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## REFLECTIONS ON RIPARIANISM\*

T. E. LAUER\*\*

*Aqua currit et debet currere, ut currere solebat*<sup>1</sup>  
*Sic utere tuo ut alienum non laedas*<sup>2</sup>

### I. THE WATER CRISIS

For more than a decade, it has been asserted that a water crisis is impending in the Eastern United States. As a society, we are becoming "water poor." Our wasteful habitual and traditional methods of water use must be changed, or they will only serve to aggravate the crisis. The present tendency is to assume that this water crisis will manifest itself at some ascertainable moment in time: that some day when we turn the faucet, no water will appear; that some morning we will awaken to discover the Mississippi dry; that some authoritative source will at a particular hour of a given day declare that all our available water is being used.

But the crisis will not occur so dramatically. The time of its arrival will never be known with precision. The appearance of such a crisis is not announced by a manifest increase in litigation or by a sudden proliferation of water disputes. Instead, it is evidenced by things which persons in our society *do not do*. A city does not grow or its growth is impeded; a cor-

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1. Water flows and ought to flow, as it has customarily flowed.

2. So use your own as not to injure that of another. This and the maxim in note 1 *supra* are legal maxims that have been frequently quoted over the decades by appellate courts in the Eastern United States in decisions relating to the use of water. The underlying policies which they express are not consistent, and much of the history of our water use law is comprehended within the struggle between these principles. The first, *Aqua currit . . .*, finds its basis in the status quo, and the need for preservation of established values. Its effect in modern water law tends to be negative, for it would rigidly impose upon contemporary society the conditions which our ancestors created or suffered to exist. The second, *Sic utero tuo . . .*, stresses the correlative nature of interests in real property, and more particularly of the interests of persons owning land upon which watercourses flow. Since all have common interests in the watercourses, the use or non-use of the water by one proprietor will affect all others. This maxim expresses a concern for the affirmative need of society to use the water while continuing to develop new beneficial uses for it. It suggests a principle whereby conflict may be resolved and constitutes an important ingredient in the doctrine of reasonable use.

The struggle between the principles inherent in these two maxims continues today in relation to water rights law. Any claim that the riparian system of reasonable use be retained in the Eastern states, which is the crux of the following discussion, hangs in the balance.

poration determines not to expand; or not to locate a new plant in a given area; a farmer does not develop a supplemental irrigation system for his crops; a region does not prosper, but stagnates.<sup>3</sup> Persons needing water are compelled to resort to more expensive and burdensome alternative sources. Some will, at a cost, develop substitutes, others will relocate where an adequate supply of water is available, while yet others will divert their energies and resources to other fields of endeavor.

It may be objected that no new realities have been depicted; that what is described is a water crisis which has always been with us. One does not develop water uses in the midst of an unpeopled, waterless desert. Where people and markets are found, if all readily available water is being used, one needing water must either acquire the supply of another, invest to develop a new source of water, or devote his resources to some other pursuit. This is therefore no new crisis, but a continuing, perpetual problem. It will continue until that unlikely day when man is able to produce without cost, at any location, a limitless supply of usable water.

But it can be answered that never before have matters attained the critical stage they now have reached. Acute water shortages have arisen and threaten to become more desperate as our population continues to grow and as per capita water use increases. Demand grows, and the natural supply remains static. It is only a question of time before the one overtakes the other, and in some places it is likely that this has already occurred. Worse still, the law does not prevent the waste of a great deal of what water is available.

The solution to the water problem must involve one or more of several limited alternatives. We must either: (1) develop new sources of water; (2) reduce our per capita water use; (3) stop our population growth; or (4) use our present supply of water more efficiently. Any solution will draw heavily upon science and technology. Through them we will learn to remove the salt from ocean water, to purify polluted waters, to distribute water economically over great distances, and to reduce the waste and even the use of water.

Nonetheless, the solution is not uniquely technological. Economics and the law also have a vital part to play. Scientific solutions must be economically sound. Their cost must either be within the means of private industry in our profit-oriented system, or be socially acceptable if the cost is to be borne by the public. Moreover, the law governing the use of water influences greatly the ability and inclination of persons in society to resort to improved and less wasteful means of water use. Water law must be sufficiently definite to enable persons to predict the consequences of

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3. It is easy to be complacent about water law, to adopt a wait-and-see attitude, to say that there is no present emergency crying for action. But if this attitude is taken, the state may never know what it has lost through the lack of development.

Trelease, *A Model State Water Code for River Basin Development*, 22 LAW & CONTEMP. PROB. 301, 321 (1957).

their actions. It should allow use of water without placing an arbitrary limitation upon the manner or place of use. The law can provide inducement, or compulsion, if necessary, to make persons use water efficiently.

The law relating to water use in the Eastern States has become a scapegoat. Its relative uncertainty, once praised as flexibility, is now criticised as offering no firm foundation for establishing in quantitative terms the nature and extent of water use rights. Restrictions upon place of use, and upon who may use water are said to frustrate development and prevent "the highest beneficial use" of the existing supply. Similarly, few inducements are held out to water users to make the most beneficial use of the water available to them.

It is clear that the law will create no new water. But it may either act as a positive force to bring about a more beneficial use of the existing water supply or it may block progress and hinder development of more beneficial uses and thereby contribute to the waste of this vital resource. It has been charged that the existing water law in the Eastern States, the doctrine of riparian rights, not only falls short of being optimum but is actively harmful because it prevents the full beneficial use of water. To what extent are these charges true?

## II. THE DIMENSIONS OF RIPARIANISM

Riparianism is reasonable use.<sup>4</sup>

In the beginning men were few and water plentiful. Conflicts over water were improbable. It was only necessary that a man avoid intentional infliction of harm upon his neighbor, as by deliberately turning away a watercourse so that it did not reach the neighbor, or by so defiling the waters that they were unfit for use. Elaborate rules were unnecessary. All that was required was that men follow the maxim *Sic utere tuo ut alienum non laedas*. This maxim found heightened expression in water law as reasonable use, and was first articulated in American courts in the early nineteenth century. The concept that water may be used freely, so long as the use is reasonable, is an appealing one. It has been equated with the Golden Rule.<sup>5</sup>

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4. Some legal writers have asserted that riparianism embraces two distinct doctrines, "natural flow" and "reasonable use." Kinyon, *What Can a Riparian Proprietor Do?*, 21 MINN. L. REV. 512 (1937); 4 RESTATEMENT (FIRST) OF TORTS § 849 at 341-47 (1939). Kinyon's research evidently provided the basis for the Restatement's somewhat amplified view; he served as an adviser to Division 10 of the Restatement, which includes water rights. Analysis of the decisions cited by Kinyon, however, indicates that while some differences exist between different Eastern jurisdictions in the treatment of nonriparian use, these differences hardly provide an adequate foundation for the conclusion that there are two distinct and separate doctrines. The Restatement hedges somewhat upon the matter, with a lame statement that while a "few courts" adhere to each of the "natural flow" and "reasonable use" doctrines, most courts have simply been guilty of "either not realizing that there are two distinct theories or not fully grasping their fundamental differences." 4 RESTATEMENT (FIRST) OF TORTS *supra* at 346. The so-called "natural flow" doctrine will be examined in detail in a forthcoming article.

5. Brown, *The Golden Rule As a Maxim of the Modern Law of Water Rights*, 56 AM. L. REV. 401 (1922).

The riparian doctrine, however, does not consist solely of the concept of reasonable use. Judicial opinions have developed, refined and limited its content, to the point that the mature doctrine is encrusted with numerous qualifications upon the pure notion of reasonable use. It might even be suggested that "reasonable use" as applied to the riparian doctrine has become a misnomer. As will be developed in the discussion to follow, the doctrine as propounded does not appear to ensure reasonable use of water resources. A more adequately descriptive term might be "limited relative beneficial use," with emphasis upon "limited" and "relative."

#### A. *The Character of the Riparian Doctrine*

The riparian doctrine applies to watercourses. Basically it is that a person owning land adjoining a stream may make use of the waters thereof, provided that the use is reasonable in the light of the uses of water being made by others similarly situated upon the same source. The character of the land ownership required—that of the *ripa*, or banks of the watercourse—gives rise to the term "riparian" as descriptive of the doctrine itself.

The concept of reasonable use transcends watercourses, and has also been applied to the use of waters of lakes<sup>6</sup> and underground waters.<sup>7</sup> However, the present examination will be confined to riparianism proper. It is appropriate at this point to note that the fully developed riparian doctrine described by legal writers over the past century and a half will only seldom be found in the jurisprudence of any given Eastern state. In most states, only a limited portion of the doctrine has been adopted by the courts, principally because legal disputes have infrequently arisen requiring judicial exploration and declaration of the extreme limits of the doctrine.<sup>8</sup> Many courts have not been called upon to refine the doctrine beyond a rudimentary statement of its adoption and existence within the jurisdiction.<sup>9</sup>

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6. See, e.g., VI-A AMERICAN LAW OF PROPERTY § 28.55 (1954); 1 R. CLARK, *WATERS AND WATER RIGHTS* § 52.1 (D) (1967).

7. See, e.g., 1 R. CLARK, *supra* note 6, § 52.2 (B) (3); Ziegler, *Water Use Under Common Law Doctrines*, in *WATER RESOURCES AND THE LAW* 51, 76 (1958).

8. The riparian rights doctrine has also been adopted to some degree in the Western states of California, Kansas, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Texas, and Washington, where it coexists with the prior appropriation doctrine. While a great volume of riparian rights litigation has arisen in these jurisdictions, the resulting flood of judicial opinions should be referred to very hesitatingly, if at all, in any examination of Eastern water law. These Western decisions are not used as a basis for the discussion of riparianism in this article. The reasons for this exclusion is that Western conditions are significantly different from those in the Eastern states, in terms of climate, water supply, and water use; and the Western courts have tended to sharply restrict the riparian right in favor of the right of prior appropriation. A more thorough discussion of this often-ignored distinction is found in Lauer, *The Riparian Right as Property*, in *WATER RESOURCES AND THE LAW* 131, 167-69 (1958).

9. In Missouri, for example, the paucity of judicial decision resulted in a heated debate as to whether the "natural flow" or "reasonable use" doctrine of water use would be followed in this State. Comment, *The Rights of a Riparian Landowner in Missouri*, 19 Mo. L. Rev. 138 (1954). Interestingly, if this question is

The basis of the riparian right is *access* to the watercourse.<sup>10</sup> An interest in land adjacent to the watercourse gives rise to the riparian right; indeed, the right to the use of the water has been said to be "part and parcel" of such land. A possessory interest in riparian land seems necessary; and easement or license which gives access to a watercourse is not enough.

Fundamentally, the right is to the flow of water. Since the earliest decisions it has been held that the riparian proprietor has no ownership of the corpus of the water in the stream.<sup>11</sup> In 1827 Justice Story said concerning the riparian's land ownership:

In virtue of this ownership he has a right to the use of the water flowing over it in its natural current, without diminution or obstruction. But, strictly speaking, he has no property in the water itself; but a simple use of it, while it passes along.<sup>12</sup>

Once removed from the watercourse, however, the water itself may become the subject of ownership.

Water may be used upon riparian land, but the doctrine forbids use elsewhere. The reason for this restriction has never been made clear, beyond a fear that riparian owners would suffer a shortage of water if nonriparians were admitted to its use.<sup>13</sup> Divergence exists as to the extent of the riparian tract. Some courts have held that only the portion of a tract which lies within the watershed of the stream to which it is riparian constitutes the riparian portion.<sup>14</sup> Others have restricted riparian rights

one of any great significance (which it may not be), it should be observed that the Missouri courts have not definitively established that the reasonable use test is the law of the state. However, the Missouri Supreme Court came very close in *Bollinger v. Henry*, 375 S.W.2d 161, 165 (Mo. 1964), involving an *artificial* watercourse, where the court observed:

Missouri is notable for the fact that it has almost no statutory law concerning rights of individual members of the public and of the public generally in public water and watercourses, and such cases as there are based on the common law usually arise from factual situations pertaining to the existence of too much rather than too little water.

10. *Embrey v. Owen*, 155 Eng. Rep. 579 (Ex. 1851); *Stockport Waterworks Co. v. Potter*, 159 Eng. Rep. 545 (Ex. 1864).

11. One may speculate as to what extent this emphasis upon the right to the flow depended upon the fact that in the early 19th century the principal uses of water were for powering mills, thus involving the use of the flow rather than the corpus.

12. 24 Fed. Cas. 472, 474 (No. 14,312) (C.C.D.R.I. 1827).

13. *See, e.g., Williams v. Wadsworth*, 51 Conn. 277, 304-05 (1883) which states:

If land not riparian may draw to itself, equally with land riparian, water for man and beast thereon, because it is in possession of a riparian owner, then land not riparian may take precedence of land riparian and deprive it of water for either man or beast. That such a possibility is within the defendant's claim shows that it puts in jeopardy the well established rule that the right of riparian land to water for man and beast shall yield to nothing except like needs upon like land above.

14. The watershed limitation provides a splendid example of the tendency of some legal writers to indulge in overly hasty generalization. Murphy, *A Short*

to all land currently under single ownership which was part of a riparian tract when title emanated from the sovereign, while a few have limited riparian rights to the smallest tract which has continually remained riparian.<sup>15</sup> In any case, unitary ownership of a tract, some portion of which is in contact with the watercourse, is required, and if a part of the tract not adjacent to the stream is conveyed, it carries with it no riparian rights. Thus it is clear that the basis for the right is access to the water from land in which one has a possessory interest. It also seems that the natural boundary of the watershed may limit the extent of the right, perhaps in keeping with Story's observation that "[t]he natural stream, existing by the bounty of Providence for the benefit of the land through which it flows, is an incident annexed, by operation of law, to the land itself."<sup>16</sup>

Judicial declarations tying the riparian right to the riparian land have not, however, been strictly followed in most jurisdictions. Thus, it is generally recognized that a riparian may grant to another person, whether a riparian or not, all or part of the riparian's right to the use of the water.<sup>17</sup>

*Course on Water Law for the Eastern United States*, 1961 WASH. U.L.Q. 93, 114-15, n. 114, purporting to describe Eastern water law, states:

The orientation of the common law of water is upon the rights of riparian land owners. A strict application of that rule would permit stream water to be used anywhere upon the land of a title-owner of any portion of the stream bank. This however is the rule in only a trifling number of jurisdictions. The overwhelming number make a further distinction which limits the definition of riparian land to that portion lying within the watershed of the stream whose waters the riverside owner wants to use.<sup>114</sup>

114. The very slight minority view is set out in *Jones v. Conn*, 39 Ore. 30, 64 Pac. 855 (1901); *Watkins Land Co. v. Clements*, 98 Tex. 578, 86 S.W. 733 (1905). Ziegler, *Water Use Under Common Law Doctrines*, in *Water Resources and the Law* 56-58 (1958), states the majority position, quoting Farnham, *II Waters and Water Rights* 1571 (1904).

But an examination of Ziegler's monograph discloses that in support of what Murphy calls the "overwhelming number" he cites cases from only four states—California, Oregon, South Dakota, and Texas, which include two of the jurisdictions Murphy has placed within the "trifling number" of the "very slight minority", and none of which are Eastern states. Turning to Farnham, an examination of § 463a, "What is riparian land?" shows that he cites decisions from only two states on the point under consideration—California in support of the watershed limitation, and New York opposing it. Farnham also cites *Jones v. Conn*, but not with reference to the watershed rule.

Thus, upon examination of the given sources, Murphy's "overwhelming number" of states in the Eastern United States which allegedly favors the watershed limitation turns out as follows: Eastern states favoring the watershed limitation: 0; Eastern states opposing it: 1. (In deference to Professor Murphy, who is normally a very sound legal scholar, it is just to point out that at least two Eastern states appear to have adopted the watershed test. *Stratton v. Mt. Hermon Boys' School*, 216 Mass. 83, 103 N.E. 87 (1913); *Gordonsville v. Zinn*, 129 Va. 542, 106 S.E. 508 (1921).)

15. 5 R. POWELL, *REAL PROPERTY* 371-74 (1968). It should be noted that these restrictions are almost entirely the product of courts in the Western states.

16. *Tyler v. Wilkinson*, 24 Fed. Cas. 472, 474 (No. 14,312) (C.C.D.R.I. 1827).

17. See, e.g., *St. Anthony Falls Water-Power Co. v. City of Minneapolis*, 41 Minn. 270, 43 N.W. 56 (1889); *United Paper Board Co. v. Iroquois Pulp & Paper*

But while the grantee of this right may be able to enforce it as against his riparian grantor, he is unable to assert it successfully as against other riparians who may interfere with his use of the water, or whose uses or rights may be interfered with by his use.<sup>18</sup>

The riparian doctrine pertains solely to the use of watercourses and does not interrelate other sources of water such as diffused surface water or underground water. In other words, the doctrine ignores the existence of the hydrological cycle; the man-made law disregards the manner in which water occurs naturally. To date, this arbitrary segregation of watercourses from other sources of water has not caused a great deal of difficulty in the Eastern states; conflicts have been few, primarily because the demands of use upon the varying forms have not been particularly large.<sup>19</sup> It is clear, however, that as uses of water increase and the limits of the various sources are approached, the effect of the use of streams and lakes, or of ground water, or even of diffused surface water will begin to be felt upon the other forms.<sup>20</sup>

### B. *The Nature of "Reasonable Use"*

The essence of the riparian doctrine is that the standard of reasonable use will be applied to determine controversies arising between riparian owners over the use of the watercourse. The reasonable use concept is not new. For over a century and a half it has furnished a basis for resolving riparian disputes. Moreover, throughout this period the concept has continued to develop, to the end that significant change has occurred in the application of the doctrine.

Eighteenth century water law concerned itself with maintaining the status quo; use of a watercourse was protected if it could be demonstrated to be an ancient use, having existed for at least twenty years.<sup>21</sup> The sense of the law was expressed in the maxim *Aqua currit . . .*

The industrial revolution brought an end to this era. As water use increased, conflicts arose, and the courts were compelled to consider in greater detail the nature of relationships between water users. The need for

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Co., 226 N.Y. 38, 123 N.E. 200 (1919). Statements in some cases appear to be *contra*, but can probably be explained on the ground of excessive judicial zeal. In *Harvey Realty Co. v. Borough of Wallingford*, 111 Conn. 352, 358-59, 150A. 60, 63 (1930), for example, the court declared that "any attempted transfer of the right made by a riparian to a nonriparian proprietor is invalid."

18. *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *Roberts v. Martin*, 72 W. Va. 92, 77 S.E. 535 (1913). See Note, *Are Water Rights Marketable in Wisconsin?*, 1966 Wis. L. Rev. 942.

19. See, e.g., *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *Springfield Waterworks Co. v. Jenkins*, 62 Mo. App. 74 (St. L. Ct. App. 1895); *Jones v. Proprietors of the Portsmouth Aqueduct*, 62 N.H. 488 (1883).

20. Dolson, *Diffused Surface Water and Riparian Rights: Legal Doctrines in Conflict*, 1966 Wis. L. Rev. 58.

21. Lauer, *The Common Law Background of the Riparian Doctrine*, 28 Mo. L. Rev. 60, 91-100 (1963).



new doctrinal development was manifest. For a time, the English courts flirted with simple prior use as a basis for giving a water right, but ultimately rejected this.<sup>22</sup> Instead, the reasonable use doctrine was adopted.<sup>23</sup>

There appear to have been several stages in the development of the reasonable use doctrine. At the outset, while the courts had begun to recognize the correlative nature of the interests of different persons who were using a single watercourse, the notion of retention of the status quo was still very strong. The result was that some early statements of riparian doctrine are almost schizophrenic in nature, seeking to embody both the pre-existent law and the need for just apportionment of the water. Thus, in the landmark 1827 case of *Tyler v. Wilkinson*, Mr. Justice Story, within a single paragraph, made the following statements: (1) The riparian owner has "a right to the use of the water . . . in its natural current, without diminution or obstruction." (2) The riparian right "being common to all the proprietors on the river, no one has a right to diminish the quantity which will, according to the natural current, flow to a proprietor below, or to throw it back upon a proprietor above." (3) "I do not mean to be understood, as holding the doctrine, that there can be no diminution whatsoever, and no obstruction or impediment whatsoever, by a riparian proprietor, in the use of the water as it flows; for that would be to deny any valuable use of it. There may be, and there must be allowed of that, which is common to all, a reasonable use."<sup>24</sup> Chancellor Kent, in the first edition of his *Commentaries*, makes a similar statement:

Every proprietor of lands on the banks of a river has naturally an equal right to the use of the water which flows in the stream adjacent to his lands, as it was wont to run (*currere solebat*) without diminution or alteration. . . . *Aqua currit et debet currere*, is the language of the law. . . . Streams of water are intended for the use and comfort of man; and it would be unreasonable, and contrary to the universal sense of mankind, to debar every riparian proprietor from the application of the water to domestic, agricultural and manufacturing purposes. . . . All that the law requires of the party, by or over whose land a stream passes, is, that he should use the water in a reasonable manner, and so as not to destroy, or render useless, or materially diminish, or affect the application of the water by the proprietors below on the stream.<sup>25</sup>

Although the reasonable use test was generally adopted during the middle third of the nineteenth century, the meaning of reasonableness was not altogether clear at first. Kent's pronouncement, for example, might be construed as defining a reasonable use to be one which did not materially

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22. *Bealey v. Shaw*, 102 Eng. Rep. 1266 (Ex. 1805); *Williams v. Morland*, 107 Eng. Rep. 620 (Ex. 1824).

23. *Embrey v. Owen*, 155 Eng. Rep. 579 (Ex. 1851).

24. 24 Fed. Cas. 472, 474 (No. 14,312) (C.C.D.R.I. 1827).

25. 3 KENT, COMMENTARIES 353-54 (1st ed. 1828).

diminish the water or affect its use by lower riparians. However, this highly restrictive interpretation was not followed.

A second possible definition of reasonableness looks to the nature of the use itself, isolated from the surrounding circumstances. Here the question is whether the use is reasonable in light of the needs of the user. To some degree this test has been followed. The courts have consistently held that domestic use of water is not only reasonable, but privileged to the extent that the domestic user can lawfully exhaust the watercourse for this purpose, even if the effect is to deprive lower riparians of water for their own domestic uses. This approach has been reflected in the classification of water uses as "natural" and "artificial," the former comprehending domestic use, and the latter including manufacturing, agricultural and other uses. By this approach, "natural" uses are always reasonable, but the others depend upon the setting. In addition, some courts have declared certain uses, such as using the stream to assimilate or carry off wastes (commonly denominated "pollution"), to be *per se* unreasonable.

A third approach, stressing the fact that the right of all riparians is equal, has tended to ignore the practicalities of adjustment between the correlative rights. Some courts, while employing the term "reasonable use," have nevertheless limited uses in terms of strict quantitative equality, permitting a use only to such an extent that a similar use could be made by all other riparians at the same time. Thus, in *Mayor and City Council of Baltimore v. Appold*, the Maryland Court of Appeals in 1875 refused to permit the city to add a supply of water to a stream, saying:

If the appellant has the right to empty an artificial stream of water into "Roland's Run," every other riparian owner would be entitled to the same right, and the necessary consequence would be, not only to affect the quantity and increase the natural current of the stream, but in fact to change the character and nature of the stream itself. Such a use cannot be said to be incident to the *reasonable user* of a stream; on the contrary, it goes beyond the natural right to which the appellant, in common with all other proprietors, is entitled. . . .<sup>26</sup>

For the most part, however, the courts have adopted a fourth approach which has tended to recognize the correlative nature of the interests involved. For example, in the 1832 Connecticut decision of *Twiss v. Baldwin*,<sup>27</sup> the court referred to the maxim *Sic utere tuo ut alienum non laedas* in resolving a dispute between mill-owners over the flow of a stream. In 1855, the Pennsylvania Supreme Court observed in *Wheatley v. Chrisman*:

The proposition of the defendant was, that he had a legal right to use a *reasonable* quantity for the purposes of his business. The Court replied that his business might reasonably require more than

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26. 42 Md. 442, 456 (1875).

27. 9 Conn. 291 (1832).

he could take consistently with the rights of the plaintiff. We cannot see how or on what principle the correctness of this can be impugned. The necessities of one man's business cannot be the standard of another's rights in a thing which belongs to both.<sup>28</sup>

The determination of reasonableness thus requires a comparison of competing uses. This meaning of reasonableness which recognizes the equality of right in a correlative sense has been generally adopted in the Eastern United States.

In determining reasonableness, then, it is necessary to consider in detail the relative positions of the conflicting parties. Conflict of course, is necessary, for unless one use interferes with another, the controversy giving rise to the need to ascertain which use shall prevail never materializes. And reasonableness will be determined only as between parties to the litigation. Their uses may or may not be reasonable as against other persons not parties, but the court does not reach this question.

While a full and complete delineation of what constitutes reasonable use in every situation may not be possible, some attempt at listing the principal elements has been made. It has been said that reasonable use is a question of fact having regard to the subject-matter and the use; the occasion and manner of its application; its object and extent and necessity; the nature and size of the stream; the kind of business to which it is subservient; the importance and necessity of the use claimed by one party and the extent of the injury caused by it to the other.<sup>29</sup>

Elements not considered in determining reasonableness include priority of use and the extent of riparian frontage or riparian land.<sup>30</sup> Nor, aside from the preference accorded domestic use, are any preferences recognized between types or classes of use. In addition, it should be noted that non-use of the riparian right does not constitute an abandonment or forfeiture, and that new uses may be initiated at any time.

When the right of a riparian owner is infringed through an unreasonable or unprivileged use, he may seek relief by way of injunction or damages. Failure to do so within the statutory period will give the wrongdoer a prescriptive right to continue such use. Damages are frequently small in amount. To avoid recurring actions for damages, injunctive relief is frequently sought. Here, questions of extreme difficulty have sometimes arisen,

28. 24 Pa. St. 298, 302 (1855). A year later in *Parker v. Hotchkiss*, 25 Conn. 321 (1856), the court approved an instruction to the jury which stated in part: That the question of reasonable use was one for the jury, and in disposing of it they were not to look alone at what would be a reasonable use at one mill if there were no others on the stream, but to take into consideration the wants of the other mills, and from all the circumstances say whether the use in the particular instance was reasonable.

29. *Dunlap v. Caroline Power & Light Co.*, 212 N.C. 814, 820, 195 S.E. 43, 47 (1938). See also the classical language of the Minnesota court in *Red Rover Roller Mills v. Wright*, 30 Minn. 249, 15 N.W. 167 (1883).

30. VI-A AMERICAN LAW OF PROPERTY § 28.55 (1954).

as where the lower riparian with his little farm seeks to enjoin a wrongful upstream use by a large industry. The courts have generally affirmed that injunctive relief cannot "properly be refused on the ground of the magnitude of the defendant's interests and the importance of its business,"<sup>31</sup> and numerous decisions support this view.<sup>32</sup> The problem here is that the lower owner who is given injunctive relief is then free to play "dog-in-the-manger"<sup>33</sup> with the water unless the upper owner is willing to meet his price for the property interest. Denial of injunctive relief, on the other hand, amounts to giving the upper owner a virtual power of eminent domain, simply because of the magnitude of his economic interest.

### III. THE USEFULNESS OF RIPARIANISM

It is apparent from the foregoing description that the riparian doctrine possesses certain commendable aspects. Foremost among these is its flexibility.<sup>34</sup> The doctrine does not freeze water rights into an unyielding framework, but leaves room for judicial recognition of developing social need and new scientific verities. The courts are not bound by the static concepts of any particular era in resolving disputes over water uses; instead, they are free to shape water rights according to the needs of the particular time and place. The doctrine permits a frank acknowledgement of shifting social values and needs.

From the point of view of the riparian owner, the use of water under a riparian right may be made at a time and in a manner most responsive to his particular needs. The purpose of the use and the quantity of water taken may be freely modified, qualified only by the reasonableness test. In addition, the use of water need not be constantly enjoyed in order to preserve the right. Non-use even for a prolonged period will not affect the right to resume a reasonable use at such time in the future as the needs of the riparian may require. Accordingly, the riparian owner may accommodate his water uses to the needs generated by his use of the land. Except where the supply of water is uncertain or demand approaches the quantity of water available, the riparian may freely plan for uses of water to be initiated in the future.

Where conflicts arise, the riparian test of reasonableness embodies the flexible concept of beneficial use. The riparian doctrine, in the words of one writer, "facilitates an adjustment of conflicts between uses in accord-

31. *Parket v. American Woolen Co.*, 195 Mass. 591, 602, 81 N.E. 468, 470 (1907).

32. *See, e.g., Whalen v. Union Bag & Paper Co.*, 208 N.Y. 1, 101 N.E. 805 (1913). The contrary position was taken in *Sanderson v. Pennsylvania Coal Co.*, 113 Pa. 126, 6 A. 453 (1886).

33. This "canine" characteristic of riparianism was remarked upon by Mr. Justice Jackson in *United States v. Gerlach Live Stock Co.*, 339 U.S. 725, 751 (1950).

34. FISHER, *WESTERN EXPERIENCE AND EASTERN APPROPRIATION PROPOSALS, THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES* 75, 78 (D. Haber & S. Bergen ed. 1958).

ance with the needs of each user and the dictates of the general public interest."<sup>35</sup> Thus, reasonable use may be favorably contrasted with a rigid system of rights which balances priorities only according to the needs of one brief moment in time and then fixes them as a yoke upon succeeding generations.

When it appears that the riparian doctrine, as presently articulated by the courts, fails to provide adequate solutions to water use problems, arguably the proper response is not simply to abandon the doctrine through radical adoption of water law systems created to solve the problems of different climates or cultures. Instead, resort should once more be had to the common law to modify or even refashion the riparian doctrine to meet the needs imposed by new conditions.

Granted, the riparian doctrine functions most effectively where water supplies are normally adequate, with few potential conflicts between users, and where the uses being made of the water are fairly constant and generally similar in nature, so as to provide a ready basis for comparison. The doctrine is far less appropriate where water shortage is the usual condition, with constant or frequently recurring conflict between users, and where water uses are widely diversified in their nature. Here comparison of the relative merit between uses becomes highly abstruse and complex, requiring a great deal of detailed data. Even then such comparison depends in large part upon sweeping value judgments as to what may constitute social benefit or detriment.

Effective riparianism requires judges who are willing to examine carefully the relative positions of conflicting water users, and who are willing to weigh large quantities of expert testimony and other scientific evidence. In water cases the judges must be willing to frame judgments and decrees which provide definite guidance to the parties in shaping their conduct, and which contain provision for review and modification. Further, judges must not hesitate, when circumstances warrant, to revise their conception of which uses are the most beneficial and therefore to be favored. Changes in the doctrine itself should be made where necessary to promote the interests of riparian owners and the welfare of the public.

Given these conditions, the riparian doctrine will reflect the highest qualities of the common law system, and may provide an excellent legal framework for resolution of water use disputes.

#### IV. SHORTCOMINGS OF RIPARIANISM

Critics have identified a number of alleged deficiencies in the riparian doctrine which bear examination. In making this examination, however, care must be taken to recognize that some of the alleged shortcomings are the necessary concomitants of the asserted benefits described in the preceding section. Further, some attention should be paid to the credentials of the

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35. *Ibid.*

critics, for among their ranks are those who have an avowed and unswerving allegiance to the cause of universal adoption of a system of prior appropriation.

The principal criticism of the riparian system is the uncertainty which exists as to the right to use water.<sup>36</sup> Because of the very nature of the reasonable use concept, it cannot be known with any degree of definiteness who may use the water, how much he can use, or for what purpose he can use it. A use which today furnishes no basis for complaint may give rise to a lawsuit tomorrow; what is reasonable at one moment may prove unreasonable shortly thereafter. A person initiating a particular use is uncertain as to whether his use may interfere with the reasonable use being made by some other person, or whether it may interfere with a reasonable use which may be initiated by someone in the future. Further, the user has no assurance that, after he has invested in an enterprise which depends upon a given source of water, his supply will not be jeopardized by a new and reasonable use made by some upper riparian. Any riparian owner (and perhaps in some instances a non-riparian) may at any time initiate a new use of water or increase the use which he is making, and it will be protected if reasonable.

The uncertainty as to the dimensions of the right to use a specific quantity of water from an ascertained source for a given purpose at a definite time, is aggravated by the fact that the judicial mechanisms for resolving water controversies are severely limited. Not only is litigation time-consuming, expensive, and uncertain in its outcome, but the results, even of successful litigation, are frustratingly narrow and limited in scope.

In addition, the courts are often unable or unwilling to fashion judgments in water use disputes which will grant any broad degree of protection. First, a judgment relates only to the parties before the court. While the court may be able to determine that as between riparians *A* and *B* on the Black River, *A*'s use of water for irrigation is reasonable and *B*'s interference with it is wrongful, this judgment will not be enforceable against Black River riparians *C* and *D*, who were not parties to the action. Nor is it likely that the public interest in the beneficial use and development of the water resource will receive significant attention in the litigation between *A* and *B*.

Second, the courts generally will not apportion the stream as between the parties; the judgment will be an "all-or-nothing" finding for one party or the other. Either *A*'s use is reasonable and will be protected, or it is unreasonable and will not.<sup>37</sup> The courts have been reluctant to explore the

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36. See, e.g., Marquis, Freeman & Heath, *The Movement for New Water Rights Laws in the Tennessee Valley States*, 23 TENN. L. REV. 797, 801 (1955); Farnham, *The Improvement and Modernization of New York Water Law Within the Framework of the Riparian System*, 3 LAND & WATER L. REV. 377, 378, 431-33 (1968).

37. There are exceptional cases, where the courts have made specific rulings as to precisely what each of the parties may do. See, e.g., *Harris v. Brooks*, 225 Ark.

possible dimensions of an accommodation satisfactory to all parties. If compromise is to be achieved, the parties must work it out among themselves. This judicial reluctance is attributable at least in part to the lack of supervisory or planning facilities available to the courts.

Third, the judgment pertains only to the facts as they exist at a given time. New developments which may change the relative positions of the parties cannot be adequately dealt with. Therefore, as conditions change, the old judgment becomes irrelevant, and the need for a new judicial determination becomes evident.<sup>38</sup>

Nevertheless, litigation is the only practical course open to the riparian seeking to vindicate his right. Under the riparian doctrine, administrative determinations are unavailable. The water user is not likely to be able to induce *all* other riparians on the watercourse to enter a consensual agreement allowing him to use a definite quantity of water in a given manner. Finally, attempts at self-help are likely to be futile in an era in which this doctrine seems to be strongly disapproved.

Arguably, the uncertainties of riparianism and the limited scope of judicial action have a detrimental effect upon beneficial water use and development.<sup>39</sup> One writer, for example, declares that under the riparian doctrine, "there is insecurity in any investment for developing, storing, or using water, because there is no assurance that other landowners will not some day undertake to develop and use the same water."<sup>40</sup> Others have contended that investment is discouraged by the lack of security afforded under the riparian doctrine.<sup>41</sup> The failure to develop and use the water will only result in serious waste of this valuable resource, because persons who have a need for the water permit it to flow unused because of their unwillingness to make capital investments due to the uncertainty of their right.<sup>42</sup>

436, 283 S.W.2d 129 (1955); *Warren v. Westbrook Mfg. Co.*, 88 Me. 58, 33A. 665 (1895). Courts have generally been willing to construe grants to the use of water with more precision than they have applied to purely riparian disputes. *See, e.g., Patten Paper Co. v. Kaukauna Water-Power Co.*, 70 Wis. 659, 35 N.W. 737 (1887).

38. Of course the new determination will be as narrow in scope as the old one. This no doubt has a considerable chilling effect upon the willingness of the parties to undergo again the expense and pain of a lawsuit to determine their rights.

39. *See Farnham, supra* note 36, at 378, text and n. 4, and at 406-08.

40. Thomas, *Hydrology vs. Water Allocation in the Eastern United States*, *THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES*, 165, 179-80 (D. Haber & S. Bergen ed. 1958).

41. *See, e.g.,* Trelease, *A Model State Water Code for River Basin Development*, 22 *LAW & CONTEMP. PROB.* 301 (1957); Trelease, *Policies for Water Law: Property Rights, Economic Forces, and Public Regulation*, 5 *NAT. RES. J.* 1, 23 (1965).

42. As an example, assume that *A* wishes to construct a manufacturing plant which will require the use of *X* gallons of water per day. He inspects a site on the Black River, which he can purchase for a reasonable sum. Labor and power are available, raw materials can be obtained close by, and transportation to market is moderate in cost. The water in the Black River appears adequate. But does *A*

Of course, this basic assumption may be incorrect. The investment decision may not be affected in any measurable degree by lack of a certain water supply. In reality, the whole matter of investing capital is fraught with a congeries of uncertainties: prices, market conditions and demand, raw material availability, taxes, labor cost, public regulation, power, transportation. In comparison, water supply may assume a very minor role.

Further, it is difficult to find evidence that any system of property rights has ever frustrated economic development when other conditions were favorable. May not the economic cost of overcoming the water supply uncertainty simply be accounted for as a part of developmental cost? And, as contrasted with other costs, how significant is the cost of acquiring an assured water supply, or of developing a substitute supply if the one in use fails?

Other shortcomings of the riparian doctrine have been observed. No adequate account is taken of the hydrological cycle, of the inter-relatedness of all water sources. It is said that the limitation of water use to riparian land is excessively restrictive, and prevents many uses which would clearly be of benefit to individuals and to the public. In a related vein, the fact that the riparian right is appurtenant to the riparian tract of land and cannot be meaningfully transferred apart from the land is said to contribute to the inability to put watercourses to optimum use. As described in the next section, one solution proposed to alleviate the asserted shortcomings of uncertainty and unduly restricted rights of use involves the free transfer of the water use right, in a "quantified" condition, so that the transferee would obtain an enforceable right to a specific quantity of water from an ascertained source.

#### V. ALTERNATIVES TO RIPARIANISM

Can the riparian doctrine be modified so as to retain the advantages of the reasonable use concept, while at the same time removing the objection-

have any assurance that it will remain adequate? How could he gain such assurance under the riparian doctrine?

Assume that *A* goes ahead and purchases the site and constructs his factory. All goes well until *A* suddenly discovers that the water supply has diminished below *X* gallons. His attention is turned upstream, and he discovers that since his use began, two other factories have begun to use the water, and several farmers have started to engage in supplemental irrigation. Again, what can *A* do? He could take one or more of the other users to court and seek to establish that their uses are unreasonable as contrasted with his. But what are his chances of success? Prior use of the water gives him no better right. Are irrigators or upstream factories engaged in *unreasonable* use? Can *A* show that it was in fact the defendant irrigators and not the non-defendant factories (which he neglected to join in the action) which caused his injury? And even if *A* does prevail, is not his something of a Pyrrhic victory: for might not another new upstream user come upon the scene immediately thereafter, forcing him to begin the whole litigation cycle over again?

One should also consider the possibility that if *A* is finding the water quantity insufficient for his uses, are not downstream riparians experiencing the same shortages for *their* uses—and might they not choose to bring their actions against *A*, claiming that his use was the cause of their loss?



able features which hinder beneficial use of the water resource? Numerous suggestions for reform have been advanced, some quite radical in the degree of change which would result and others retaining at least some recognizable vestige of riparianism.

#### A. *Prior Appropriation*

One radical solution to the shortcomings of riparianism has been the suggestion that the Western system of prior appropriation be adopted in its place. One Eastern state, Mississippi, has followed this course through legislation adopting such a system.<sup>43</sup> There have been a number of eloquent proponents of prior appropriation, principally water scholars of Western background. Dean Frank Trelease of the University of Wyoming College of Law has asserted that "prior appropriation, in the balance, seems to be the best extant system of law for river basin development in the United States."<sup>44</sup>

Under the doctrine of prior appropriation, reasonable use would be abandoned, as well as the riparian owner's exclusive right to make use of the watercourse. Adoption of the doctrine would come about through legislation or constitutional amendment. Priority of use, properly recorded or registered, would provide the criterion for allocating water use rights. Appropriators would not need to be riparian owners but would only need access to the water source. Once acquired, the right would be perpetual, but could be lost by consistent nonuse. New uses could be accommodated, so long as there was water available to initiate them. Where conflicts existed between persons desiring to initiate new uses, preferential treatment would be accorded those whose use was more beneficial, according to a priority scale legislatively or administratively established. The appropriator would receive a right to use a specified quantity of water from a determined source, subject to the right of senior appropriators to satisfy their rights first. Some prior appropriation states require that the water be used in connection with particular tracts of land, and some further restrict the purpose of use to that which the appropriator originally made. Other states allow change to be made, sometimes only after administrative approval.

It is contended that the prior appropriation doctrine "avoids much of the uncertainty inherent in the riparian rights rule" by giving "each appropriator relative certainty as to the amount of water which will be available for his use."<sup>45</sup> Trelease asserts that the system is one of "secure water rights that tend to encourage investment and thus lead to maximum use."<sup>46</sup> However, the system provides certainty and security only to the few who

43. MISS. CODE ANN. §§ 5956-01-30 (1966 Supp.).

44. Trelease, *supra* note 41, at 302. See also the discussion in Marquis, Freeman & Heath, *The Movement for New Water Rights Laws in the Tennessee Valley States*, 23 TENN. L. REV. 797 (1955).

45. Marquis *et al.*, *supra* note 44, at 832.

46. Trelease, *Alaska's New Water Use Act*, 2 LAND & WATER L. REV. 1, 36 (1967).

are assured a supply of water because their uses were initiated earliest in time. Other appropriators will have water to use only if there is a supply remaining after all senior appropriators have been satisfied to the full extent of their right. There is no proration in time of shortage. Inadequate supply means that some users are fully supplied while others receive nothing.

While it is frequently stressed that the prior appropriation system ensures the maximum beneficial use of water, there is valid cause for believing that the system instead tends to "freeze" uses of water into a rigid pattern based upon the purposes for which the water was used at the time the appropriation was originally begun. While Western law requires that water use shall be beneficial,<sup>47</sup> there do not appear to be adequate mechanisms established whereby uses which are non-beneficial may be eliminated. While some states allow "superior" uses to oust "inferior" ones (upon payment of due compensation),<sup>48</sup> the basis for such private condemnation is too indefinite to permit ready replacement of those uses which may be of less than maximum public benefit. A typical statute may provide that agricultural purposes are to be preferred over industrial uses, and that a higher use may acquire water by condemning an inferior one, but seldom is it sufficiently broad to permit a more beneficial use of a given class to condemn another use of the same class.<sup>49</sup> The result is that there is no practical means of discouraging uses which have ceased to be beneficial or which use the water in an inefficient manner. Consequently, appropriators are not impelled to adopt water-saving methods or new, more beneficial uses.

Similarly, the forces of the market place cannot be confidently relied upon to maintain uses of the highest beneficial nature in the prior appropriation system. For example, the appropriative right may be restricted to a particular use, or a particular tract of land. While many states do provide that administrative approval may be obtained to permit the water right to be transferred apart from the land, this does not guarantee that such transfers will take place. The "dog-in-the-mangerism" which characterizes riparianism at its logical extreme<sup>50</sup> may also exist under prior appropriation where an appropriator continues to make an efficient use of the water in spite of demand by other persons who wish to make a more effective and beneficial use of it.

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47. 1 R. CLARK, *WATERS AND WATER RIGHTS* § 19.2 (1967).

48. *Id.* § 22.7.

49. Washington, for example, is an exception. WASH. REV. CODE ANN. § 90.03.040 (1962), provides: "In condemnation proceedings the court shall determine what use will be for the greatest public benefit, and that use shall be deemed a superior one;" but that one irrigator cannot condemn the water of another who is irrigating "by the most economical method of artificial irrigation applicable to such land according to the usual methods of artificial irrigation employed in the vicinity where such land is situated."

50. See note 33 *supra*.

Further objections to prior appropriation may be made on the ground that the constitutional and statutory provisions which prefer certain kinds of uses are often arbitrary. They may reflect the values and conditions of an earlier day, rather than modern needs. The result is that the system tends to reflect the maxim *Aqua currit*.

Thus, while the "first come, first served" norm of prior appropriation may have been fitting for a frontier society in which the earliest settlers were properly accorded a reward for their hardiness, it would not in practice seem to give any conclusive benefits over riparianism as the basis for Eastern water law. Prior appropriation should be looked upon as it actually is, a means whereby, in a water-poor land, the first inhabitants excluded later arrivals from the water.

### B. The Permit System

A second solution has been the creation of a regulatory system whereby permits to use water would be issued by a state agency, for a designated term of years. Iowa has adopted such a "permit system,"<sup>51</sup> and it has also been proposed for adoption in other states in the Model Water Use Act.<sup>52</sup>

The typical permit system would establish a state regulatory agency to inventory water resources, prepare a state comprehensive water plan, issue and renew permits for the use of water, and police uses made under the permits. Persons desiring to use water would apply to the agency for a permit, which after investigation would be issued if the proposed use were "beneficial" and would not have an adverse effect upon other users or upon available water resources.<sup>53</sup> Permits would be issued for a limited time,<sup>54</sup> with provision for renewal. Some uses, such as those for domestic purposes or those involving the consumption of only a minimal amount of water, would be exempt from regulation. Further, the Model Water Use Act<sup>55</sup> (but not the Iowa statute<sup>56</sup>) would exempt from regulation those persons making lawful uses at the effective date of the legislation. Limited provision is made for transfer or modification of rights acquired under the permits.

Permit systems nevertheless possess certain deficiencies. The legislative standard for allowing water use, comprehended within the term "beneficial," is not notably definite. The shortcoming is compounded by the fact that a state administrative agency must apply this uncertain standard to each permit application. Experience would seem to disclose a high likelihood of breakdown and maladministration when a state agency is given broad control over a crucial aspect of social and economic concern with no

51. IOWA CODE § 455A (1962).

52. Approved by the National Conference of Commissioners on Uniform State Laws in 1958.

53. MODEL WATER USE ACT § 407 (1958).

54. IOWA CODE § 455A.20 (1962), provides that permits shall be issued for terms not to exceed ten years; the MODEL WATER USE ACT § 406 (1958) suggests a maximum of fifty years.

55. MODEL WATER USE ACT § 303 (1958).

56. IOWA CODE § 455A.26 (1962).

firm standards to limit exercise of its discretion. Is there any reason to believe that water agencies will be different?

There is also reason to question whether a permit system will bring about needed flexibility in water use. Those uses allowed under the permit when originally issued may in practice be "frozen", with little or no prospect of change, even though legislation allows modification or transfer of the permit upon agency approval. While some opportunity would seem to exist for reexamination of water uses when permits expire and renewals are sought, there is a real danger that renewals will simply be perfunctory, given almost as a matter of right if the permit holder has not been found guilty of serious misuse.<sup>57</sup> It is also doubtful whether the renewal procedure will be looked upon as a free and open competition for the available supply between all those persons wishing to make use of the water, with new permits granted to those whose uses are demonstrated to be the most highly beneficial. The likely effect will be that there is little observable difference in practice between the permanent use rights of prior appropriation and the "temporary" ones of the permit system.

Constitutional problems are also posed by any proposals to abandon the riparian doctrine in favor of either a permit system or a prior appropriation system. Plainly such a change would entail a loss by riparian proprietors of some significant attributes of their right as it now exists. No longer would riparian owners have the exclusive right to utilize the water of streams. The riparian's right to initiate future uses subject only to the reasonableness requirement would be abolished. Arguably the destruction or substantial alternation of the present system would amount to a taking of property in the constitutional sense, for which compensation would be required.

A modification of lesser proportion was brought about only by constitutional amendment in California.<sup>58</sup> The Model Water Use Act seeks to avoid the constitutional problem through a compromise which would preserve uses actually being made by riparian owners, as well as the right to initiate new domestic uses.<sup>59</sup> The Iowa and Mississippi legislation, as well as the Model Act, turn to the police power, based upon a legislative declaration of public need, for the authority to restrict the riparian right as previously declared.

No courts have ruled upon the constitutionality of these Eastern acts. Some Western courts have upheld legislative modification on the basis of the police power,<sup>60</sup> while others have not.<sup>61</sup> There seems no definitive

57. E. MURPHY, *GOVERNING NATURE* 289 (1967).

58. CAL. CONST. art. 14, § 3, as amended in 1928.

59. CAL. CONST. art. 14, § 3.

60. *Knight v. Grimes*, 80 S.D. 517, 127 N.W.2d 708 (1964); *State ex rel. Emery v. Knapp*, 167 Kan. 546, 207 P.2d 440 (1949); *In re Hood River*, 114 Ore. 112, 227 P. 1065 (1924).

61. *Clark v. Cambridge & Arapahoe Irrigation & Improvement Co.*, 45 Neb. 798, 64 N.W. 239 (1895); *Bigelow v. Draper*, 6 N.D. 152, 69 N.W. 570 (1896). Cf.

answer to this problem. Rather evidently it will have to be dealt with by each state supreme court on an individual basis with much depending upon the extent of modification which would be brought about by the legislative enactment, and upon the degree of water crisis which may exist in the state at the time the issue is raised.

### C. Economic Determinism

A third solution, which shall be denominated "economic determinism", would employ the mechanisms of the market and economic value to provide the conceptual framework for socially-approved water use. This approach, which has won numerous adherents in recent years,<sup>62</sup> is succinctly described by Professor Earl Finbar Murphy:

The only answer lies in working the whole mass of renewable resources out of the category of free goods and into a cost-benefit analysis reflective of the total price paid for their development.<sup>63</sup>

An excellent discussion of economic determinism as applied to the field of water use law is provided by Professor Donald R. Levi, who advocates an approach to water use regulation based fundamentally upon economic values.<sup>64</sup> Expressing his criterion as "highest and best use," he states:

The concept of "highest and best use" calls for the use which will yield the greatest (positive) net profit. This is analogous to the "most beneficial use" concept in economic theory . . . Rather than viewing one use as being categorically higher valued than another, it requires that each unit of water be allocated to the use wherein the *incremental value* of the product induced is a maximum.<sup>65</sup>

Professor Levi suggests two alternatives by which this goal could be reached. First, the water rights of riparian owners might be "quantified" in terms of a specific amount of water or a percentage of the flow to which each would be entitled; this quantified water right could then be transferred apart from the land to which it was originally appurtenant.<sup>66</sup> Second, an administrative permit system might be created whereby water use would only be allowed pursuant to a permit issued according to standards

Herminghaus v. Southern California Edison Co., 200 Cal. 81, 252 P. 607 (1926), the effect of which was overcome by the 1928 California constitutional amendment.

62. See, e.g., J. HIRSHLEIFER, J. MILLMAN & J. DEHAVEN, WATER SUPPLY: ECONOMICS, TECHNOLOGY AND POLICY (1960); KRUTILLA & ECKSTEIN, MULTIPLE PURPOSE RIVER DEVELOPMENT: STUDIES IN APPLIED ECONOMIC ANALYSIS (1958).

63. E. MURPHY, GOVERNING NATURE 285 (1967).

64. Levi, *Highest and Best Use: An Economic Goal for Water Law*, 34 Mo. L. REV. 165 (1969).

65. *Id.* at 176.

66. *Id.* at 173-74.

set forth by the legislature or by the administrative agency itself and based upon economic cost-benefit analysis.<sup>67</sup> Permits would be freely transferable with provision for forced transfer from "lower" to "higher" uses. The goal of the permit system would be to achieve results similar to those "obtainable from a freely transferable water right in a purely competitive market."<sup>68</sup>

In spite of this last statement it is doubtful whether Professor Levi is in fact advocating pure economic determinism which holds that only quantitatively measurable economic criteria should be used in determining who shall have the right to use water. First, the value of water uses is not measurable in economic terms alone; non-economic values must also be considered.<sup>69</sup> Second, the "net profit" basis for determining benefit, while workable for some classes of cases, fails to account for other measurable and valid criteria. For example, what should be done when a competing use would employ more persons, at a higher wage, yet reflect a lower net profit than would another use? While theoretically, capital would desert a low-profit industry in favor of a higher-profit investment (so that the above example is not "sound" in terms of pure economic analysis) the fact is that vast amounts of capital have tended to remain in many important industries which have an endemic problem of low net profit. Third, Professor Levi's assumption of a "purely competitive market" as a measuring-stick of efficiency which the quantified, freely-transferable water right would provide, is utterly imaginary. Whether the market was ever purely competitive, it is certainly not so today, due principally to governmental intervention in the form of public subsidy, public expenditure, tax incentives, limitation of imports, and so forth.

Thus, while economic analysis may add to the understanding of the relative benefits of competing water uses, it does not and cannot provide an acceptable solution to the problem. As recognized by S. V. Ciriacy-Wantrup, a leading water economist, "Economics cannot define social optima which the law—as 'social engineering'—should aim to realize."<sup>70</sup>

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67. *Id.* at 175-76. Professor Levi recognizes that the legislature might initially designate use preferences such as domestic, municipal, etc. But he hopefully foresees that in the future the administrative agency might be freed of these limitations so as to be able to "determine when value changes occur in the societal preference scale." *Id.* at 176.

68. *Id.* at 174.

69. Professor Levi recognizes this, saying, "Recreation . . . is a use which it is difficult to analyze in a cost-benefit framework. In other words, it is difficult to quantify the benefits enuring by reason of recreational uses of water." *Id.* at 169. The difficulty has not prevented some attempts. See, e.g., Kneese, *Economic and Related Problems in Contemporary Water Resources Management*, 5 NAT. RES. J. 236, 241-44 (1965).

70. S. Ciriacy-Wantrup, *Concepts Used as Economic Criteria for a System of Water Rights*, in *THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES* 531, 551-52 (D. Haber & S. Bergen ed. 1958).

#### D. "Quantifying" the Water Right

Economic determinism aside, Professor Levi's suggestions of "quantifying" the water right and making it freely transferable are worthy of examination, since they would effectively solve the principal alleged shortcomings of the riparian system. But while these goals are themselves desirable, the problem is the practical one of accomplishing them.

If the water right related only to a quantity of water for a consumptive purpose, it would be possible to divide the watercourse into consumable shares. But a difficulty is posed by the intensely correlative nature of the riparian right and, its application not only to consumptive but also to nonconsumptive uses, such as power and recreation. The effect of any use will depend upon where it is made, where the water is diverted, and where any surplus is returned to the stream. Therefore, quantification would have to be determined with reference to certain fixed elements, which in turn would require that the water be used in a particular place or manner. This would defeat much of the advantage which could be gained through free transferability. While a degree of quantification could be achieved so as to permit free transfer, it would only be at the cost of a substantial "cushion" of wasted water such as is involved in maintaining a guaranteed average or minimum flow. While these problems may not be insuperable, the discovery of feasible solutions must precede any attempt at quantification.

#### E. Water Development

It is also possible that radical changes in the riparian doctrine are unnecessary, that modification of property rights in water is in fact an inappropriate approach to the problem of developing adequate water supplies and assuring that the supplies are beneficially used. The optimum answer may lie in creating instrumentalities whereby water supplies may be acquired, developed, and protected on a watershed or district basis and empowering these instrumentalities, within the present framework of riparian law, to acquire by purchase or condemnation the water rights needed.

That such a system is already in existence may be appreciated through an examination of the behavior and practices of those municipalities and water districts which have *developed* water supplies for their inhabitants. Thus, in spite of the fact that municipal use is probably nonriparian in nature and therefore violative of the rights of riparian owners,<sup>71</sup> it is clear that thousands of municipalities in the Eastern states today derive their water supplies from watercourses. Armed with the power of eminent domain and ample purses, municipalities have taken what they have needed. They have created elaborate water distribution systems and developed sources of water supply by means of dams and reservoirs, transwatershed diversions, and other devices. In addition, rural and other water supply districts,

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71. Ziegler, *Water Use Under Common Law Doctrine*, WATER RESOURCES AND THE LAW 51, 65-67 (1958).

backed by governmental loans and credit, have sprung up in large numbers in the Eastern states. All of this has been accomplished within the property rights framework of riparianism.

#### F. *Modification of the Riparian Doctrine*

The success of these distributional systems suggests that the answer to the deficiencies of riparianism may not be found in wholesale revision of the law which creates and defines private rights in water. As long as existing water rights can in fact be purchased or condemned, their existence poses no problem which cannot be overcome. The real need is to provide legal mechanisms whereby water supplies can be developed cooperatively through public or quasi-public action, so that existing water resources can be efficiently made available to persons needing the use of water.

On the other hand, some modification of the riparian doctrine would enhance the functioning of mechanisms whose purpose it is to permit joint and cooperative development of water resources for public supply. For example, legislation declaratory of the scope and extent of the riparian right would add clarification and certainty to acquisition and condemnation of water rights. Nonriparian use could be made non-actionable in the absence of a showing of actual damage through interference with a riparian use. Some qualification of the riparian right might be accomplished through legislation relating the size of the riparian tract or the riparian frontage to the quantity or proportion of the water which might be consumptively used. The extent of riparian land might be defined. Legislation might provide that a riparian owner who developed a new supply of water would be entitled to its full use, thereby clarifying a present uncertainty. Limitations upon injunctive relief could be imposed, requiring injured riparian owners to resort to damage actions only. Procedures for litigation involving the entire class of affected riparian owners could be developed.

Finally, any modification of the riparian doctrine must take account of the hydrological cycle. It is extremely fortunate that our disregard of natural conditions has not yet caused any serious conflicts, but this situation cannot be relied upon to continue. Water law must presuppose the hydrological cycle, and legal doctrine must be consistent with reality.

The time has come, therefore, for the law to cease dealing with watercourses, underground water, and diffused surface water as though they were wholly unconnected entities. Conflicts between users of different forms of water are bound to occur in increasing numbers as demand for water rises, and the law must provide standards and procedures whereby these conflicts can be resolved. Some legislation has begun to treat the water resource as a single entity, thereby pointing the way for others to follow.<sup>72</sup>

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72. ALASKA COMP. LAWS ANN. § 46.15.260 (1966), for example, does not distinguish between watercourses, lakes, ground waters and diffused surface waters, but simply uses the term "source of water" to comprehend all of these. The Model Water Use Act also treats water consistently with the existence of the hydrological cycle.



## VI. THE ROAD AHEAD

It is evident that any effort to solve the water crisis in the Eastern United States must involve some modification of the traditional riparian doctrine. It is equally clear that modification is beyond the present ability of the judiciary, which has found it increasingly difficult to perpetuate a viable common law system. The courts have retreated from their time-honored role of policy-makers, and for the most part have come to occupy the status of interpreters of positive law laid down by the legislatures and of preservers of earlier judicial doctrines. Repeatedly in answer to entreaties of counsel that earlier judge-made law is inconsistent with present-day needs and conditions, the courts have turned away, declaring only that change lies with the legislative branch of government.<sup>73</sup> Furthermore, adjudication is not an appropriate vehicle for comprehensive modification of substantive or procedural law. Relief, then, must lie with the legislatures.

While the nature and magnitude of the remedy are not immediately clear, some aspects are abundantly plain. The complexity of the problem prevents a simplistic solution. Nor will the doctrines fashioned under different conditions, in another time and place, be adequate. Therefore, adoption of a prior appropriation system is not acceptable. Rather, a doctrine must be devised which will take account of the present and foreseeable needs of the Eastern states. Since those needs vary from state to state, the solution may assume a pluralistic form.

Any new or modified doctrine must recognize the economic values inherent in existing rights, which must not be impaired or destroyed without provision for adequate compensation. Additionally, we must permit individual choice and action to the greatest degree commensurate with the common good. Governmental fiat should not replace private decision-making except where it is clear that individuals lack the ability, the means, or the inclination to make necessary choices which society demands. Economic determinism must not control public need, particularly in those areas in which public need may not be susceptible of measurement in quantitative economic terms.

Finally, and perhaps most important, the new doctrine must not simply be a rule of negative restraint. Rather, it must reinforce the need to put water to its highest beneficial use, and to prevent either waste or dog-in-the-manger tactics which prevent beneficial use. Water law can and must

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73. An author makes extreme statements of this kind strictly at his own risk. And it must be confessed that very recently, it has begun to appear that the common law might be revived at the mouth of the crypt. Two significant indications of this have come from the Missouri Supreme Court in the Fall of 1969. In *Keener v. Dayton Electric Mfg. Co.*, 445 S.W.2d 362 (Mo. 1969), the common law doctrine of strict products liability was adopted in Missouri. And in two companion cases decided on November 10, the Supreme Court En Banc abolished the doctrine of charitable tort immunity. *Abernathy v. Sisters of St. Mary's*, 446 S.W.2d 599 (Mo. En Banc 1969); *Garnier v. St. Andrew Presbyterian Church*, 446 S.W.2d 607 (Mo. En Banc 1969).

be a positive force in inducing the optimum use of water through affirmative rules which will impel uses of water which are of the greatest public benefit.

This cannot be achieved without study, without an exchange of ideas, without an interplay of all those persons whose interests are affected. In this sense we have for too long limited our focus to narrow considerations of riparianism versus prior appropriation. By and large this has proved fruitless. It is time to engage in a new dialogue, on new terms, with a new and wider vision. The mission is to devise a legal doctrine for water use in the Eastern United States which meets the needs of the age. It is long overdue.