p. 11).

78. It is tempting to see Downey as a traitor to Upton Sinclair's cause but that is perhaps too simple. Sinclair (1934) campaigned for *California* reform, explicitly opposing control from Washington. Downey, opposing a federal agency, was in that limited sense true to Sinclair. Otherwise, Downey does seem to have turned against his earlier professions.

79. It calls to mind a sagebrush ballad of Clawson's youth, the one about the straight narrow path.

80. High-income farm corporations today are not sharply different from the 1930s, while princes and wise men come and go. Some top incomes in the thirties went to Limoneira, Corona Foothill, Irvine, Kern County Land, Sutter Basin, Miller and Lux, Cal-

pack (Del Monte), J.G. Boswell, El Tejon, etc. ("California Agricultural Background," 1939, pp. 22851 ff.)

81. Cf. the limp apologies of Angelides and Bardach, pp. 33–39, and Wahl pp. 181–85. To their credit, they felt some *need* to rationalize.

82. This is done through the California Water District Act (Water Code Sections 34000 *et seq.*) The original water districts in California were "Wright Act" Irrigation Districts. Products of the populist-Georgist era, they were and are controlled by popular vote. Large landowners put through the later Water District Act to fend off popular control.

83. She was appointed in 1976 to replace her deceased husband, James Krieger. It is no disrespect to his memory (he is cited with respect herein), or to her personally, to acknowledge the impropriety of treating public office like family property. It says a lot, however, about the power and mindset of a tight circle who call themselves "Southern California's water community" (MWDSC *Focus*, May, 1990, p. 7).

84. MWD has built up a surplus, or "rate stabilization fund," that it uses to avoid peak-load pricing. It also taps the fund for "interest-free" expansion capital (Krieger, 1991).

85. Curiously, Scott Newhall, then editor of the *San Francisco Chronicle*, had opposed the 1960 California Water Plan, predecessor of the (aborted) Peripheral Canal, "criticizing the southern California penchant for population boosting" (Gottlieb, p. 505). It seems probable that Newhall, a respected pro in the ancient center of anti-southern power, had other priorities then. At that time Newhall lands were well outside the urban penumbra. Their traditional citrus empire enjoyed prior claims on the Santa Clara River of the south and state aid, which built Pyramid Dam on Piru Creek to regulate it.

86. These Kern County and Tulare Lake Basin landowners are also organized in districts with the land-based franchise, one-dollar one-vote. They favor the "Water Storage District" form. Some of their names are Arvin Edison, Buena Vista, North Kern, Tulare Lake Basin, Rosedale-Rio Bravo, Semitropic, and Wheeler Ridge-Maricopa (Graham, 207–08, n. 577). There is not much chance for local residents to assume democratic control of these districts and adopt policies favoring small farmers. The Kings River Water Association is organized in a manner analogous to the MWDSC (Kings River Water Association, 1950; Taylor 1949, p. 249).

87. These interests are disclosed in MWDSC, April 10, 1981, "Answers to Commonly Used Arguments against the Peripheral Canal."

88. It would be reasonable to surmise that the *Times'* editorial position is driven mainly by an interest in boosting its circulation. However, Dean Misczynski has shown that a project furthered by the *Times* in 1984 would have had Southern California pay 61 percent of the cost to get 8 percent to 13 percent of the water (Staff Report, *Avocado Grower*, December, 1984, p. 10). That seems a dubious way to boost local prosperity and circulation, leading one to imagine other motives like valorizing Kern County landholdings. There is ample precedent from the 1913 "Chinatown" case.

89. Upon losing, the *Times* showed its pride by running a Conrad cartoon of northern California, whose votes had beaten the project, as a giant male figure spitefully urinating south over the Tehachapis.

References

- Acreage Limitation in the Central Valley*, 1944. A Report on Problem #19, Central Valley Project Studies. Berkeley: U.S.D.A., Bureau of Agricultural Economics. Mimeo.
- Albonico v. Madera Irrigation District*, 1951. No. 8497, Superior Court of California in and for the County of Madera, Memorandum Opinion and Order, Nov. 21.
- Alexander, J.A. 1928. *Life of George Chaffey*. London: Macmillan and Co., Ltd.
- American River Flood Control District v. Board of Supervisors*, Sacramento County, 130 Cal Ap. 3d 707, 1982.
- Anderson, Terry, 1983a. *Water Crisis: Ending the Policy Drought*. Baltimore: Johns Hopkins University Press.
- Anderson, Terry (ed.), 1983b. *Water Rights: Scarce Resource Allocation, Bureaucracy and the Environment*. Cambridge: Ballinger Press.
- Angel, Arthur, 1944. *Political and Administrative Aspects of the Central Valley Project of California*. Los Angeles: UCLA.
- Angelides, Sotirios and Eugene Bardach, 1978. *Water Banking*. San Francisco: Inst. for Contemporary Studies.
- Ballard, Patricia Louise, 1980. ". . . And Conflict Shall Prevail: Reclamation Law, Water Districts, and Politics in the Kings River Service Area of California." MA Thesis, UCLA School of Architecture and Urban Planning.
- Bankole, Sharilyn, 1991. "MWD official wants to give more water to farmers." *Riverside, The Press-Enterprise*, March 30, p. A-4.
- Billings, Bruce, 1986. "A Severance Tax on Water." A paper delivered at annual meetings, Western Tax Association.
- Birdleough, Stephen and Alfred Wilkins, 1971. "Legal Aspects of Conjunctive Use in California." In David Seckler (ed.), *California Water*. Berkeley: University of California Press, pp. 263-70.
- Boulding, Kenneth, 1964. "The Economist and the Engineer: Economic Dynamics of Water Resource Development." In Stephen Smith and Emery Castle (eds.), *Economics and Public Policy in Water Resource Development*, Ames: Iowa State University Press, pp. 82-92.
- Bowman, Chris, 1990. "This agency hits pay dirt in drought." *The Sacramento Bee*, June 3, p. B-1.
- Bradley, Michael, Rebecca Morales et al., 1981. *The MWD: The Institution and Water Supply Planning*. A Report Prepared for the City of Santa Monica. Los Angeles: UCLA, School of Architecture and Urban Planning.
- Brewer, Michael, 1964. "Economics of Public Water Pricing: the California Case." In Stephen Smith and Emery Castle (eds.), *Economics and Public Policy in Water Resource Development*, Ames: Iowa State University Press, pp. 222-47.
- Brown, Lee, and Helen Ingram, 1987. *Water and Poverty in the Southwest*. Tucson: University of Arizona Press.
- Bryce, James 1891. *The American Commonwealth*. London: Macmillan and Co. 2nd Edition Revised. Volumes I, II.

- Buchanan, J.M. and Gordon Tullock, 1975. "Polluters, Profits and Political Response: Direct Controls vs. Taxes." *American Economic Review* 65:139-47.
- Burness, H. Stuart, and James P. Quirk, 1980. "Water Laws, Water Transfers, and Economic Efficiency: The Colorado River." *Journal of Law and Economics* 23 (April) : 133.
- Burness, H. Stuart, and James P. Quirk, 1979. "Appropriative Water Rights and the Efficient Allocation of Resources." *American Economic Review* 69:25-37.
- Burnham, John, 1981. "Reevaluation of the Peripheral Canal." Los Angeles. California Agricultural Background, 1939. Supplementary Exhibits, Part 62. *Violations of Free Speech and Rights of Labor*. Hearings before a Subcommittee of the Committee on Education and Labor, U.S.S., 76th Cong. 3d Sess, pursuant to Sen. Resolution 266 (74th Congress). Washington: U.S.G.P.O.
- California Farm Bureau Federation, 1948. "Facts on the Water Rights and Other Issues Confronting Irrigation Agriculture." 2nd ed. Berkeley. Mimeo.
- Canby, Judge William, 1991. Opinion in Santa Monica rent control case, 9th Circuit Court of Appeals, San Francisco, June 4, cited in Egelko, 1991.
- Carpenter, G. Alvin, 1940. *Farm Size in California*. Berkeley: B.A.E., U.S.D.A., mimeo.
- Carson, Richard T., and Robert C. Mitchell, 1988. "The Value of Clean Water." San Diego: Department of Economics, U.C.S.D., Discussion Paper 88-13.
- Carson, Richard T., and Peter Navarro, 1988. "Fundamental Issues in Natural Resource Damage Assessment," *NRJ* 28, Fall 88, pp. 815-36.
- Caswell, Margriet, and David Zilberman, 1990. "Managing California's Water in the Long Run." *Contemporary Policy Issues* VIII:92-105.
- Central Valley Basin*, 1949. U.S.D.I., Bureau of Reclamation. Senate Document 113, 81st Congress, 1st Session.
- Clawson, Marion, and Jack Knetsch, 1966. *Outdoor Recreation*. Baltimore: The Johns Hopkins Press.
- Clawson, Marion, 1987. *From Sagebrush to Sage*. Washington: Ana Publications.
- Coase, Ronald, 1960. "The Problem of Social Cost." *Journal of Law and Economics* 3(1), October, pp. 1-44.
- Consolidated People's Ditch Company v. Foothill Ditch Company*, 1928. 205 Calif. 54, 269 Pac. 915.
- Cooper, Erwin, 1968. *Aqueduct Empire*. Glendale, California, Arthur H. Clark.
- County of Fresno v. Malstrom*, 94 Cal App 3rd 974, 1979.
- Crampton, Frank, 1952. "California's War with the 'Welfare State'." *U.S.A.*, November, pp. 97-104.
- Crooke, Howard, District Manager, Orange County Water Conservation District, Santa Ana, speaking to the Water Study Section, Commonwealth Club of California, February 5, 1959. The Minutes are not for publication, but the facts cited here are of public record.
- Cummings, Ronald, et al., 1986. *Valuing Public Goods: an Assessment of the Contingent Valuation Method*. Totowa, NJ: Rowman and Allenheld.
- Dean's Committee of College of Agriculture and Environmental Science, 1968. *Agricul-*

- tural Development of New Lands*, West Side of San Joaquin Valley, Land, Crops and Economics. Report #1, U.C. Davis, 15 Feb.
- Dennis, Harry, 1981. *Water and Power*. San Francisco: Friends of the Earth.
- DeRoos, Robert, 1948. *The Thirsty Land*. Stanford University Press.
- Dinuba Sentinel*, 1947. "Kaupke Denounces Reclamation Bureau as Communistic and Untrustworthy," April 17.
- Downey, Senator Sheridan, 1947. *They Would Rule the Valley*. San Francisco: privately printed.
- Dunning, Harrison, 1982a. "The Water Rights Tangle." *California Tomorrow*, Spring, Vol. 17, No. 2, pp. 19–23.
- Dunning, Harrison, 1982b. *Water Allocation in California: Legal Rights and Reform Needs*. Berkeley: Institute of Governmental Studies, U.C.
- Dunning, Harrison, 1990. "Dam Fights Make California's Water Policy." *Bay on Trial* 2(2–3):12–16. (The Bay Institute of San Francisco, 10 Liberty Ship Way #120, Sausalito CA 94965.)
- Egelko, Bob, 1991. "Santa Monica wins rent control battle." *Los Angeles Times*, June 5, p. A–4.
- Ellis, Virginia, 1991a. "Bill Altering Use of U.S. Water in State Stirs Sparks." *Los Angeles Times*, May 31, p. A–3.
- Ellis, Virginia, 1991b. "Panel OKs Bill Easing Limits on Water Sales." *Los Angeles Times*, June 5, p. A–3.
- Ellis, Virginia, 1991c. "Urban Water Bill OKd by Assembly." *Los Angeles Times*, July 3, p. A–3.
- Evans, Jan, 1989. "Legislative Update." *Watchword* 11(23):1–2. Santa Barbara: Santa Barbara Board of Realtors, July 28.
- Feinerman, Eli, and Keith Knapp, 1982. "Benefits from Ground Water Management: Magnitude, Sensitivity and Distribution." Mimeo. Department of Soils and Environmental Sciences, University of California, Riverside.
- Fellmeth, Robert (ed.), 1971. *Power and Land in California*. In two volumes. Washington: Center for Study of Responsive Law.
- Fellmeth, Robert, 1973. *Politics of Land*. NY: Grossman Publishers.
- Fischhoff, Baruch, 1990. Book review of Mitchell and Carson, Using Surveys. *Public Opinion Quarterly* 54:286–89.
- Fulton, William, 1996. "Shifting Politics of Water." *Los Angeles Times*, May 19, p. M–1.
- Gaffney, Mason, 1960. "Rural–urban Competition for Water." *JFE* 42 (December): 1363–66.
- Gaffney, Mason, 1961. "Diseconomies Inherent in Western Water Laws: a California Case Study." Economic Analysis and Multiple Use, Report #9 in the series Water and Range Resources and Economic Development of the West. *Proceedings of Western Agricultural Economics Research Council, Range and Water Section*, Tucson, January 1961, pp. 55–82. Republished, Hearings on Economic Analysis and the Efficiency of Government. U.S. Congress. Joint Economic Committee. Subcommittee on Efficiency in Government. Part 2, pp. 389–405.

- Gaffney, Mason, 1962a. "Comparison of Market Pricing and Other Means of Allocating Water Resources." *Water Law and Policy in the Southeast*. Southeastern Water Law Conference, Univ. of Ga., Nov. 1961, published by Inst. of Law and Govt., Univ. of Ga., in cooperation with the Farm Foundation and the Southeastern Land Tenure Research Committee, pp. 195–229.
- Gaffney, Mason, 1962b. "Water Law and Economic Transfers of Water: a Reply." *JFE* 44(2):427–34, May.
- Gaffney, Mason, 1966. "Milliman on Urban Water Price and Tax Policy." *American Journal of Economics and Sociology*, 35 (September), pp. 399–404.
- Gaffney, Mason, 1967. "Urban Water Supply—A Second Look." *American Economic Association Proceedings*, May, pp. 192–95.
- Gaffney, Mason, 1969. "Economic Aspects of Water Resource Policy." *American Journal of Economics and Sociology* 38(2):131–44, April. Republished in Charles J. Meyers and Dan Tarlock (eds.) *Water Resource Management: a Law School Case Book*. Stanford Law School. Republished in Jesse Dukeminier and James Krier (eds.) *Property*. Boston: Little, Brown, 1981.
- Gaffney, Mason, 1973. "A Critique of Federal Water Policy." In R. Haveman and R. Hamnin, eds., *The Political Economy of Federal Policy*. New York: Harper and Row.
- Gaffney, Mason, 1977. "Diseconomics Inherent in Our Present Water Law." *Final Report of the Commission on Water Rights*. Sacramento.
- Gaffney, Mason, 1982. "Why I Recommend a 'No' Vote on the Resolution to Endorse the Peripheral Canal Proposal." Appendix to Report and Recommendation on Peripheral Canal, Report of Public Utility Commission to City Council, City of Riverside, in my capacity as Public Utility Commissioner, pp. 1–7.
- Gaffney, Mason, 1988. "Tapping Land Rents after Prop. 13." *Western Tax Review*(annual), pp. 1–55.
- Gaffney, Mason, 1989. "Non-point Pollution." *J. of Business Administration* 18(1 & 2), (Special Issue: Future Directions for Economics), pp. 133–54.
- Gaffney, Mason, 1992a. "Rising Concentration and Falling Property Tax Rates." In Gene Wunderlich (ed.), *Land Ownership and Taxation in American Agriculture*. Boulder: Westview Press, pp. 119–37.
- Gaffney, Mason, 1992b. "The Taxable Surplus in Water Resources." *Contemporary Policy Issues* 10 (October): pp. 74–82.
- Gaffney, Mason, in press, 1997. "Who Owns Southern California?" In Kenneth Wenzler (ed.), *Our Land and Land Policy*. Rochester: Rochester University Press.
- Gates, Paul, 1961. "California's Agricultural College Lands." *Pacific Historical Review* 30 (May): pp. 103–22.
- Gates, Paul, 1970. "The Suscol Principle, Preemption, and California Latifundia." *Pacific Historical Review* 39 (November): pp. 395–430.
- Gates, Paul, 1975. "Public Land Disposal in California." In James Shideler (ed.), *Agriculture in the Development of the Far West*. Washington: The Agricultural History Society.
- Gates, Paul, 1978. "California Land Policy and its Historical Context: the Henry George

- Era." Institute of Governmental Studies, *Four Persistent Issues*. Berkeley: University of California, pp. 1–30.
- George, Henry, 1871, rpt. 1901. *Our Land and Land Policy*. New York: Doubleday and McClure Co.
- George, Henry, 1879, rpt. 1929. *Progress and Poverty*. New York: Modern Library.
- George, Henry, 1898, rpt. 1939. *The Science of Political Economy*. New York: The Robert Schalkenbach Foundation.
- Gleason, Victor E., 1977. "Los Angeles v. San Fernando: Ground Water Management in the Grand Tradition." *4 Hastings Constitutional Law Quarterly*, pp. 703, 709.
- Goldenweiser, E.A., and Leon Truesdell, 1920. *Farm Tenancy in the United States*. U.S. Bureau of the Census, Census Monograph #4. Washington: U.S.G.P.O.
- Goldschmidt, Walter, 1947. *As You Sow*. The Free Press, Glencoe, Illinois.
- Goldschmidt, Walter, 1975. "A Tale of Two Towns." In Peter Barnes (ed.), *The Peoples' Land*. Emmaus, PA: Rodale Press, for the National Coalition for Land Reform, pp. 171–75.
- Goodall, Merrill, John D. Sullivan and Timothy De Young, 1978. *California Water: A New Political Economy*. N.Y.: Allenheld.
- Goodall, Merrill, and James Jamieson, 1974. "Property Qualification Voting in Rural California's Water Districts." *Land Economics* 50 (August): 292–94.
- Goodall, Merrill, 1991. "Property and Water Institutions in California." Draft, pp. 1–18, available from author, Claremont Graduate School.
- Gottlieb, Robert, and Irene Wolt, 1977. *Thinking Big*. New York: Putnam.
- Gottlieb, Robert, and Peter Wiley, 1982. *Empires in the Sun*. New York: Putnam.
- Gottlieb, Robert, 1988. *A Life of Its Own*. NY: Harcourt Brace Jovanovich, Publishers.
- Graham, Leland O., 1961. Some Aspects of Federal–State Relationships in California Water Resources Development. (Duplication process) Sacramento.
- Hadly, Scott, 1990. "Is water marketing a monster?" *Bay on Trial* 2(2&3):17.
- Hall, Carlyle, et al., 1979. Petitioner brief in O'Toole v. Irvine Ranch Water District, Superior Court, State of California, County of Orange, Civ. Nos. 29–12–52, 29–12–63, with Stipulation thereto.
- Hanemann, Michael, 1991. "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" *American Economic Review* 81(3):635–47.
- Hardin, Garrett, April, 1966. "Equality, One World and Science," *Western Destiny*, p. 17.
- Harding, S.T., 1950. "Background of California Water and Power Problems," *38 Cal Law Rev* 547.
- Harding, S.T., 1960. *Water in California*. Palo Alto: N–P Publications.
- Henley, Albert, 1969. "Land Value Taxation by California Irrigation Districts." In Arthur Becker (ed.), *Land and Building Taxes*. Madison: UW Press, pp. 137–45.
- Herfindahl, Orris, and Allen Kneese, 1965. "Some Problems Associated with the Use of Rural Areas." *Quality of the Environment*. Washington: Resources for the Future, Inc., pp. 74–79. Rpt. in David Brooks (ed.), 1974. *Resource Economics*. Washington: Resources for the Future, Inc., pp. 285–89.
- Hirshleifer, Jack, James DeHaven, and Jerome Milliman, 1960. *Water Supply*. Chicago: University of Chicago Press.

- Huffman, James L., 1993. "State Law of Water Rights." "Federal Allocation and Regulation of Water." In Polly Dyer (ed.), *Whose Water? Past, Present, Future*. Seattle: Institute for Environmental Studies, University of Washington, pp. 7-12.
- Huffman, Roy, 1953. *Irrigation Development and Public Water Policy*. New York: The Ronald Press Co.
- Hutchins, Wells, 1956a. The California Law of Water Rights. Sacramento: State Engineer of California in cooperation with Production Economics Research Branch, Agricultural Research Service, U.S.D.A.
- Hutchins, Wells, 1956b. *Irrigation Water Rights in California*. AES Circ. 452.
- Hutchins, Wells, 1967. *Irrigation Water Rights in California*. AES Circ. 452, revised.
- Hutchins, Wells, 1977. *Water Rights Laws in the Nineteen Western States, Vols. I-III*. Completed by Harold Ellis and Peter DeBraal. Misc. Pub. #1206, Natural Resource Economics Division, Economic Research Service, U.S. Department of Agriculture. Washington: U.S.G.P.O.
- In re Hood River*, 1924. 114 Oregon 112, 227 Pac. 1065.
- Ivanhoe I.D. v. Courtney McCracken, 357 U.S. 275, 1958
- Jaquette, David L., and Nancy Moore, with Albert J. Lipson, 1978. *Efficient Water Use in California: Groundwater Use and Management*. Santa Monica: The RAND Corporation.
- Johnson, R.W., 1989. "Water Pollution and the Public Trust Doctrine." *Environmental Law Review* 19: 485-513.
- Jopson, L.C., and W.R. Gianelli, 1955. *Water Right Applications by State Department of Finance . . . and Other Related Matters*. Sacramento: State of California, Division of Water Resources.
- Kahrl, William (ed.), 1978. *California Water Atlas*. Sacramento: State of California.
- Kahrl, William, 1982. *Water and Power*. Berkeley: University of California Press.
- Kaupke, Charles, 1957. *Forty Years on the Kings' River*. Fresno: Hume Printing, for The Kings River Water Association.
- Kings River Water Association, 1950. *Kings River - Facts and Falsehoods*. Fresno: Kings River Water Association.
- Kirkendall, Richard, 1964. "Social Science in the Central Valley of California." *California Historical Society Quarterly* 43 (3): 195-218.
- Kirkendall, Richard, 1966. *Social Scientists and Farm Politics in the Age of Roosevelt*. Columbia, Mo.: University of Missouri Press.
- Knapp, Keith, and Henry J. Vaux, Jr., 1982. "Barriers to Effective Ground Water Management: the California Case." *Ground Water* 20(1):61-66.
- Krieger, James, and Harvey Banks, 1962. "Ground Water Basin Management." 50 *California Law Review* 56.
- Krieger, Lois Boylan, 1991. "MWD Reserves." *Los Angeles Times*, Editorial Page, May 12.
- LaBahn, Edward A., 1971. "Taxation of Water Rights by Local Government." University of Southern California, School of Public Administration, typewritten, pp. 1-19.
- Landownership Survey on Federal Reclamation Projects*, 1946. U.S.D.I., Bureau of Reclamation. Washington: U.S.G.P.O.

- Large Landholdings in Southern California (A Report on), with Recommendations, 1919.* Issued by California Commission on Immigration and Housing. Sacramento: California State Printing Office.
- Leake, Robert Jr., and Stanley Barnes, 1979. *The Pine Flat Project on Kings River, California: Should Reclamation Law Apply?* Fresno: Kings River Water Users' Committee.
- Legislative Analyst, 1957. *Economics of a State Water Program.* Sacramento: California State Legislature.
- Le Veen, Philip, and Laura King, 1985. *Turning Off the Tap on Federal Water Supplies.* San Francisco, The National Resources Defense Council.
- Levin, Myron, 28 December 1988, "U.S. Issues New Policy on Marketing Water," *Los Angeles Times*, p. I-3.
- Maass, Arthur, and Raymond Anderson, 1978. *And the Desert Shall Rejoice: Conflict, Growth and Justice in Arid Environments.* Cambridge: MIT Press.
- Maass, Arthur, 1951. *Muddy Waters.* Cambridge: Harvard University Press.
- Maass, Arthur, 1952. *The King's River Project.* Inter-University Case Program. New York: Harcourt Brace & Co.
- MacCannell, Dean, and Jerry White, 1984. "The Social Costs of Large-scale Agriculture: The Prospects of Land Reform in California." In Charles Geisler and Frank Popper (eds.), *Land Reform: American Style*, Totowa, N.J.: Rowman & Allenheld, pp. 35-54.
- Marts, Marion E., 1961. "When Can California Join the Union?" Presidential Address, Association of Pacific Coast Geographers, in 1961 Yearbook, Association of Pacific Coast Geographers.
- McWilliams, Carey, 1939. "Land Monopolization." Chap. 2, *Factories in the Field*, Boston: Little, Brown and Co., pp. 11-27.
- McWilliams, Carey, 1976. *California: the Great Exception.* Santa Barbara: Peregrine Smith.
- Merritt, John, 1968. "Project Ground Water." *Washington Law Review* 44: pp. 259-306.
- Metzler, Barbara, 1991. "MWD OKs builder's plea for annexation." *Riverside, The Press-Enterprise*, February 28, p. B-4.
- Mitchell, David L., 1993. *Water Marketing in California.* San Francisco: Foster Economics.
- Mitchell, Robert C., and Richard Carson, 1981. "An Experiment in Determining Willingness to Pay for National Water Quality Improvements," draft report to the U.S. EPA. Washington, D.C.
- Mitchell, Robert C., and Richard Carson, 1989. *Using Surveys to Value Public Goods: the Contingent Valuation Method.* Washington: Resources for the Future.
- Moore, Nancy, and Timothy Quinn, 1984. "If 'Water-rich' Californians Could Sell, We'd All Profit." *Los Angeles Times*, September 17, editorial page.
- Moore, Nancy, 1991. "There Are Ways to Lessen Water Crisis." *Los Angeles Times*, May 8, editorial page.
- Morgan, Arthur, 1971. *Dams and other Disasters.* Boston: Porter Sargent Publishers.
- Muir, Frederick, 1991. "MWD Has Too Much of a Good Thing - Reservoirs Brimming." *Los Angeles Times*, 20 August, p. B-1.

- National Planning Association, 1971. "Federal Land Reclamation." An NPA Agriculture Committee Policy Statement. *Looking Ahead* 19(7):1-7.
- News Services, 1991. "Millions of Californians awash in unmeasured water." Riverside, *The Press-Enterprise*, March 16, p. A-3.
- Ostrom, Vincent, 1954. *Water and Politics*. Los Angeles: The Haynes Foundation.
- Patterson, Tom, 1991. "The Search for Water: How Riverside Got an Early Start." Riverside, *The Press-Enterprise*, 28 April, p.B-5.
- Peterson, Cass, 1986. "Farms Come Up Dry in Arizona Water Project." *Los Angeles Times*, June 9, p. IV-2.
- Phelps, Charles, Nancy Moore, and Morlie Graubard, 1978. *Efficient Water Use in California: Water Rights, Water Districts, and Water Transfers*. Report to the California State Assembly Rules Committee, Prepared in part under a grant from the Rockefeller Foundation. Santa Monica: The RAND Corporation.
- Phelps, Charles, Nancy Moore, and Timothy Quinn, 1982. "The Challenge of Water Conservation: Sharing the Burden Equally." *Sacramento Bee*, December 30, page no. n.a.
- Post, Alan, Chairman, 1982. *Report of the Task Force on California's Water Future*. State of California, Commission for Economic Development, Sacramento.
- Powell, John Wesley 1878. *Report on the Lands of the Arid Regions of the United States*, ed. Wallace Stegner, 1962. Cambridge, Mass.
- Pring, George, and Karen Tomb, 1979. "License to Waste." *Proceedings, 25th Annual Rocky Mountain Mineral Law Institute*, Article 25, pp. 1-67.
- Roberts, Polly, 1971. "Power and Land in California." A summary of the Nader Report chaired by Robert Fellmeth, 1971, q.v.
- Robie, Ronald, 1978. "Water Issues Facing California." Institute of Governmental Studies, *Four Persistent Issues*. Berkeley: University of California, pp. 31-52.
- Robinson, W.W., 1948. *Land in California*. Berkeley: U.C. Press.
- Salamon, Kathleen, 1991. "Desalination plant to treat basin's nitrate-laced water." *Los Angeles Times*, March 12, p.B-1.
- Saliba, Bonnie C., and David Bush, 1987. *Water Markets in Theory and Practice: Market Transfers, Water Values, and Public Policy*. Boulder: Westview Press.
- Sapiro, Stanley, 1953. Appellant's Opening Brief, Hanks v. Board of Equalization.
- Sax, Joseph, 1990. "The Constitution, Property Rights and the Future of Water Law," *U of Colorado Law Rev* 61:257.
- Schultz, T.W., 1954. "Some Guiding Principles in Organizing Agricultural Economics Research." *JFE* 36:18-21.
- Scott, John Jr., and David Chicoine, 1991. "Equity in Real Estate Taxation." University of Illinois, No. 91 E-465. Paper given at the Western Economics Association meeting, Seattle, July 2, 1991.
- Seckler, David (ed.), 1971. *California Water*. Berkeley: University of California Press. Staff Report, 1984. "Water Trading Suggested as One Way to Deal with Future." *Avocado Grower*, December, p. 10.
- Sinclair, Upton, 1933. *I, Governor of California, and How I Ended Poverty*. Los Angeles, privately published.

- Sinclair, Upton, 1994 [1934]. *I, Candidate for Governor and How I Got Licked*. Berkeley: University of California.
- Steinbeck, John, 1939. *The Grapes of Wrath*. NY: The Viking Press Inc.
- Storper, Michael, and Richard Walker, 1984. *The Price of Water*. Berkeley: Institute of Governmental Studies, University of California.
- Taylor, Paul S., 1949. "The Central Valley Project: Water and Land." *The Western Political Quarterly* 2:228–53, rpt. Taylor, Paul S., 1979.
- Taylor, Paul S., 1955. "The Excess Land Law: Execution of a Public Policy." *The Yale Law Journal* 64(4):455–514, February.
- Taylor, Paul S., 1957. "Destruction of Federal Reclamation Policy? The Ivanhoe Case." *Stanford Law Review* 10:76–111, December.
- Taylor, Paul S., 1958. "Excess Land Law on the Kern?" 46 *California Law Review* 2, 153, May.
- Taylor, Paul S., 1973–75. "Paul S. Taylor, California Social Scientist." Interviews conducted by Suzanne B. Riess and Malca Chall, Regional Oral History Office. Berkeley: Bancroft Library.
- Taylor, Paul S., 1974. "Whose Dam Is Pine Flat?" *The Pacific Spectator* 8:349–359, rpt. Taylor, Paul S., 1979.
- Taylor, Paul S., 1976. "Walter Goldschmidt's Baptism by Fire." *Anthropology UCLA* 8:129–40, rpt. Taylor, Paul S., 1979.
- Taylor, Paul S., 1979. *Essays on Land, Water and the Law in California*. NY: Arno Press.
- Taylor, Paul S., 1981. "Water in your COFPHE." *California Monthly*, Jan–Feb.
- Teitz, Michael, and Richard Walker, 1982. "Industry." In Ernest Engelbert (ed.), *Competition for California Water*. Berkeley: UC Press.
- Terrell, John U., 1969. *The Man Who Rediscovered America*. NY: Weybright and Talley.
- Trelease, Frank, 1957. "Government Ownership and Trusteeship of Water." 45 *Cal Law Rev* 638.
- Trelease, Frank, 1961. "Water Law and Economic Transfers of Water." *JFE* 43:1147–52.
- Truesdell, Leon, 1931. "Farm Tenancy in the United States." In E.R.A. Seligman (ed.), *Encyclopedia of the Social Sciences*, Vol. 6. New York: The Macmillan Co.
- Tulare Irrigation District v. Lindsay–Strathmore Irrigation District*, 1935. 3 Calif. 2nd 489, 45 Pac. (2nd) 1972.
- van Schilfgaarde, Jan, 1979. "Water Conservation Potential in Irrigated Agriculture." *Proceedings, 34th Annual Meeting of the Soil Conservation Society of America*, Ottawa, pp. 105–15. Available from USDA Salinity Control Laboratory, Riverside, California.
- van Schilfgaarde, Jan, 1982. "The Wellton–Mohawk Dilemma." *Water Supply and Management* 6(1/2):115–27
- Villarejo, Don, 1981. *New Lands for Agriculture: the California State Water Project*. Davis: California Institute for Rural Studies.
- Villarejo, Don, 1986. "How Much Is Enough?" *Federal Water Subsidies and Agriculture in California's Central Valley*. Davis: California Institute for Rural Studies, Inc.
- Villarejo, Don, and Judith Redmond, 1988. *Missed Opportunities—Squandered Resources*. Davis: California Institute for Rural Studies.

- Wahl, Richard, 1989. *Markets for Federal Water: Subsidies, Property Rights, and the Bureau of Reclamation*. Washington: Resources for the Future.
- Walker, Richard, and Michael Storper, 1982. "The Expanding California Water System." In W.J. Kockelman et al. (eds.), *San Francisco Bay: Use and Protection*. San Francisco: Pacific Division, A.A.A.S.
- Warne, William, 1947. "Land Speculation." *Reclamation Era* 33(8):176-77.
- Warren, Jennifer, 1991a. "Farmland Eyed as MWD Water Source." *Los Angeles Times*, 26 April, p. A-3.
- Warren, Jennifer, 1991b. "Well-made Plans keep Palm Springs an Oasis." *Los Angeles Times*, 28 April, p. A-3.
- Weatherford, Gary, Kim Malcolm and Barbara Andrews, 1982. "California Groundwater Management: The Sacred and the Profane." *Natural Resources Journal* 22 (4):1031-44, October.
- Wetzel, Bruce, 1978. *Efficient Water Use in California: Economic Modeling of Groundwater Development with Applications to Groundwater Management*. Santa Monica: The RAND Corporation.
- White, Gilbert, 1967. "The Changing Role of Water in Arid Lands." *Arizona Review* 16(3), March, pp. 1-8.
- Wilson, Edwin, and Marion Clawson, 1945. *Agricultural Land Ownership and Operation in the Southern San Joaquin Valley*. Berkeley: USDA, Bureau of Agricultural Economics.
- Worster, Donald, 1985. *Rivers of Empire*. New York: Pantheon Books.
- Wright, Donald, Chairman. Governor's Commission to Review California Water Rights Law, 1978. *Final Report*. Sacramento: State Printer.
- Wright v. Best*, 1942. 19 Cal (2d) 368, 382 121 Pac. (2d) 702.
- Young, Robert, John Daubert, and Hubert Morel-Seytoux, 1986. "Evaluating Institutional Alternatives for Managing an Interrelated Stream-Aquifer System." *AJAE* 68(4):787-97
- Young, Robert, and William Martin, 1967. "The Economics of Arizona's Water Problem," *Arizona Review*, College of Business, 16(3): pp. 9-18.
- Zonlight, Margaret A. Cooper, 1979. *Land, Water and Settlement in Kern County, California, 1850-1890*. New York: Arno Press.