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# Some Observations on the Law of Water Allocation as a Variable in Industrial Site Location

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# SOME OBSERVATIONS ON THE LAW OF WATER ALLOCATION AS A VARIABLE IN INDUSTRIAL SITE LOCATION

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*The availability of a water supply is of vital concern to industry. This availability may be affected as much by the applicable legal doctrine as by the accessibility of an adequate water supply. Professor Plager explores the two major riparian doctrines that apply to surface water supplies: "natural flow" and "reasonable use." He concludes that, although the theoretical differences between the two doctrines are often blurred, practical differences are present.*

## I. INTRODUCTION

From the viewpoint of economic and political influences and from that of water allocation, the industrial water user in the Eastern United States has assumed a position of tremendous importance.[1] A measure of industrial water use commonly employed is the quantity of water circulated per unit of manufacture. In these terms, it takes from 38,000 to 184,000 gallons of water to produce one ton of paper and 660,000 gallons to produce one ton of synthetic rubber.[2] One source of such tremendous quantities of water is a concentrated surface waterbody: a stream or lake.[3] A study by the Bureau of the Census in 1954 of the 10,237 manu-

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[1] In order to make more meaningful the ramifications of the riparian doctrines to an industrial society, a hypothetical industrial concern should be assumed. This industry desires to establish a new plant, perhaps to produce pulp and paper or synthetic rubber. The plant's water requirements and the availability of a supply to meet them will be a major consideration in a decision on a site. *See, e.g.*, N.Y. WATER INFO. CENTER, WATER'S ROLE IN PLANT LOCATION (1960). *See also* address by Leonard Pasek, National Conference on Water Pollution, Wash., D.C., Dec. 13, 1960, entitled *The Needs and Obligations of Private Industry.* Determination of a plant's water requirements will be complicated by the fact that evaluation of industrial use of water is a highly complex matter, due in part to the variety of ways in which water is used in the manufacture of different products and even among different plants producing identical products.

[2] *See* Mussey, *Water Requirements of the Pulp & Paper Industry*, Water Supply Paper 1330-A (USGS 1955); Woodard, *Availability of Water in the U.S. with Special Reference to Industrial Needs by 1980* (Industrial College of Armed Forces 1957). To the extent a plant reuses its water these figures do not necessarily reflect intake requirements.

[3] In addition to quantitative requirements, qualitative considerations may be influential if not controlling in plant site locations. Here again requirements vary with the type of product manufactured and the type of use to which the water is put.

facturing establishments whose gross water intake for that year was 20 million gallons or more disclosed that of the 11,324 billion gallons of water intake of these establishments, 6,905 billion, or 60 percent, came from company surface water systems.[4]

The common law approach to the allocation of concentrated surface water supplies,[5] as it originally developed in England, was heavily influenced by economic and geographic conditions. During the formative years of the doctrine a combination of humid climate,[6] relatively flat terrain interlaced with many small running streams and brooks but few large rivers or lakes,[7] and a more or less static agricultural economy lent itself to a water use policy that in some aspects is perhaps more accurately characterized as a policy of nonuse.

The ultimate statement of this policy took the form of the maxim *aqua currit et debet currere, ut currere solebat,*[8] (the strict "natural flow" theory) which, freely translated, means that an occupier of riparian land[9] was entitled to make use of the water of a stream flowing past his land only for uses on or connected with the riparian land, and only if he returned it to the stream substantially undiminished in quantity and unchanged in quality.[10]

One exception to the limitations on use was recognized: An occupier of land using water for "ordinary," "domestic," or "natural" purposes[11] was entitled to withdraw all the water he needed, even though it meant taking the entire flow of the stream.[12] Undoubt-

4 1954 CENSUS OF MANUFACTURES, INDUS. WATER USE SUPP., Bull. MC-209, table 2 (1960).

5 The term "concentrated surface water" is used to distinguish streams, and to some extent lakes, from other types of surface water, such as marshes and rainwater. These latter are sometimes referred to in the cases as diffused surface water, but equally often as simply surface water.

6 In England the average annual rainfall is from 25 to 60 inches. 5 R. POWELL, REAL PROPERTY 354 n.20 (1956).

7 It was not until 1878 that England had clear precedent applying the common law of streams to other water bodies, such as lakes. Bristow v. Cormican, 3 App. Cas. 641 (1878). Because of the late date of this decision it is not part of the common law as such in most American jurisdictions, although it has generally been followed. *E.g.*, Hardin v. Jordan, 140 U.S. 371 (1891); Turner v. Holland, 65 Mich. 453, 33 N.W. 283 (1887).

8 *See, e.g.*, Shury v. Piggot, 81 Eng. Rep. 280 (1625). *See also* Pinney v. Luce, 44 Minn. 367, 46 N.W. 561 (1890).

9 For a discussion of what constitutes riparian land, see Davis, *Water Rights in Iowa*, 41 IOWA L. REV. 216, 220 (1956); Note, 5 S.C.L.Q. 178 (1952). *See* Maloney & Plager, *Florida's Streams*, 10 U. FLA. L. REV. 294, 306 (1957).

10 *See, e.g.*, McCartney v. Londonderry & Lough Swilly Ry. Co., [1904] A.C. 301; Swindon Waterworks Co. v. Wilts & Berks Canal Navigation Co., L.R. 7 H.L. 697 (1875). *But see* Kensit v. Great Eastern Ry., 23 Ch. D. 566, 27 Ch. D. 122 (1884); Embrey v. Owen, 155 Eng. Rep. 579 (1851), invoking a *de minimus* type limitation to the policy.

11 The terms are found in the cases singly or in various combinations, conjunctively or disjunctively joined.

12 *See, e.g.*, cases cited note 10 *supra*; Miner v. Gilmour, 14 Eng. Rep. 861 (1858).

edly those uses usually attributable to the operation of a farm, the economic and social unit then predominant, were intended to be within this exception: drinking, cooking, washing, and the watering of farm animals. Uses that did not fit in this picture were presumably not entitled to the benefit of the exception status; they were either permitted riparian uses subject to the strict requirements of noninterference with the flow to downstream riparians, or they were nonriparian and therefore nonpermitted uses.

The relevance of English law lies in the fact that the vast bulk of surface water withdrawal for industrial use takes place in the 31 American jurisdictions[13] that have established and maintained their water law primarily within the framework of the riparian system.[14] Thus they share common roots in this English case law, or in the influential formulations of the law by early text writers such as Chancellor Kent.[15] These jurisdictions share with England the sometime advantages of a humid climate; but topographical, cultural, and economic differences, the last two tremendously accelerated during the last century or so, have resulted in substantial alterations of the statement and application of the controlling principles of water law.

There appear to be only four American jurisdictions that give verbal recognition to the natural flow (English) doctrine as their governing law: Georgia, New Jersey, Pennsylvania, and West Virginia.[16] Most of the other 31 states subscribe to a later-appearing version of riparianism known as the doctrine of reasonable use; some states seem to talk both; a few states have not spoken. The purpose of this article is to compare the water allocation patterns obtaining in a natural flow jurisdiction with those of a reasonable use jurisdiction, and to make a preliminary evaluation of these patterns from the viewpoint of the industrial water user and from that of the public interest in optimum water usage.

The question of the place in this theoretical framework of a water-using industry situated on riparian land is of more than academic interest to the industrial user relying for continued existence on the availability of a water supply. Three alternatives are offered. The use of water by an industrial plant physically located on riparian land and without material effect (quantitatively or qualitatively) on the flow of the stream, may be deemed a nonriparian and therefore nonpermitted use, with the result that it can be enjoined even though no actual injury to downstream ri-

[13] This includes all states east of the tier of states extending from the Dakotas to Texas. The 50th state, Hawaii, is generally classed as a riparian jurisdiction, but it is not included in this study of jurisdictions of the continental United States.

[14] Mackichan, *Estimated Use of Water in the United States, 1955*, Geo. Survey Circ. 398, fig.4 (1957).

[15] *See, e.g.*, J. KENT, COMMENTARIES ON AMERICAN LAW (13th ed. 1884).

[16] *See* 5 R. POWELL, REAL PROPERTY 359 (1956).

parians results.[17] Although some support for this position may be found by analogy to cases in which a municipality located on a stream is denied riparian status for purposes of making withdrawals to supply its inhabitants,[18] this position would seem highly out of keeping with a modern industrial society. No English cases have directly taken this position.[19]

A second possibility, at the opposite end of the scale, is to treat withdrawals of water by an industry as a type of ordinary or domestic use per se. This position received support in one English case, on the theory that industrial uses may be so common in some locales that they can properly be classed as a primary use and treated in the same way as domestic uses in agricultural areas.[20] Several English text writers have adopted this theory.[21]

The third alternative, and the one discussed in this article, also finds support among English judges and text writers.[22] It is to treat industrial use as a use, that is, a permissible riparian use, but not one that qualifies for the preferred status of ordinary or domestic use.[23] This position makes the most sense, since it preserves the flow of a stream for uses in addition to that of industry while at the same time permitting beneficial utilization of water by industrial riparian occupiers.

## II. THE INDUSTRIAL WATER USER AS A RIPARIAN

### A. *The Doctrine of Natural Flow as Exemplified by Georgia*

The basic technique for founding a claim in a concentrated surface water source in a riparian jurisdiction is to assume the status of a riparian—an occupier of riparian land. How well will an industry fare if it establishes a plant on a riparian site in an American jurisdiction that, verbally at least, follows the natural flow (English) doctrine? Of the natural flow states, Georgia is

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17 *Cf.* Embrey v. Owen, 155 Eng. Rep. 579 (1851); Swindon Waterworks Co. v. Wilts & Berks Canal Navigation Co., L.R. 7 H.L. 697 (1875).

18 *See* Pernell v. City of Henderson, 220 N.C. 79, 16 S.E.2d 449 (1941); Town of Purcellville v. Potts, 179 Va. 514, 19 S.E.2d 700 (1942).

19 *But see* the statement of the argument, based on passages in Elmhirst v. Spencer, 2 Macn. & G. 45, 50 (1849), in B. MEGARRY & H. WADE, REAL PROPERTY 70 (1957), and a rejection of the argument as requiring a *reductio ad absurdum* in Hudson, *Industry As a Riparian Use*, 22 MODERN L. REV. 35, 36 (1959).

20 Omerod v. Todmorden Mill Co., 11 Q.B.D. 155, 167 (1883). *But see* McCartney v. Londonderry & Lough Swilly Ry. Co., [1904] A.C. 301, 306-07.

21 *See* G. CHESHIRE, MODERN REAL PROPERTY 119 (8th ed. 1958); C. GALE, EASEMENTS 237 (12th ed. 1950).

22 *See* Swindon Waterworks Co. v. Wilts & Berks Nav. Co., L.R. 7 H.L. 697 (1875); J. SALMOND, TORTS 223 (12th ed. 1957); Brett, *The Right to Take Flowing Water*, 14 CONVEY. (n.s.) 154 (1950).

23 *See* Hudson, *supra* note 19, advocating this position. The terms "extraordinary" or "artificial" are often applied to these permissible, but nondomestic, uses.

the least industrial, as evidenced by industrial water use statistics,[24] and best illustrates the "pure" natural flow state.

### 1. THE PHYSICAL CONTEXT

Georgia, one of the more humid states, has an average annual precipitation around 50 inches.[25] This preciptation averages considerably higher in the mountain and coastal regions. In addition, seasonal and yearly variations cause periods of severe drought and flood.[26] In terms of fresh water intake by manufacturing establishments,[27] Georgia intake totaled 95 billion gallons in 1954, of which 27 billion, or slightly over one-fourth, came from company surface water systems.[28] A substantial portion of the state is in the great Atlantic Coastal Plain aquifer, an unconsolidated and semi-consolidated aquifer offering some of the largest permanent ground water yields in the country[29] and providing a source of generally high quality water.[30] This fact partly explains why a relatively small percentage of Georgia's industrial water supply comes from surface water sources.[31]

### 2. THE LEGAL CONTEXT

The earliest Georgia Supreme Court case involving the rights of riparian occupiers in the use of surface water supplies was *Hendrick v. Thomas*,[32] in 1848. Plaintiff and defendant were owners of land on opposite sides of Tussehaw Creek. Further down the creek, defendant erected a dam, raising the level of the creek adjacent to plaintiff's land approximately one foot. This was not enough to cause it to overflow its banks. Plaintiff sued for damages, apparently alleging that there was a shoal in the channel of the creek adjacent to his upland, that the shoal had value as a prospective site for a mill, and that the raising of the water level over the shoal made the shoal virtually valueless to him. The trial

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24 *See* note 26 *infra* and accompanying text.

25 *See* GEORGIA WATER USE AND CONSERVATION COMMITTEE, WATER IN GEORGIA 27 (1955).

26 *Id.* at 28-29.

27 Data based on manufacturing establishments whose gross water intake for 1954 was 20 million gallons or more.

28 1954 CENSUS OF MANUFACTURES, *supra* note 4. The comparable figures for the other 3 named natural flow jurisdictions are (in billions of gallons):

| *State* | *Total* | *Company Surface Water Systems* |
|---|---|---|
| New Jersey | 191 | 91 |
| Pennsylvania | 1,354 | 1,209 |
| West Virginia | 462 | 446 |

29 See F. ACKERMAN & G. LOF, TECHNOLOGY IN AMERICAN WATER DEVELOPMENT 27, figure 6, at 24 (1959).

30 *See* note 25 *supra.*

31 Compare table, note 28 *supra.*

32 4 Ga. 241 (1848).

court rendered judgment for defendant on the basis that the mere raising of the water level within the channel, since it did not flood plaintiff's land or interfere in any way with his activities, was not an actionable wrong. The Georgia Supreme Court, in reversing the judgment, invoked the *aqua currit* maxim:

> Every proprietor of lands . . . on the banks of a river, has . . . an equal right to the use of the water which flows in the stream adjacent to his lands . . . without diminution or alteration. . . . Without the consent of the adjoining proprietors, [a proprietor] cannot divert or diminish the quantity of water, which would otherwise descend to the proprietors below, nor throw the water back on the proprietors above . . . .[33]

This did not mean that the only lawful use that could be made of the stream was to watch the water go by. The court stated that each riparian proprietor was entitled "to a reasonable use of the water, for domestic, agricultural and manufacturing purposes; provided, that in making such use, he does not work a material injury to the other proprietors."[34]

The decision turned on whether interference with plaintiff's hypothetically possible use of the shoal was a material injury. The court's determination that it was an injury was an application of the rule that is perhaps the earmark of the natural flow doctrine. The test of the lawfulness of a use is not whether the utility of the use outweighs the gravity of the harm,[35] but whether the use invades an abstract right to which plaintiff is deemed entitled. Although this was the position taken by the court,[36] the case is not necessarily one limited entirely to abstract rights. Tussehaw Creek, under Georgia law, was a nonnavigable watercourse, and plaintiff as a riparian proprietor on one side of the creek owned the bed adjacent to his upland out to the center thread.[37] As a result, he owned that portion of the shoal that was on his half of the bed, as well as the foot or so of the bank on his side that was put under water by defendant's dam.[38] The case could be considered as involving a trespass on real property, which the common law recognized as not requiring actual damages as essential to a cause of action.[39]

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33 *Id.* at 255 (emphasis omitted).

34 *Id.* at 256 (emphasis omitted).

35 *See* RESTATEMENT OF TORTS §§ 852-54 (1939).

36 "[T]he act of the defendants throwing back the water . . . is an *invasion of* [plaintiff's] *right* to exercise the control and dominion over his property—and . . . whenever there has been an illegal invasion of the *rights* of another, it is an *injury*, for which he is entitled to a remedy by an action." 4 Ga. at 261.

37 GA. CODE ANN. § 85-1302 (1948).

38 4 Ga. at 265.

39 *See generally* H. TIFFANY, REAL PROPERTY § 399 (Abr. ed. 1940). It is significant, however, that plaintiff's cause of action was brought as trespass on the case rather than trespass q.c.f. 4 Ga. at 253.

Nevertheless, *Hendrick v. Thomas* established the principles followed in later cases and codified, at least in part, into positive law.[40] In the frequently cited case of *Robertson v. Arnold*[41] the court left no doubt that a hypothetically possible future use was sufficient basis for a claim for relief. Defendant, a riparian occupier upstream of plaintiff, was engaged in cutting ditches and establishing a pond on his land so as to draw water from the stream, supply it to the pond, and then return it to the stream. Plaintiff, a downstream riparian, alleged that the combination of evaporation loss and change in flow pattern would cause material interference with the flow available to run his water race, which had lain unused for over 10 years. The supreme court, invoking *aqua currit*, reversed the trial court's sustaining of defendant's demurrer.[42]

On the other hand, a combination of nonuse by plaintiff and minimal interference by defendant may prevent a recovery.[43] In *Rome Railway & Light Co. v. Loeb*,[44] plaintiff and defendant were adjoining landowners with title derived from a common source. Silver Creek flowed through the land of both. An unused mill stood on plaintiff's land. The dam created an elongated pond or reservoir, 30 feet wide and about one and one-fourth miles long, a part of which extended upstream onto defendant's land. Defendant operated an electric generating plant on his land, drawing some 400,000 gallons of water from the pond daily. The water was returned substantially in its entirety to the pond after use.

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[40] *See* GA. CODE ANN. § 85-1301 (1955): "Running water, while on land, belongs to the owner of the land, but he has no right to divert it from the usual channel, nor may he so use or adulterate it as to interfere with the enjoyment of it by the next owner." GA. CODE ANN. § 105-1407 (1956):

> The owner of land through which nonnavigable watercourses may flow is entitled to have the water in such streams come to his land in its natural and usual flow, subject only to such detention or dimunition as may be caused by a reasonable use of it by other riparian proprietors; and the diverting of the stream, wholly or in part, from the same, or the obstructing thereof so as to impede its course or cause it to overflow or injure his land, or any right appurtenant thereto, or the pollution thereof so as to lessen its value to him, shall be a trespass upon his property.

[41] 182 Ga. 664, 186 S.E. 806 (1936).

[42] *See also* Price v. High Shoals Mfg. Co., 132 Ga. 246, 64 S.E. 87 (1909), in which an upstream dam owner held liable for closing the gate on the dam from the end of each working day until the beginning of the next, for the purpose of impounding the whole flow of the stream and thus maximizing the head available for his wheel, but with the effect of interrupting the flow to the lower owner; White v. East Lake Land Co., 96 Ga. 415, 23 S.E. 393 (1895).

[43] *See also* Pool v. Lewis, 41 Ga. 162 (1870), in which construction of a dam so as to provide a head for water power, causing some detention of the water and some possible evaporation losses as a result of impounding, was held not in itself an unreasonable use as against a downstream occupier when the flow to the latter was not shown to be materially interfered with in quantity or regularity.

[44] 141 Ga. 202, 80 S.E. 785 (1914).

Plaintiff sued to enjoin defendant's use of the water on the ground that plaintiff's deed granted her "the mill privileges up the creek,"[45] that defendant was not entitled to riparian rights, and that defendant could not lawfully make any use of the water. The Georgia Supreme Court concluded that defendant was a riparian owner, and that the grant of mill privileges to plaintiff from their common source of title was not a grant of an exclusive privilege such as to deny defendant his riparian rights. The court then went on to say:

> Having shown that the defendant, as a riparian owner, had the right to make a reasonable use of the stream and a reasonable use of the water from the pond adjacent to its property, provided that it does not thereby materially interfere with the mill privileges of the plaintiff or other riparian proprietors, and it not appearing from the petition that, considering the character of the use to which the water was put by the defendant or the quantity of water consumed thereby, there was an unreasonable use of the water, or that the owner of the mill privileges was materially injured in consequence of this use or the consumption of the small amount of water, it follows that the plaintiff was not entitled to the injunctive relief applied for.[46]

The Georgia cases appear to support the proposition that a riparian occupier desirous of detaining and diverting water from a stream for use in an industrial plant on his riparian land will find his use considered a permissible riparian use, and the question of reasonableness will depend on the extent to which the flow to the lower riparians is maintained in quantity and regularity. Many of the uses to which water is put in industry, such as cooling, while requiring large quantities of intake, result in small percentages of disappearance. One authority estimates that "it is unlikely that more than 10 per cent of the factory water intake represents actual water disappearance."[47]

Even if sufficient disappearance occurs to constitute injury to lower riparians, the price may well be an acceptable charge to the cost of production.[48] The litigable feature may be obviated by purchase of easements from the lower riparians for interference with their rights. The feasibility of this depends, of course, on the cost of the easements and the extent to which a riparian owner may deal in water rights as an interest separate from his riparian land.

The real danger that the industrial water user faces is that someone may enjoin his use of the water in the quantities needed to maintain his operation, forcing him to close his plant, and perhaps

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45 *Id.* at 203, 80 S.E. at 786.

46 *Id.* at 208, 80 S.E. at 787-88.

47 E. ACKERMAN & G. LOF, TECHNOLOGY IN AMERICAN WATER DEVELOPMENT 53 (1959).

48 In Price v. High Shoals Mfg. Co., 132 Ga. 246, 247, 64 S.E. 87, 88 (1909), plaintiff asked for damages "in the sum of $1,000 per annum."

making a substantial investment worthless. From the viewpoint of the plaintiff, who sees his stream flow being interfered with or about to be interfered with, the injunction may be preferred to the common law action for damages. Injunctive relief is preventative, and in situations in which plaintiff's actual damages are nominal, it may be the only effective remedy if he is interested in stopping the violation and not simply in preventing defendant from gaining a prescriptive right. As suggested previously, the defendant may be quite willing to write off the price of damages, especially when nominal, as part of the cost of doing business. Furthermore, even if the damages claimed are substantial, plaintiff can usually obtain them as an adjunct of the specific relief given in an injunction suit.[49] Establishing the equitable basis for invoking the extraordinary remedy of injunction causes little difficulty, since water rights have long been regarded as a type of real property right and hence the subject of equitable protection as a matter of course. In addition, the activity involved will often be of the "continuing wrong" type.[50]

However, there are limitations on injunctive relief. In a locale eager to encourage industry to settle, or where the local economy is largely dependent upon an already existing industry, public sentiment may be an operative force in discouraging plaintiffs from seeking injunctions, and perhaps courts from granting them. It is doubtful, though, that the persons whose jobs depend on the continued financial well-being of the stockholders in an industrial concern will put much reliance on this factor.[51]

Further, courts do not always grant injunctive relief, even when jurisdictional requirements are met. In the name of laches a plaintiff may be denied enforcement of a claim when he has contributed to defendant's placing himself in the position of wrongdoer.[52] This doctrine was successfully invoked to deny injunctive relief to a plaintiff who watched while defendant constructed major works for utilizing the water in controversy.[53] Or if plaintiff's action is obviously an effort to use the courts to force defendant into a disadvantageous settlement bordering on the exorbitant, the

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[49] See W. WALSH, EQUITY 179-80 (1930).

[50] *See, e.g.*, 3 H. TIFFANY, REAL PROPERTY 117 (3d ed. 1939); 1 B. WEIL, WATER RIGHTS IN THE WESTERN STATES 20-21 (3d ed. 1911).

[51] In Hill v. Standard Mining Co., 12 Idaho 223, 85 P. 907 (1906), defendant industry argued that the granting of an injunction against continued use of a water supply would result in the abandonment of the industry there, the bankruptcy of the local inhabitants, and the depopulation of the county. The argument found little support among the judges.

[52] *See, e.g.*, Holcomb v. Alpena Paper Co., 198 Mich. 165, 164 N.W. 470 (1917); Jones v. McNabb, 184 Okla. 9, 84 P.2d 429 (1938). *See also* Pub. Serv. Corp. v. Profile Cotton Mills, 236 Ala. 4, 180 So. 583 (1938).

[53] New York City v. Pine, 185 U.S. 93 (1902). *See also* Brooks v. Patterson, 159 Fla. 263, 31 So. 2d 472 (1947).

court, on general equitable principles, may deny specific relief.[54] But, again, these are possibilities upon which no industrial planner will rely, and which add little to the ability of the riparian system to adapt to the needs of the industrial community.

A relatively new doctrine in equity jurisprudence, sometimes called "balancing the equities," involves a basic policy reorientation by the courts and has possibilities of operating as a significant factor in the adjustment process of Eastern water law. It is an accepted tenet of equity jurisprudence that the chancellor has discretion to refuse an injunction *pendente lite* in the absence of a showing that a refusal of injunctive relief at this early stage will work serious hardship on the complainant.[55] But at later stages of the proceedings, the chancellor is often unwilling to balance the relative hardships of the parties, so that if the complainant established a basis for equitable jurisdiction and a right to relief, the injunction would issue without a separate consideration of the extent of the wrong as compared with the cost of the remedy.[56] In recent years, however, there has been a tendency in some jurisdictions to balance the equities and withhold specific relief when in the chancellor's judgment it would be inequitable to grant it.[57]

This doctrine of balancing the equities has been successfully invoked in several cases involving water pollution,[58] particularly when there was a substantial public interest in the continuation of the activity of the wrongdoer. Typical cases have involved a municipality disposing of sewage,[59] or an industry important to the local economy releasing effluent.[60] But in cases involving withdrawals from a surface water source, and in which the interests immediately represented were only those of private litigants, the doctrine has not found general favor.[61] In several Georgia cases in which the facts could have justified an application of the doctrine, the Georgia Supreme Court has been adamant in refusing to with-

54 *See, e.g.*, Edwards v. Allouez Mining Co., 38 Mich. 46 (1878); McCann v. Chasm Power Co., 211 N.Y. 301, 105 N.E. 416 (1914).

55 *See* 5 J. POMEROY, EQUITABLE JURISPRUDENCE AND EQUITABLE REMEDIES § 1949 (4th ed. 1919).

56 *See, e.g.*, Whalen v. Union Bag & Paper Co., 208 N.Y. 1, 101 N.E. 805 (1913); Walters v. McElroy, 151 Pa. 549, 25 A. 125 (1892); 5 J. POMEROY, *supra* note 55.

57 *See generally* Note, *The Trend to Balance the Injuries*, 4 S.C.L.Q. 540 (1952).

58 *See generally* Maloney, *The Balance of Convenience Doctrine in the Southeastern States, Particularly As Applied to Water*, 5 S.C.L.Q. 159 (1952).

59 Lakeland v. State *ex rel.* Harris, 143 Fla. 761, 197 So. 470 (1940); *accord*, Kentucky Elec. Devel. Co. v. Wells, 256 Ky. 203, 75 S.W.2d 1088 (1934).

60 *E.g.*, Montgomery Limestone Co. v. Bearden, 256 Ala. 269, 54 So. 2d 571 (1951); Smith v. Magnet Cove Barium Corp., 212 Ark. 491, 206 S.W.2d 442 (1947); Young v. International Paper Co., 179 La. 803, 155 So. 231 (1934).

61 *See* Maloney, *supra* note 58.

hold specific relief.[62]

*B. The Doctrine of Reasonable Use As Exemplified by Michigan*

It was earlier stated that the natural flow doctrine is to be distinguished from a later-appearing version of riparianism known as "reasonable use." To the extent that this statement suggests a clear demarcation between the two theories, with a given set of legal consequences flowing from the adoption of one or the other, the statement is an oversimplification.[63] Courts frequently reach a desired result with little regard for nicely stated theories; it is not always possible to tell which theory a court considers to be the law of its jurisdiction. And even in jurisdictions operating under the name of one theory or the other, the handling of alternatives available in differing factual problems is by no means necessarily consistent with that of other similarly labeled jurisdictions.

In the manufacturing belt of the United States—the area east of the Mississippi River and north of the Ohio and the Potomac,[64] an area that includes about half of the country's population, about half of the market, some 70 percent of the labor force, the sources of supply of most parts and materials directly used in manufacturing,[65] and between two-thirds and three-fourths of the industrial water intake[66]—there is no consistent pattern of water law upon which an industrial user can rely. Pennsylvania purports to follow the natural flow doctrine, although not in all particulars is it identical with that of Georgia.[67] Illinois has cases that speak the language of

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[62] Robertson v. Arnold, 182 Ga. 664, 186 S.E. 806 (1936); Chestatee Pyrites Co. v. Cavenders Creek Gold Mining Co., 118 Ga. 255, 45 S.E. 267 (1903). *See* note 44 *supra* and accompanying text. *But see* Rome Ry. & Light Co. v. Loeb, 141 Ga. 202, 80 S.E. 785 (1914), reversing an injunction against use of water by a power plant providing a city with power. The court pointed out that if water was not available to the plant it would necessitate use of a "cooling tower," using city water, with additional annual expenditure of about $3,000. *See also* City of Elberton v. Hobbs, 121 Ga. 749, 49 S.E. 779 (1905), in which an injunction sought against the diverter, a municipality in need of a water supply, was successful; the case, however, involved a diversion to nonriparian land.

[63] Perpetuation of such oversimplifications is not unknown. *See, e.g.*, 4 RESTATEMENT OF TORTS § 849 Introductory Note, at 341 (1939) (setting out the two theories and the given consequences of each).

[64] This includes part or all of Illinois, Indiana, Ohio, Michigan, Pennsylvania, New Jersey, New York and the lower New England states. See S. de Geer, *American Manufacturing Belt*, 9 GEOGRAFISKA ANNALER 233-59 (1927). *See also* map by Jones, *Areal Distribution of Manufacturing in the United States*, in WATER FOR INDUSTRY 24 (Am. Ass'n for the Advancement of Science Pub. No. 45, 1956).

[65] Burrill, *Geographic Distribution of Manufacturing*, in WATER FOR INDUSTRY, *supra* note 64, at 25.

[66] *Id.* at 29; 1954 CENSUS OF MANUFACTURES, *supra* note 4, table 11.

[67] *See, e.g.*, Palmer Water Co. v. Lehighton Water Supply Co., 280 Pa. 492, 124 A. 747 (1924); Clark v. Pennsylvania R.R., 145 Pa. 438, 22 A. 989 (1891); Lehigh Coal & Nav. Co. v. Scranton Gas & Water Co., 6 Pa. Dist. 291 (C.P. Lackawanna Co. 1897).

natural flow,[68] cases that speak the language of reasonable use,[69] and some that seem to speak both simultaneously.[70] New York presents an almost unique problem to the industrial water user; it is one of the few jurisdictions in which a major portion of industrial water supply is obtained through public water systems, rather than through company owned surface or ground-water systems.[71] Ohio[72] and Michigan[73] have expressly declined to follow the natural flow theory, and have developed their own versions of reasonable use. Michigan will be used to illustrate the allocation pattern in a reasonable use jurisdiction.

### 1. THE PHYSICAL CONTEXT

Michigan, like Georgia, is a humid state. Although it has substantially less annual precipitation than Georgia,[74] it has the advantage of some 3,000 miles of shoreline bordering on the Great Lakes and approximately 11,000 inland lakes and 35,000 miles of streams.[75] As an industrial water-using state, Michigan has a fresh water intake almost seven times greater than Georgia.[76] Of the 657 billion gallons of fresh water intake by manufacturing establishments[77] in Michigan in 1954, 513 billion, or 78 percent, came from company surface water systems.[78]

### 2. THE LEGAL CONTEXT

The leading case in Michigan is *Dumont v. Kellogg*, decided in 1874.[79] The case involved two mill owners desiring to utilize a stream that flowed through their properties for water power. Defendant erected his mill upstream of the plaintiff's already existing mill, and constructed a mill dam across the stream. The reservoir created by the dam was quite large.[80] The evidence indicated that the flow downstream to the plaintiff was reduced as much as one-third of normal. The trial court applied the principle

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68 Plumleigh v. Dawson, 6 Ill. 544 (1844).

69 Bliss v. Kennedy, 43 Ill. 67 (1867).

70 Evans v. Merriweather, 4 Ill. 492, 38 Am. Dec. 106 (1842).

71 *See* Burrill, *supra* note 65, at 32: "New York is the only highly industrialized state depending primarily on municipal systems (56%)."

72 The leading case is City of Canton v. Shock, 66 Ohio St. 19 (1902).

73 The leading case is Dumont v. Kellogg, 29 Mich. 420 (1874).

74 About 30 inches per year. BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 1960, table 222, at 172.

75 *See* Arens, *Michigan Law of Water Allocation*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 377 (1958).

76 Six hundred and fifty-seven billion gallons as compared with 95 billion. 1954 CENSUS OF MANUFACTURES, *supra* note 4.

77 Data based on manufacturing establishments whose gross water intake for 1954 was 20 million gallons or more.

78 1954 CENSUS OF MANUFACTURES, *supra* note 4, at 78.

79 29 Mich. 420 (1874).

80 *Id.*

of *aqua currit*:

> [N]o proprietor has the right to use the water to the prejudice of the proprietors below him . . . he cannot divert or diminish the quantity which would otherwise descend to the proprietors below . . . . The rights of a riparian proprietor are not to be measured by the reasonable demands of his business. His right extends to the use of only so much of the stream as will not materially diminish its quantity, so that in this case the question whether defendant needs the water as he uses it in his business is entirely immaterial.[81]

The Michigan Supreme Court reversed the judgment for the plaintiff, and said:

> But as between two proprietors, neither of whom has acquired superior rights to the other, it cannot be said that one 'has no right to use the water to the prejudice of the proprietor below him,' or that he cannot lawfully 'diminish the quantity which would descend to the proprietor below,' or that 'he must so use the water as not materially to affect the application of the water below, or materially to diminish its quantity.' Such a rule would be in effect this: that the lower proprietor must be allowed the enjoyment of his full common-law rights as such, not diminished, restrained, or in any manner limited or qualified by the rights of the upper proprietor, and must receive the water in its natural state as if no proprietorship above him existed. Such a rule could not be the law so long as equality of right between the several proprietors was recognized, for it is manifest it would give to the lower proprietor superior advantages over the upper, and in many cases give him in effect a monopoly of the stream.[82]

The question as the court saw it was not whether the lower proprietor suffered damage as a result of the use, or whether the quantity flowing to him was diminished, but whether "under all the circumstances of the case the use of the water by one is reasonable and consistent with a correspondent enjoyment of right by the other."[83] "In other words, the injury that is incidental to a reasonable enjoyment of the common right can demand no redress."[84]

Later cases suggest that a "domestic" user will be entitled to use *all* water needed to satisfy his preferred use; the reasonable use test will not apply.[85] This seems to be a recognition of the same

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[81] *Id.*
[82] *Id.* at 422.
[83] *Id.* at 423.
[84] *Id.* at 424.
[85] Masterbrook v. Alger, 110 Mich. 414, 68 N.W. 213 (1896). *But see* People v. Hulbert, 131 Mich. 156, 91 N.W. 211 (1902) (involving two domestic-type users and applying the reasonable use test).

preferential use rule operating as an exception to the natural flow doctrine;[86] and the same kinds of use—drinking, cooking, bathing, and watering domestic cattle in connection with a household or farm—are involved.[87]

The *Dumont* proposition is that the fact that a riparian sustains actual injury as a result of the activity of another riparian, through reduction of flow or otherwise, is not a basis for redress if the actor's activity is "reasonable."[88] It seems to follow, although not necessarily, that a use by a riparian that is unreasonable will establish liability, even though no actual damage is sustained by other riparians. This situation can arise, for example, when the complainant is a nonuser. Implicit is the assumption that a use may be unreasonable even though it causes no actual loss to others; or, stated another way, that actual injury is not a necessary ingredient of a finding of unreasonableness. This proposition finds support in *Dumont*. The court took pains to distinguish the problem before it from a case in which there was a withdrawal of water from a stream sufficient to deprive the lower proprietor of the flow entirely. As to the latter situation the court said: "No person has a right to cause such a diversion, and it is wholly a wrongful act, for which an action will lie without proof of special damage."[89] The close kinship to the predilections of the natural flow courts is obvious.

Justification of this result in theory requires a criterion of reasonableness that does not consider defendant's activity merely as it bears on plaintiff,[90] but one that evaluates defendant's activity against an abstract standard, of which the effect on plaintiff may be considered as only one factor.[91] A more or less arbitrary determination that a certain act is per se unreasonable is one possible result of such a criterion. Another possible result is that a court

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86 *See* note 12 *supra* and accompanying text.

87 *See, e.g.*, Burt v. Munger, 314 Mich. 659, 23 N.W.2d 117 (1946); People v. Hulbert, 131 Mich. 156, 91 N.W. 211 (1902); Pettibone v. Maclem, 45 Mich. 381, 8 N.W. 84 (1881).

88 The question whether a given use is reasonable is generally a factual issue, decided by a jury in common law actions for damages, or by a judge when the relief sought is equitable.

89 29 Mich. at 421 (dictum).

90 RESTATEMENT OF TORTS §§ 852-54 (1939) states the criterion as being a balancing of the utility of the use against the gravity of the harm. If harm means harm to the party who has brought the suit, the dictum in *Dumont* is hardly sustainable; one factor in a balance being zero, it matters not whether the other factor is one or infinity.

91 One writer has listed the factors which the Michigan cases indicate that the decision maker may properly consider as "the size and velocity of the stream; the extent of the injury; . . . the needs of important manufacturing interests; . . . increased population and the general welfare of the communities affected; . . . the general usage of the country in similar cases." Arens, *supra* note 75, at 382. Such a list does not seem to add much to concretizing the test, but the cases rarely offer more.

may determine whether defendant's conduct is reasonable or unreasonable without much concern for its effect on plaintiff; and if the conduct is deemed reasonable, leave plaintiff to bear whatever loss is involved. If, as is so often the case, plaintiff is the downstream riparian and defendant the upstream, this criterion in the hands of a court inclined to liberality as to what uses are reasonable may result in a built-in preference for upstream owners. A pattern in this direction in the Michigan cases has been noted and commented upon.[92]

Since *Dumont v. Kellogg*, a number of water rights cases have been decided by the Michigan courts on the basis of the reasonable use test. Some of these have been pollution cases;[93] some have involved activities affecting the stream flow through other than withdrawal uses.[94] Few have actually involved the rights of a riparian, such as an industry, to withdraw water for use on riparian land.

In *Dumont* the court indicated that a total diversion, even by a riparian owner, would be unreasonable per se.[95] Three years later the same court held that diversion of an entire stream by a riparian occupier for use on his land is not actionable as such so long as the water is returned to the channel in such a way that the flow to lower riparians is not "materially diminished."[96] Somewhere between no material diminution and total flow withdrawal lies the point at which an industrial user making a withdrawal use on riparian land will be deemed to have exceeded the bounds of reasonableness.[97] The Michigan court has not yet been called upon to find this point.

The importance of the ascertainability or predictability of this point to an industrial user depends in part on what will happen to

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92 Lauer, *Water Law in Michigan*, in WATER RESOURCES AND THE LAW 443 (1958); Arens, *supra* note 75, at 384, in which the author attributed the preference in part to the courts' tendency not to apportion water between two reasonable users. It is not entirely clear, however, which is cause and which effect. *See, e.g.*, Turner Mfg. Co. v. Holly Mfg. Co., 12 Ohio C. Dec. 738 (Cir. Ct. 1889); Warder & Barnett v. Springfield, 9 Ohio Dec. Reprint 855 (C.P. Clark Co. 1885), in which quantitative apportionments were decreed.

93 Monroe Carp Pond Co. v. River Raisin Paper Co., 240 Mich. 279, 215 N.W. 325 (1927); City of Battle Creek v. Goguac Resort Ass'n, 181 Mich. 241, 148 N.W. 441 (1914); Phillips v. Village of Armada, 155 Mich. 260, 118 N.W. 941 (1908).

94 *E.g.*, Hass v. McManus, 161 Mich. 372, 126 N.W. 462 (1910); *see* Dumont v. Kellogg, 29 Mich. 420 (1874).

95 *See* discussion at note 91 *supra*.

96 Pettibone v. Smith, 37 Mich. 579, 582 (1877).

97 It is assumed that an industrial use would not be considered nonriparian or unreasonable per se. *See* discussion at note 17 *supra*. Although this has never been expressly decided in Michigan, the industrial nature of some of the litigants in the cases already discussed suggest the validity of this assumption.

him if he goes beyond it. It is clear that a riparian occupier will be entitled to recover damages for injuries sustained as a result of an unreasonable use by another riparian.[98] Will every injured claimant entitled to damages also be entitled to shut off the water to the wrongdoer, or will the Michigan courts require something more if injunctive relief is sought?

Four years after the *Dumont* decision, *Hoxsie v. Hoxsie*[99] came before the Michigan court. Plaintiff, a lower riparian mill owner, asked for an injunction to restrain a private nuisance. The acts of defendant which were alleged to be objectionable related to the manner in which defendant retarded the flow of the stream during some periods and permitted the stream to flow in "unusual" quantities during other periods. The trial court found defendant's use unreasonable and issued a detailed order in which he was required to release sufficient water to maintain at least the ordinary flow of the stream during normal working hours, but not to release any greater quantities than needed to run defendant's mill. On appeal Justice Cooley, who also wrote the *Dumont* opinion, concluded that the effect of the terms of the injunction was to guarantee an uninterrupted flow to the lower owner, and that this was not regulation of equal rights between riparians but a subordination of defendant's rights to those of the plaintiff. The court indicated that this alone was enough to make the injunction objectionable. But the court went further and decided that plaintiff had not established a right to any injunction at all. Even if defendant's use was unreasonable, "in the case of rights like those here in question, that process [injunction] is not only troublesome but susceptible of great abuses, from the extreme difficulty of laying down any precise rule that will fit the varying circumstances."[100] The court concluded that "except in very clear cases it is generally better to leave the parties to their legal remedy in the recovery of damages."[101] The lower court was reversed and the cause dismissed.

In *Buchanan v. Grand River Log Co.*[102] a riparian mill owner sought an injunction against a logging company that was using the stream to float its logs to market. Plaintiff alleged that the manner in which defendant boomed its logs caused jams that, when broken, resulted in floods on the river. The floods plus the logs themselves caused injury and destruction to plaintiff's mill and dam, with resultant losses to his business. The trial court dismissed the bill.

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98 The measure of damages has been stated to be "the actual damage resulting from the failure to allow the water to flow through the . . . river." Stock v. City of Hillsdale, 155 Mich. 375, 382, 119 N.W. 435, 438-39 (1909). Arens, *supra* note 75, at 396, concludes that "a non-user can receive only nominal damages for past injury."

99 38 Mich. 77 (1878).

100 *Id.* at 82.

101 *Id.*

102 48 Mich. 364, 12 N.W. 490 (1882).

On appeal the supreme court reiterated what it had said in *Hoxsie v. Hoxsie*[103] about the difficulty of shaping an injunction to the needs of this type of case. The court also said that denial of the injunction could be justified because plaintiff had not used the water power for milling purposes since defendant company had been in existence. The question, said the court, was

> whether complainants are entitled to an injunction to restrain the commission of such acts as would impede them in entering upon the use of a mill which has long stood idle; their complaint being not that defendant interferes with an existing business, but that it prevents one being established. The legal rights of complainants are not any less by reason of their mill having stood idle; if they own the dam and the site, they are entitled to make use of them . . . but the fact is an additional reason why the court should be cautious in awarding an injunction . . . .[104]

The decision to leave plaintiff to his remedy at law clearly indicates the Michigan court's willingness to apply the type of reasoning underlying the balance-of-equities doctrine.[105]

The same reasoning was applied in a later case,[106] in which the court considered the effect an injunction would have on the economy of the area. Plaintiff was engaged in raising carp in a pond supplied with water from a river at a point downstream of defendant's paper mill. The effluent from the mill, which was being dumped into the stream, adversely affected the health of the carp. The trial court expressly found defendant's use of the stream as a waste carrier to be unreasonable to plaintiff; damages were awarded but an injunction denied. In affirming the lower court's decision, the supreme court considered the respective amounts of capital invested in the operations, the number of employees on the payrolls, and the impact of the loss involved on the economy of the locale. The court concluded that it had to agree with the trial court that "all the equities in this case would be against granting a permanent injunction."[107]

## III. EVALUATION

Although a complete evaluation of the actual effect of the present law on industrial water use and allocation of water nationally cannot now be made because sufficient factual information does not exist, it is possible to make at least a preliminary comparison of the

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103 *See* note 99 *supra* and accompanying text.

104 48 Mich. at 368, 12 N.W. at 492-93.

105 *See* discussion at note 55 *supra*.

106 Monroe Carp Pond Co. v. River Raisin Paper Co., 240 Mich. 279, 215 N.W. 325 (1927).

107 240 Mich. at 289. *See also* Stock v. Hillsdale, 155 Mich. 375, 119 N.W. 435 (1909); Wyoming Township v. Stuart, 158 Mich. 60, 122 N.W. 214 (1909); Howard v. Bellows, 148 Mich. 410, 111 N.W. 1047 (1907); Lauer, *supra* note 92 at 453.

two legal frameworks thus far developed. Two major issues, involving two basic assumptions, are often encountered in discussions of water laws and their efficacy.[108] The assumptions are (1) that one major goal of the American economic and legal systems is the protection of private investment, and (2) that there is an affirmative public interest in the conservation and utilization of water so as to produce the greatest economic and cultural values. These assumptions may then be translated into two questions: Does the law adequately protect private investment, and does it give sufficient consideration to the public interest in optimum water use?

### *A. Protection of Private Investment*

From the standpoint of the industrial user of water, maximum protection of investment can be achieved only by a guarantee of a source of supply adequate for all his needs. Assume that an industrial water user locates his plant on land riparian to a stream that has sufficient flow, even during periods of low flow, to provide all water needed for maximum operation. The doctrine of natural flow, as applied in Georgia, gives the industry relatively complete protection against others moving onto riparian land upstream and making withdrawals sufficient to decrease the quantity available at the plant. There is, of course, the possibility that upstream users may qualify for the domestic user status, in which case the downstream industry would have no protection.[109] Presumably, however, domestic use would not cause a high degree of water diminution.

At the same time, the industrial user would be subject to limitation because his use could not interfere with the flow to downstream riparians. While it is true that many industrial uses do not involve substantial water disappearance, it is equally true that any use will result in *some* loss. The fact that the downstream riparian moved onto the stream later than the industry would not be material. Ultimately, then, in a Georgia-type jurisdiction, maximum protection of water supply investment is obtained by locating the plant on riparian land at the furthest *downstream* point that a riparian use is possible.

The Michigan version of reasonable use offers the industrial user less protection of investment in some ways and more in others. For example, an upstream industry will obtain more protection of its investment as against lower riparians than in Georgia. Under Michigan law an upstream riparian is entitled to make some ma-

108 *See, e.g.*, Haber, *Protection of Investment, The Public Interest and State Water Policy*, in THE LAW OF WATER ALLOCATION 417 (1958). The tentative evaluation made herein will follow the pattern used by Haber.

109 Here again it is assumed that an industrial use would qualify as a permitted use, but not one entitled to the excepted status of domestic use. This assumption appears to be justified.

terial diminution of the flow downstream and still remain within the requirement of reasonableness. In addition, priority in time does not give priority in right under either version of riparianism. The fact that an industry was the first to make a beneficial use may, however, enter into a determination of whether the use is reasonable. But the courts are not consistent in the weight given to this factor.

Additional protection of investment for the upstream industry is found in the way the Michigan courts allocate risk of loss. Even if both upstream and downstream uses are deemed reasonable, no remedy is available for a downstream riparian, regardless of the extent of his injury. The Michigan courts' failure to apportion water among reasonable uses means that the entire loss falls on the downstream user. And even if the upstream use is unreasonable in relation to a downstream use, the upstream use does not necessarily become unavailable. The Michigan court has shown a decided willingness to balance the equities even in favor of an unreasonable use and thus permit the unreasonable user to continue his activities, although at the cost of some recompense to the injured lower owners.

The protection thus afforded the upstream investor may operate as a double-edged sword. If a new user moves onto the stream above the industrial user, the new user will be entitled to a reasonable use even though this reduces the quantity available to the already existing downstream industry. As more and more new uses are made upstream of the industry, the industry will have a legal right to less and less water. Thus, maximum protection of water supply investment is obtained by locating the plant on riparian land at the furthest point *upstream* where a riparian use is possible.

### *B. The Public Interest in Optimum Water Use*

The public interest is in achieving optimum water use. Haber states that "[W]ater should be allocated so that after a consideration of alternative sources of supply and alternative benefits and cost, the water ultimately is made available to those who can produce the greatest value for the community."[110] There seems little in the natural flow doctrine to call for or even permit a court to consciously include the public interest as a significant factor in the decisional process. To some extent this factor is built into the system; in Georgia, as in Michigan, there is considerable public interest, on both economic and social levels, in various on-site uses that require the maintenance of a substantial flow in the stream. All types of recreational uses are included. However, to the extent that these on-site uses are not materially affected by with-

110 Haber, *supra* note 108, at 420.

drawal uses, and are adequately protected by other legal doctrines,[111] a policy permitting a downstream nonuser to prevent the use of water or to increase the cost to an upstream user seems to offer little toward promotion of the public interest.

In Michigan, a recognized aspect of the reasonable use test is a consideration of the factors bearing on the relative benefits of the uses to the community. In addition to evaluating these factors in a determination of what uses are permissible, these considerations also bear weight in the determination of available remedies for established injuries. By utilizing a criterion not tied to rights fixed in quantitative terms, the system permits future riparians whose uses may be deemed more beneficial to the community to obtain water previously allocated to others. However, the exact factors that are considered to be within the community-benefit criteria are often not explicitly stated or consistently applied, nor has there been clarification of the weight to be accorded these factors in relation to other relevant factors, such as those operating to protect private investment.

In some instances the pattern of results seems to bear little relation to a community-benefit goal. For example, it has been suggested that the Michigan preference for the upper user has no connection with community benefit in a climate where evaporation losses are probably not great.[112] If the protection of investment factors actually tend to influence the geographic location of major water users, it is perhaps difficult to sustain the Michigan preference for upstream development on the basis of minimizing channel losses from evaporation. On the other hand, it is even more difficult to sustain the Georgia preference for downstream development on the same basis. This in a way is illustrative of the manner in which water laws have often operated in substantial disregard of water facts.

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111 *E.g.*, the doctrines relating to the public right of navigation.

112 Haber, *supra* note 108, at 420.