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A Legal-Economic Critique of Nebraska Watercourse Law

Clayton K. Yeutter
University of Nebraska, Department of Agricultural Economics, clayton.yeutter@hoganlovells.com

Leading Articles

A LEGAL-ECONOMIC CRITIQUE OF NEBRASKA WATERCOURSE LAW

Clayton K. Yeutter*

I. INTRODUCTION**

Nothing is more emotion packed than a discussion of ways and means to allocate a resource that is essential to the maintenance of human life. Yet the scarcity of water in many parts of our nation makes such a discussion imperative. How else can strides be taken in the direction of an equitable and efficient distribution of this resource?

Our evolving national concern in this area is vividly illustrated by the recent congressional passage of a bill establishing Water Research Institutes in every state.[1] Each of these is expected to spend $100,000 or more annually for research on various water problems.

Although Nebraska's landscape is dotted with innumerable creeks and streams, the state's tremendous irrigation developments have long since created water disputes and a legal system for adjudicating them. This article will attempt to show that from a legal-economic viewpoint at least some changes are long overdue.

II. WATERCOURSE DEFINED

One cannot legitimately discuss watercourse law without knowing just what waters are encompassed therein. By statute, Nebraska defines a watercourse as "any depression or draw two feet below the surrounding lands and having a continuous outlet to a stream of water, or river or brook."[2] But in applying this definition to specific situations, the Nebraska Supreme Court has necessarily amplified and clarified this short, precise statement. In so doing the court has declared: (1) that a watercourse must be a

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* B.S., 1952, University of Nebraska; LL.B., 1963, University of Nebraska. Member of the Lincoln, Nebraska, and American Bar Associations. Instructor, Department of Agricultural Economics, University of Nebraska.

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1 Water Resources Research Act of 1964, 78 Stat. 329 (1964).

2 NEB. REV. STAT. § 31-202 (Reissue 1960).

stream in fact, as distinguished from mere surface drainage;[3] (2) that it must have banks and sides;[4] and (3) that there must be a definite channel flowing in a particular direction,[5] although flow need not be constant.[6]

Watercourse law applies to natural streams flowing in both natural and artificial channels,[7] and also to artificial streams or drainage ditches.[8]

III. THE LEGAL DOCTRINES

Most of the thirty-one so-called humid eastern states operate under the *riparian* doctrine of watercourse law. It basically provides that one who owns land contiguous to a stream has certain rights of use[9] in the flow moving past or over his land.[10] Domestic uses are paramount, and a riparian can divert the entire flow if needed for this purpose.[11] As to all other uses, a doctrine of reason-

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[3] Pyle v. Richards, 17 Neb. 180, 182, 22 N.W. 370, 371 (1885).

[4] Jack v. Teegarden, 151 Neb. 309, 315, 37 N.W.2d 387, 392 (1949), citing Morrison v. Bucksport & B.R.R., 67 Me. 353 (1877).

[5] *Ibid.*

[6] *Ibid.* See generally, Mader v. Mettenbrink, 159 Neb. 118, 65 N.W.2d 334 (1954); Cooper v. Sanitary Dist. No. 1, 146 Neb. 412, 19 N.W.2d 619 (1945).

[7] Whipple v. Nelson, 143 Neb. 286, 291, 9 N.W.2d 288, 292 (1943), citing Cloyes v. Middlebury Elec. Co., 80 Vt. 109, 66 Atl. 1039 (1907).

[8] Neb. Laws c. 277, pp. 832-33 (1963), amending NEB. REV. STAT. § 46-204 (Reissue 1960). In the past, watercourse law did not apply to artificial streams. See Drainage Dist. No. 1 v. Suburban Irr. Dist., 139 Neb. 333, 343, 297 N.W. 645, 651 (1941): " 'There is a well-defined distinction between artificial streams and natural streams in artificial channels. Thus, riparian rights do not ordinarily attach to artificial streams in artificial channels.' " *Cf.* Hutchins & Steele, *Basic Water Rights Doctrines & Their Implications for River Basin Development*, 22 LAW & CONTEMP. PROB. 276, 282 (1957), where the authors state that an artificial watercourse, if subjected to long use and acquiescence by interested persons who have come to depend on it, may acquire all the attributes of a natural watercourse. The Nebraska distinction was not only administratively confusing, but also economically unsound.

[9] Streamflow is owned by the state; individuals and firms obtain rights of use to such flow but do not obtain ownership rights. See Farmers & Merchants Irr. Co. v. Hill, 90 Neb. 847, 134 N.W. 929 (1912); Kirk v. State Bd. of Irr., 90 Neb. 627, 631, 134 N.W. 167, 168-69 (1912): "In this state, running water is publici juris. Its use belongs to the public and is controlled by the state in its sovereign capacity."

[10] Hutchins & Steele, *Basic Water Rights Doctrines & Their Implications for River Basin Development*, 22 LAW & CONTEMP. PROB. 276, 278 (1957).

[11] *Ibid.* See Crawford Co. v. Hathaway, 67 Neb. 325, 371, 93 N.W. 781, 797 (1903).

ableness is usually applied, meaning that the quantity taken by an individual riparian must be reasonable in relation to the needs of all other riparians on the stream.[12]

The western or arid states have embraced the *appropriation* doctrine. In it, rights to streamflow are obtained merely by diverting and using the water. Generally, the location and quantity of diversion are controlled by a state water administrator, and often the ultimate place of use is far removed from the stream. Earlier permits have priority over those granted at a later date, subject to the requirement that the water be "beneficially used."[13]

Nebraska is relatively arid in the west, relatively humid in the east. As a consequence, both doctrines have evolved in the state, posing a legal enigma that has endured for one hundred years. Because of the difficulty, if not impossibility, of quantifying riparian

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[12] This is the rule in Nebraska, as first declared in Crawford Co. v. Hathaway, 67 Neb. 325, 352, 93 N.W. 781, 790 (1903): "The riparian proprietor does not own the water. He has the right only to enjoy the advantage of a reasonable use of the stream as it flows by his land, subject to a like right belonging to all other riparian proprietors." *Crawford* is one of the leading cases on riparian law in the United States.

The most comprehensive discussion of the reasonable use rule in Nebraska, however, is provided in Meng v. Coffee, 67 Neb. 500, 513-15, 93 N.W. 713, 718 (1903), where the court said: "The purpose of the law is to secure equality in the use of the water by riparian owners, as near as may be, by requiring each to exercise his rights reasonably and with due regard to the right of other riparian owners to apply the water to the same or to other purposes."

In recognizing that reasonableness is a question of fact the court stated: "[I]f we regard the question of what is reasonable use as in great part one of fact, the condition of soil, climate, and rainfall in any given locality, when proved, may be considered properly as important elements of fact, without in the least affecting the general rule. . . . The uses which an upper riparian may make of a stream for purposes of irrigation must be judged, in determining whether they are reasonable, with reference to the size, situation, and character of the stream, the uses to which its waters may be put by other riparian owners, the season of the year, and the nature of the region. . . . Some things, however, are clearly unreasonable, and it may be laid down absolutely that the upper owner, in using the water for irrigation, must not waste, needlessly diminish, or wholly consume it, to the injury of other owners, nor so as to prevent reasonable use of it by them also." *Id.* at 515-16, 93 N.W. at 718.

[13] See discussion of the Nebraska appropriation statutes in section IV *infra*. See also Bagley, *Some Economic Considerations in Water Use Policy*, 5 KAN. L. REV. 499, 505 (1957); Hutchins & Steele, *Basic Water Rights Doctrines & Their Implications for River Basin Development*, 22 LAW & CONTEMP. PROB. 276, 279 (1957); Larson, *Development of Water Rights & Suggested Improvements in the Water Law of North Dakota*, 38 N.D.L. REV. 243, 249 (1962).

rights, litigation has been inevitable.[14]

Similar riparian-appropriation conflicts in other states have been legislated out of existence. This has been achieved by statutes providing for the recognition of riparian rights only to the extent that water is being used at time of passage, or to the extent that construction preparatory to such use is completed within a specified period.[15] Nebraska, on the other hand, has reached the same result by means of judicial legislation.[16]

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[14] Crawford Co. v. Hathaway, 67 Neb. 325, 93 N.W. 781 (1903), and Clark v. Cambridge & Arapahoe Irr. & Improvement Co., 45 Neb. 798, 64 N.W. 239 (1895), are two of the foremost cases involving the riparian-appropriation conflict. In *Crawford* it was said: "To adopt the [appropriation] doctrine . . . would be a most violent and radical departure from the trend of judicial decisions heretofore prevailing, and would overturn many well-settled and generally accepted principles respecting property rights, and result in an invasion of vested private property interests which is beyond the lawful power of the court or the Legislature. To say there is no such thing as a property right of a riparian owner to the use of the stream flowing along or by his land is to work a revolution in the jurisprudence of the state, and violate fundamental principles which lie at the very foundation of the system." 67 Neb. at 334-35, 93 N.W. at 784.

[15] North Dakota has limited riparian rights to domestic and stockwatering purposes. N.D. CENT. CODE § 61-01-01.1 (1960).

Kansas provides that, subject to vested rights, all waters in the state may be appropriated for beneficial use. "Vested right" is defined as the right to continue the use of water that had been beneficially applied prior to the 1945 act or within a reasonable time thereafter with the use of works then under construction. KAN. GEN. STAT. ANN. § 82a-701 (Supp. 1961). This act was upheld in Baumann v. Smrha, 145 F. Supp. 617 (D. Kan. 1956), *aff'd per curiam*, 352 U.S. 863 (1956); and in State *ex rel.* Emery v. Knapp, 167 Kan. 546, 207 P.2d 440 (1949).

The earliest such statute was passed in Oregon in 1909. ORE. REV. STAT. § 539.010 (1963). Its provisions were used as precedent in the Kansas act. The Oregon statute was upheld in *In re* Hood River, 114 Ore. 112, 227 Pac. 1065 (1925).

South Dakota followed the Kansas statute except that vested rights were limited to the beneficial use of water actually made at the time of enactment of the statute or within the immediately preceding three years, or to the beneficial use of water with works then under construction if they were completed and water applied within a reasonable time thereafter. Domestic use is not to be restricted in any way. S.D. CODE § 61.0102(7) (Supp. 1960). The *Model Water Use Act* § 303 in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 566 (1958), is almost identical to the South Dakota law.

See Hutchins, *Riparian-Appropriation Conflicts in the Upper Midwest*, 38 N.D.L. REV. 278, 289-301 (1962) for an excellent commentary on all the above statutes and on the Nebraska cases dealing with this subject.

[16] See King, *Regulation of Water Rights Under the Police Power*, in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 321

The Nebraska court struck its first blow at riparian rights by holding that a *prior riparian* could not enjoin a *subsequent appropriator* from diverting water from a stream.[17] Later, the court held that a *prior appropriator* could enjoin a *subsequent riparian.*[18] And finally, by dicta, it even said that a *subsequent appropriator* could probably enjoin a *prior riparian.*[19] In each instance, the riparian's only recourse was an action for damages. But even this was of little consolation, since the court quietly added that damages might well be only nominal.[20]

Though the court spoke of protecting vested rights in each of the above cases, quite obviously for all practical purposes it destroyed them. Nevertheless, such action was a boon to future water development in the state. It forced riparians seeking a secure water supply to obtain appropriation permits. Having only one active legal doctrine in the state has reduced litigation and greatly simplified the administration of its watercourse law.

A. The Existing Riparian Doctrine

With respect to the vestiges of riparian rights that still exist in Nebraska, the following rules apply:[21]

(1) The doctrine is in full force and effect, except as modified by statute.[22]

(1958). The United States Supreme Court came to the same conclusion in Nebraska v. Wyoming, 325 U.S. 589, 599 (1945).

17 Cline v. Stock, 71 Neb. 79, 102 N.W. 265 (1905), *reversing on rehearing* 71 Neb. 70, 98 N.W. 454 (1904). See also Clark v. Cambridge & Arapahoe Irr. & Improvement Co., 45 Neb. 798, 64 N.W. 239 (1895).

18 McCook Irr. & Water Power Co. v. Crews, 70 Neb. 115, 102 N.W. 249 (1905), *reversing on rehearing* 70 Neb. 109, 96 N.W. 996 (1903).

19 *Ibid.*

20 *Id.* at 123, 102 N.W. at 252. The court stated: "Whether the defendants have suffered any substantial damages to their riparian estates by reason of their being denied the reasonable use of the water of the stream, when such use interferes with plaintiff's appropriation, is problematical and must depend upon the state of proof . . . . This right may prove to be so infinitesimal that the law would not take note of it. The damages may be nominal only. Whether the right to damages in such a case, if it exists, is to be claimed and enforced, must, we think, in a large measure, rest with the riparian owner where lands have thus been injuriously affected. Under such circumstances, it does not seem inequitable to remand the riparian owner to his remedy by an action at law for the recovery of whatever damages he has sustained by reason of such appropriation."

21 These are summarized very briefly since a thorough dissertation on the subject can be found in Doyle, *Water Rights in Nebraska,* 20 Neb. L. Rev. 1 (1941), with follow-up in 29 Neb. L. Rev. 385 (1950).

22 Sioux City Bridge Co. v. Miller, 12 F.2d 41 (8th Cir. 1926); Drainage

(2) Streamflow may be used only on riparian lands.[23]

(3) Riparian lands are limited to those obtained by original patent from the government, less any portions thereof subsequently conveyed out.[24]

(4) Domestic purposes, for which all flow may be diverted, are limited to items concerned with the sustenance of life—drinking, cooking, and watering stock.[25]

(5) The reasonable use doctrine, applicable to nondomestic diversions, is a question of fact and circumstances.[26]

(6) Riparians own the beds of all streams to the thread,[27] and

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Dist. No. 1 v. Suburban Irr. Dist., 139 Neb. 460, 298 N.W. 131 (1941); Slattery v. Harley, 58 Neb. 575, 79 N.W. 151 (1899).

[23] See Doyle, *Water Rights in Nebraska,* 20 NEB. L. REV. 1, 18 n.110 (1941).

[24] In Crawford Co. v. Hathaway, 67 Neb. 325, 355, 93 N.W. 781, 791 (1903), the court assumed, without deciding, that riparian rights would attach to forty acre tracts patented by the government. But then in McGinley v. Platte Valley Pub. Power & Irr. Dist., 132 Neb. 292, 298, 271 N.W. 864, 866-67 (1937), it permitted a riparian to recover damages on a 640 acre tract in a western Nebraska ranch. The court conceded that extending the right to a section was done more or less arbitrarily, but chiefly because it had been possible to acquire this amount by government patent in that part of the state. *Cf.* McCook Irr. & Water Power Co. v. Crews, 70 Neb. 109, 112, 96 N.W. 996, 997 (1903), which intimated that riparian rights would not attach to the quantity of land patented if the reasonable use doctrine would dictate otherwise.

[25] Crawford Co. v. Hathaway, 67 Neb. 325, 371, 93 N.W. 781, 797 (1903). But dicta in Norman v. Kusel, 97 Neb. 400, 150 N.W. 201 (1914), indicated that the watering of 309 head of cattle constituted a domestic use. *Cf.* Neb. Laws c. 279, p. 835 (1963), in which domestic use of ground water is defined as "all uses . . . required for human needs as it relates to health, fire control, and sanitation and shall include the use of ground water for domestic livestock as related to normal farm and ranch operations."

[26] See note 12 *supra.*

[27] McBride v. Whitaker, 65 Neb. 137, 90 N.W. 966 (1902), *aff'd,* 197 U.S. 510 (1905), specifically held that each riparian proprietor owns that portion of the bed of a nonnavigable river which is adjoining his land to the thread or center line of the stream. *Id.* at 155, 90 N.W. at 968. There has never been any controversy on this point in Nebraska. But *McBride* also stated the common law rule that riparians bordering on navigable streams would own the land only to the high water mark; beyond this it is the property of the state. This was followed in Kinkead v. Turgeon, 74 Neb. 573, 579, 104 N.W. 1061, 1064 (1905). But the *Kinkead* opinion on rehearing intimated that the public may only have a right of passage along and over navigable rivers. *Id.* at 589, 109 N.W. at 745. The latter view was adopted without question in Thies v. Platte Valley Pub. Power & Irr. Dist., 137 Neb. 344, 289 N.W. 386 (1939).

The Republican River was declared nonnavigable in Clark v.

the beds of lakes to the center.[28]

(7) The public is entitled to a right of passage on the Missouri River, the state's only navigable stream.[29]

(8) A riparian's boundary is changed by accretion and reliction, but not by avulsion.[30]

(9) Flood waters are subject to riparian rights unless separated from a stream so as never to return.[31]

Cambridge & Arapahoe Irr. & Improvement Co., 45 Neb. 798, 805, 64 N.W. 239, 241 (1895), and the Platte in Stubblefield v. Osborn, 149 Neb. 566, 574, 31 N.W.2d 547, 552 (1948). Navigability of the Missouri was recognized in Kinkead v. Turgeon, *supra* at 586, 109 N.W. at 746.

28 United States v. Phillips, 56 F.2d 447 (D. Neb. 1931).

29 Thies v. Platte Valley Pub. Power & Irr. Dist., 137 Neb. 344, 346, 289 N.W. 386, 387 (1939).

30 The riparian's land holdings increase by virtue of accretion and reliction. With accretion, this is due to alluvial formations resulting either from siltation or from a gradual and imperceptible change in the channel of the stream. Higgins v. Adelson, 131 Neb. 820, 270 N.W. 502 (1936). Since the riparian owns to the thread of the stream, his holdings change whenever the stream shifts. Reliction is merely the uncovering of land by a gradual subsidence of the water. Krimlofski v. Matters, 174 Neb. 774, 119 N.W.2d 501 (1963).

There is one exception to the accretion rule. Where the stream changes course, not by excavating, passing over, and then filling the intervening place between the old and new channel, but rather flows around the intervening land, with the proportion of the flow going into the new channel gradually increasing from year to year until the new channel becomes the principal stream, the boundary line remains in the old channel, subject to accretion changes on it so long as it continues to flow. Commissioners of Land Office v. United States, 270 Fed. 110 (8th Cir. 1920).

In avulsion, there is a sudden and rapid change in the channel of the stream. The old channel is completely abandoned and a new one formed. In such a situation, the court deems it unfair to extend the holdings of one riparian at the expense of another and, therefore, the boundaries are left where they existed prior to the avulsion. Frank v. Smith, 138 Neb. 382, 293 N.W. 329 (1940). One riparian may also gain at the expense of another in accretion, but apparently the courts have felt that a gradual shift is not particularly detrimental to the losing landowner. In addition, the practical problem of crossing a river to use an exceptionally small plot of ground is avoided.

It has proven exceedingly difficult to distinguish avulsion from accretion in practice and much litigation has resulted. See generally, Heider v. Kautz, 165 Neb. 649, 87 N.W.2d 226 (1957); State v. Ecklund, 147 Neb. 508, 23 N.W.2d 782 (1946); Yearsley v. Gipple, 104 Neb. 88, 175 N.W. 641 (1919); Gill v. Lydick, 40 Neb. 508, 59 N.W. 104 (1894).

31 Murphy v. Chicago, B. & Q.R.R., 101 Neb. 73, 161 N.W. 1048 (1917), is a leading case on this point; *accord*, Bahm v. Raikes, 160 Neb. 503, 70 N.W.2d 507 (1955); Cooper v. Sanitary Dist. No. 1, 146 Neb. 412, 19 N.W.2d 619 (1945).

B. THE APPROPRIATION DOCTRINE

Though the appropriation doctrine developed during the California gold rush, Nebraska did not give it statutory recognition until 1877.[32] The legislature then authorized the formation of corporations to develop irrigation or water power, and gave such corporations the power of eminent domain to permit the construction of canals, dams and reservoirs. Water rights were not mentioned, but the state supreme court held that they were necessarily implied in the law.[33]

In 1889, the legislature extended the earlier statute by providing that anyone owning land on the banks or in the vicinity of a stream could acquire a water right by putting the streamflow to beneficial use.[34] Riparian rights were given passing recognition by virtue of a provision that the rights of a riparian on streams not more than fifty feet wide were not to be affected by the act. In 1893, this was amended so as to apply only to streams not more than twenty feet wide.[35]

A comprehensive water code was finally enacted in 1895. The legislature provided that "the water of every natural stream *not heretofore appropriated* . . . is hereby declared to be the property of the public, and is dedicated to the use of the people of the state . . . ."[36] This meant that the only water rights that would attach to land not yet in private ownership in the state would be appropriation rights.

The riparian doctrine thus applies only to land held in private ownership prior to 1895. Since such rights are minimal, more attention can and should be given to the *modus operandi* of the appropriation system.

The 1889 act was supposedly self-administered. To acquire an appropriation right, it was necessary only to post notice of the intended diversion, undertake construction of the diversion works within sixty days, and prosecute construction diligently. No period was prescribed by which the works should be completed and in use. In addition, appropriation rights were recognized for diversions

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[32] Neb. Laws p. 168 (1877).

[33] Kearney Water and Elec. Powers Co. v. Alfalfa Irr. Dist., 97 Neb. 139, 149 N.W. 363 (1914).

[34] NEB. COMP. STAT. c. 93a, at 844 (1889).

[35] NEB. COMP. STAT. c. 93a, § 1, at 844 (1893).

[36] NEB. COMP. STAT. c. 93a, § 5485, at 1109 (1895). (Emphasis added.) This is now NEB. REV. STAT. § 46-203 (Reissue 1960).

prior to 1889 to the extent of the capacity of the diversion works.[37]

The act of 1895 established, for the first time, an agency charged with the responsibility of protecting the public interest in administering the appropriation doctrine. It was called the State Board of Irrigation. The board was to: (1) determine and record priorities on a "first in time is first in right" basis; (2) determine the amount of appropriations, which could not be more than: (a) the capacity of the diversion works, (b) the amount that could be beneficially used for the purpose for which the appropriation was made, and (c) one cubic foot per second for each seventy acres of land included in the application; and (3) measure streamflow in the state to determine the amount of water available for appropriation. Applications were to be granted if to do so would not be detrimental to the public interest. In 1911, the board was given the right to annul, after notice and hearing, any appropriation which had not been used for more than three years.[38]

The functions of the above board are now carried out by the Department of Water Resources.[39] Although minor changes have been made through the years, the basic statutes of today are those which were enacted in 1895. Discussion of the major provisions follows.

IV. THE DEPARTMENT OF WATER RESOURCES

A. General Duties

This agency has full responsibility for the administration of Nebraska's watercourse statutes.[40] In so doing it adopts procedural rules and conducts public hearings on complaints, petitions, and applications in connection with water rights. The department is authorized to compel the attendance of witnesses, take testimony by deposition, examine books and records of parties, etc.[41] At the conclusion of its hearings, a decision is rendered and orders are issued. A dissatisfied party may appeal to the Nebraska Supreme Court, which may reverse, vacate, or modify the orders.[42]

Quite obviously the powers of this department are quasi-judi-

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37 See Doyle, *Water Rights in Nebraska*, 29 Neb. L. Rev. 385, 387 (1950), on this point and for a general discussion of early appropriation law.

38 Neb. Laws c. 153, § 6797, p. 503 (1911).

39 Neb. Rev. Stat. § 46-208 (Reissue 1960).

40 Neb. Rev. Stat. § 46-209 (Reissue 1960).

41 *Ibid.*

42 Neb. Rev. Stat. § 46-210 (Reissue 1960).

cial in nature.[43] This immediately makes them suspect on constitutional grounds relative to the doctrine of separation of powers.[44] The supreme court, however, decisively resolved this issue in *Crawford Co. v. Hathaway*[45] by holding that the primary object of the department is to supervise the appropriation, distribution, and diversion of water. This, said the court, is an administrative function. Though the department's powers are quasi-judicial, it is not a judicial body and does not exercise judicial functions. The right of the judiciary to overturn department orders is sufficient to furnish an aggrieved party with due process of law.

The department's orders are clothed with a presumption of validity and are final unless unreasonable or arbitrary.[46] The hesitancy of courts to interfere with such orders stems from a realization, first, that most department decisions are administrative and factual in nature, and, second, that this is a complex, specialized area into which the judiciary, with good reason, often fears to tread.

B. Applications for Appropriations

By statute, an appropriation applicant in Nebraska must furnish the following information to the Department of Water Resources:

(1) Name and address;
(2) The source from which the appropriation is to be made;
(3) The amount of water desired;
(4) The location of the proposed diversion works;
(5) The estimated time for completion of the diversion works and canals;

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[43] See Hickman v. Loup River Pub. Power Dist., 173 Neb. 428, 113 N.W.2d 617 (1962); North Loup River Pub. Power & Irr. Dist. v. Loup River Pub. Power Dist., 162 Neb. 22, 74 N.W.2d 863 (1956); State v. Oliver Bros., 119 Neb. 302, 228 N.W. 864 (1930).

[44] Texas held a similar statute unconstitutional. Board of Water Eng'rs v. McKnight, 111 Tex. 82, 229 S.W. 301 (1921).

[45] 67 Neb. 325, 365, 93 N.W. 781, 795 (1903).

[46] State *ex rel.* Cary v. Cochran, 138 Neb. 163, 173, 292 N.W. 239, 246 (1940); *accord,* Hickman v. Loup River Pub. Power Dist., 176 Neb. 416, 126 N.W.2d 404 (1964); Ainsworth Irr. Dist. v. Bejot, 170 Neb. 257, 102 N.W.2d 416 (1960).

In Kirk v. State Bd. of Irr., 90 Neb. 627, 632, 134 N.W. 167, 169 (1912), it was pointed out that this agency is made the guardian of the public welfare in the appropriation of the public waters of the state, and that this necessarily devolves upon it a large discretion in such matters.

(6) The estimated time by which water can be applied for beneficial purposes; and

(7) The purpose of the appropriation:
(a) If for irrigation, a description of the land to be irrigated and amount thereof.[47]

The department immediately records the application and examines it for patent defects. Should it be defective, it is returned to the applicant, who has thirty days in which to refile and still retain the priority date of the original filing.[48]

If there is unappropriated water in the source of supply,[49] and if such appropriation would not be detrimental to the public welfare, the Department of Water Resources approves it by endorsement on the application and return to the applicant. If it so desires, the department may lessen the quantity of water approved for withdrawal.[50]

Within six months after the approval, the applicant must file with the Department of Water Resources a map or plat showing the point of diversion from the stream, and all proposed dams, reservoirs, canals, and other structures involved in the project. If this is not accomplished, the appropriation is forfeited.[51]

The applicant must likewise begin construction of his diversion works, canals, etc., within six months after approval of his applica-

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47 NEB. REV. STAT. § 46-233 (Reissue 1960).

48 The Nebraska court has said that an appropriation is not completed until water is actually applied to some beneficial purpose. North Loup River Pub. Power & Irr. Dist. v. Loup River Pub. Power Dist., 162 Neb. 22, 74 N.W.2d 863 (1956); *accord,* State *ex rel.* Lackey v. Gering & Ft. Laramie Irr. Dist., 129 Neb. 48, 260 N.W. 568 (1935); Commonwealth Power Co. v. State Bd. of Irr., 94 Neb. 613, 143 N.W. 937 (1913). Power appropriations, on the other hand, are completed when the necessary facilities are constructed and the plants placed in operation. Hickman v. Loup River Pub. Power Dist., 176 Neb. 416, 126 N.W.2d 404 (1964).

49 A side issue here is whether return flow from a prior grant is subject to further appropriation. In Ramshorn Ditch Co. v. United States, 269 Fed. 80, 83-84 (8th Cir. 1920), it was held that seepage is abandoned by the original appropriator when permitted to return to its natural channel with no intention on the part of the appropriator to recapture it. If not abandoned, recapture and re-use is permitted. Once abandoned, it can nevertheless be recaptured and re-used if no new rights have intervened in the interim. The same rules apply to waste water. *Ramshorn* was followed in United States v. Tilley, 124 F.2d 850 (8th Cir. 1941), *cert. denied,* 316 U.S. 691 (1942).

50 NEB. REV. STAT. § 46-235 (Reissue 1960).

51 NEB. REV. STAT. § 46-237 (Reissue 1960).

tion. The statute requires him to prosecute such construction "vigorously, diligently, and uninterruptedly." Within six months, the applicant must furnish a report to the department showing the amount of work remaining and satisfactory evidence that work has begun. At least one-tenth of the work must be completed within a year. The department has the right to physically examine the progress of the work to insure that it is being accomplished according to plans and specifications, and with due diligence. Failure to comply with this provision will void the earlier approval.[52]

To the basic 1895 quantity limitation of one c.f.s. for seventy acres of land, the legislature added further restrictions: (1) that the aggregate annual amount could be no more than three acre-feet of water for each acre of land; and (2) that the appropriation could not exceed the quantity that experience might indicate as necessary, in the exercise of good husbandry, for the production of crops.[53]

Additional appropriations are permitted under certain circumstances. For example, an irrigator may have a perfected appropriation of one c.f.s. for each seventy acres, and yet have so many appropriations senior to his that he obtains little or no water in times of scarcity. Such a person (or firm) may apply for an additional appropriation from any natural lake or reservoir.[54] He may not apply for an additional appropriation from another stream.

Many irrigators have appropriations of less than one c.f.s. per seventy acres. These persons may apply for additional or supplemental appropriations that will make their rights the maximum permitted by law.[55] This latter appropriation, however, is not retroactive, but will have priority only from the date of filing such application with the Department of Water Resources.

C. Storage Appropriations

Anyone intending to construct a storage reservoir must receive approval from the Department of Water Resources.[56] Subsequent to approval, the applicant may impound unappropriated streamflow, and any appropriated flow not required for immediate use. Ditches necessary to conduct the water to the reservoir may,

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[52] Neb. Rev. Stat. § 46-238 (Reissue 1960).

[53] Neb. Rev. Stat. § 46-231 (Reissue 1960).

[54] Neb. Rev. Stat. § 46-240 (Reissue 1960).

[55] Neb. Rev. Stat. § 46-240.01 (Reissue 1960).

[56] Neb. Rev. Stat. § 46-242 (Reissue 1960).

of course, also be constructed, and property may be condemned for both the ditches and the reservoir.

Water cannot be impounded for a reservoir when needed by another reservoir with a senior appropriation. Nor can it be impounded when needed by irrigators who have appropriations direct from the stream in question, even if such appropriations are junior to that of the reservoir.[57]

After a reservoir is completed, the owner thereof must, within six months, apply for a permit to put the stored water to beneficial use.[58] If for irrigation, the land to be irrigated must be described. The individual landowners who are to be served by such a project do not apply for appropriations. Thus, under ordinary circumstances, the department issues only one appropriation for each reservoir. The quantity is limited to three acre-feet annually for each acre of land served. Presumably the owner of the reservoir could furnish either more or less than such amount to a specific landowner, so long as the total withdrawal would not consist of more than three acre-feet per acre per year.[59]

Similarly, irrigation districts obtain only one appropriation for all irrigators to be served. They too can distribute the total allowable quantity of water in any manner they wish. The Department of Water Resources supervises the total withdrawal by the district and by a reservoir owner, but does not monitor in any way the distributional procedures of these entities.

D. Lands to be Irrigated

Prior to the first of April of each year, a list of all lands to be irrigated under each appropriation must be submitted to the De-

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[57] *Ibid.*

[58] *Ibid.*

[59] A similar three acre-feet per acre limitation is found in Neb. Rev. Stat. § 46-231 (Reissue 1960). But that section explicitly decrees that such limitation shall not apply to storage waters. The apparent inconsistency should be rectified by the state legislature so that the Department of Water Resources will know whether or not to enforce the restriction. Some post-1895 storage projects are now diverting more than three acre-feet per acre. See summary of acreage reports in State of Nebraska, Department of Water Resources, Hydrographic Report 137-38 (1961-62).

This leads to an additional and even more serious question: Is it possible under Nebraska law to obtain a three acre-feet storage appropriation in addition to a three acre-feet natural flow appropriation? A legislative answer is needed so that the Department of Water Resources will have legal guidance in the matter.

partment of Water Resources.[60] This section has a three-fold purpose: (1) to insure that appropriators stay within the maximum quantity limitations prescribed by statute; (2) to furnish the department with evidence for subsequent forfeiture proceedings; and (3) to permit the department to estimate potential use for the season and pre-plan to minimize waste.

The provision is subject to criticism on at least two grounds. First, it assumes that an application of water in excess of the maximum statutory allowance will be wasteful. Later in this article economic analysis will be used to show that this is not necessarily true.[61] Second, most irrigators are cognizant of the forfeiture potential of this provision, and can circumvent it by merely reporting the maximum acreage each year. The department has neither the funds nor the personnel to insure that they actually irrigate this acreage. Since the figure submitted is only an estimate, and since water needs depend to a great degree on climatic factors, it would be virtually impossible to prove fraud in such a case even though the department recognizes that many appropriators consistently irrigate far fewer acres than are estimated on April 1. A suggested change in this procedure is discussed in section V (E) *infra.*

E. Administrative Penalties

Should an irrigator, for any reason, receive more water than that quantity to which he is entitled, he must take steps to prevent such excess distribution.[62] Generally, this will require notification of the owner of the canal which is servicing him. Failure to promptly make such notification places the irrigator in a position of being liable to anyone injured thereby.

Anyone interfering with the proper and lawful delivery of water under an appropriation is guilty of a misdemeanor and subject to a fine of $100 or imprisonment for thirty days.[63]

Anyone tampering with a gauge used for determining the flow of a stream or canal is guilty of a felony and subject to a fine of $1,000, imprisonment for six months, or both.[64]

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[60] Neb. Rev. Stat. § 46-262 (Reissue 1960).

[61] See section V(B) *infra.*

[62] Neb. Rev. Stat. § 46-262 (Reissue 1960).

[63] Neb. Rev. Stat. § 46-263 (Reissue 1960).

[64] Neb. Rev. Stat. § 46-263.01 (Reissue 1960).

F. Stored Floodwaters

In 1902, Congress authorized the formation of a Bureau of Reclamation, the purpose of which was to reclaim arid lands of the west. Much of the Bureau's work has been concentrated on the development of irrigation. The larger projects have, however, been multipurpose in nature involving flood control, hydroelectric power, and navigation, along with irrigation. Where quantities of water in excess of the needs of the project are stored, or flood water accumulated, the federal government may contract to furnish such excess water to appropriators on the stream if the flow at that particular time is inadequate. The Department of Water Resources is charged with supervising and enforcing the distribution of such water.[65] Contracts executed by the federal government and the appropriators must immediately upon execution be furnished to the department.

G. Condition of Dams

The Department of Water Resources is required to make an annual inspection of all dams having a capacity of ten acre-feet or more.[66] Should the inspection reveal an unsafe condition, notice thereof is given the owner, who has three months in which to correct the defect. Failure to make such repair constitutes a misdemeanor subjecting the owner to a fine of up to $100. Each day of delay subsequent to the three month limit constitutes a separate offense.

V. NEBRASKA WATERCOURSE LAW—ITS CHARACTERISTICS & PROBLEMS

This article has been devoted thus far to an elucidation of the principles of riparian and appropriation law applicable to Nebraska watercourses. The presentation has been legalistic, and primarily descriptive rather than analytical. The tenor will now change, and the remainder of the article will critically appraise several specific characteristics of the state's watercourse law.

This critique is based on the premise that the people of Nebraska desire an efficient, economic use and allocation of the state's water resources. Is the 1895 appropriation statute imbued with this premise? The Nebraska Supreme Court apparently thought so when, in *Farmers Canal Co. v. Frank*, it said:

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[65] Neb. Rev. Stat. § 46-273 (Reissue 1960).
[66] Neb. Rev. Stat. § 46-277 (Reissue 1960).

> It is the evident purpose of the law . . . to enforce and maintain a rigid economy in the use of the waters of the state. It . . . is the policy of the law in all the arid states . . . to require and enforce an economical use of the waters of the natural streams. The urgent necessities of the situation compel this policy by the very force of circumstances. One of the main objects of the system of administration of public waters prescribed throughout the arid regions is to restrain unnecessary waste, and to provide for an economic distribution of that element so necessary to the very existence of agriculture in those regions. This is also the policy of the state of Nebraska in its regulation of the use of the waters of the state, and the law should be construed so as to effect a reasonable, just and economic distribution of water for irrigation purposes. The court will take judicial notice of the fact that there are hundreds of acres within the state susceptible of irrigation to every acre which there is water enough to supply, and it is obvious that a construction of the law that will best distribute the use of the waters is to be preferred, if such construction is not inimical to any constitutional inhibitions or limitations.[67]

It has been said that the appropriation doctrine often exhibits waste in: (1) quantity diverted; (2) location of use; and (3) purpose of use.[68] The discussion to follow will show that Nebraska, unfortunately, has glaring examples in each category.

A. Ancient Vested Appropriation Rights

Since the Nebraska Supreme Court has given legal, if not actual or practical, protection to riparian rights in the state, consistency would seem to demand that early appropriation rights be given similar protection. The court has provided that consistency.

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[67] 72 Neb. 136, 159, 100 N.W. 286, 294 (1904); *accord,* State v. Birdwood Irr. Dist., 154 Neb. 52, 46 N.W.2d 884 (1951); Enterprise Irr. Dist. v. Willis, 135 Neb. 827, 284 N.W. 326 (1939); Kearney Water & Elec. Powers Co. v. Alfalfa Irr. Dist., 97 Neb. 139, 149 N.W. 363 (1914). In the *Birdwood* case the court said that it was the duty of the department to insure that the maximum amount of water may be subject to appropriation.

[68] Fisher, *Western Experience & Eastern Appropriation Proposals,* in The Law of Water Allocation in the Eastern United States 75, 95 (1958): "The problems of waste in western law may be classified in three fairly distinct but somewhat overlapping groups. They presume a situation of limited water supplies from which a high level of beneficial use is desirable. First, given the place and purpose of a particular use, the *amount* of water diverted for it is frequently excessive and wasteful. Second, given the purpose of a particular use, its *location* is often such that the same purpose of use at another place would require a smaller amount of water. Third, even though the location and the amount used are appropriate for the particular purpose to which water is being applied, this *purpose* may be such that the same amount of water used for a different purpose would constitute a higher beneficial use."

The irrigation law of 1895 was the first to establish a relationship between the quantity of water appropriated and the quantity of land on which it was to be used, this being one c.f.s. per seventy acres. But many appropriations had been granted under the 1877 and 1889 acts,[69] some of which exceeded the above maximum. Today there are still approximately 270 appropriations on file which were granted prior to 1895.[70]

In 1939, the State Board of Irrigation attempted to strike down one of these appropriations on the North Platte River. After threats by the board to close its headgates, the Enterprise Irrigation District sued to enjoin any action that would prevent it from diverting all the water that could be put to beneficial use in the growing of crops.[71] The trial court denied an injunction, but the state supreme court reversed in *Enterprise Irr. Dist. v. Willis*.[72] The court pointed out that the 1895 statute specifically provided that it was not to "interfere with or impair the rights to water appropriated" at an earlier date. Although the district had applied 3.5 acre-feet of water per acre of irrigable land, the court found that it had all been applied to beneficial use without waste. Noting that the police power may interfere with vested rights in order to secure proper regulation and supervision thereof, the court nevertheless held that "any interference that limits the quantity of water or changes the date of its priority to the material injury of its holder is more than regulation and supervision and extends into the field generally referred to as a deprivation of a vested right."[73] Thus, the 1895 limitation mentioned above, and the 1911 limitation of three acre-feet of water per acre of land, could not be applied retroactively. To do so would constitute a denial of due process.

Obviously these large pre-1895 appropriations are extremely valuable. The combination of seniority and sizable quantity places their holders in a most enviable position in a dry year.

Many early western irrigation decrees were for atrociously large quantities.[74] Undoubtedly Nebraska has its share of appropriations that can be so categorized. If so, waste is being perpetuated under the guise of due process. But it should be noted that the court in *Willis* did not say that interference with an early

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69 As amended in 1893.

70 [1961-1962] NEB. DEP'T OF WATER RESOURCES BIENNIAL REP. 40.

71 Up to a maximum of its appropriation, of course, which was 138.9 c.f.s.

72 135 Neb. 827, 284 N.W. 326 (1939).

73 *Id.* at 834, 284 N.W. at 330.

74 Trelease, *A Model State Water Code for River Basin Development*, 22 LAW & CONTEMP. PROB. 301, 305 (1957).

appropriation would be per se invalid. The court said that such interference could not *materially injure* the holder.[75] Therefore, if the Department of Water Resources were to investigate these early permits, and subsequently limit them to the quantity of water actually being used, such a holder would likely find it extremely difficult to prove that he had been "materially injured."[76] A similar result could be achieved by simply applying the statutory doctrine of beneficial use.[77] The oil and gas industry has long utilized regulations requiring the prevention of waste. There is no reason to believe that this same element of the police power cannot constitutionally be extended into the law of watercourses.[78]

B. Quantity Limitations

Economic analysis would indicate that the Nebraska Legislature erred in establishing maximum quantity limitations for appropriation permits.[79] One c.f.s. for seventy acres of land is equivalent to an irrigation well pumping 900 gallons per minute for 140 acres.[80] Yet in western Nebraska an irrigator would contend that such a well would only water about 100 acres during a dry year. This means that the above restriction puts the appropriating irrigator in an insoluble dilemma. If, with a two c.f.s. appropriation, he plants 140 acres of crops at irrigated seeding rates, he runs the risk of having only enough water to properly irrigate approximately 100 acres. The remaining forty acres would then yield little, if anything. Alternatively, he might spread the available water over the full 140 acres, accepting a reduced yield on the entire tract caused by having insufficient water available at critical times. His final alternative would be to plant only 100 acres, guaranteeing to himself an adequate water supply.[81] (But if he submits an acreage re-

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[75] See text accompanying note 69 *supra*.

[76] See Roberts, *Panel Discussion on Legislative Problems in the Field of Riparian & Appropriative Rights*, in Proceedings, Water Law Conference, University of Texas School of Law 237, 241 (June 10-11, 1954).

[77] See Fisher, *Western Experience & Eastern Appropriation Proposals*, in The Law of Water Allocation in the Eastern United States 75, 109 (1958); Trelease, *supra* note 74, at 305.

[78] See Roberts, *supra* note 76.

[79] Neb. Rev. Stat. § 46-231 (Reissue 1960).

[80] One c.f.s. is equal to 450 gallons per minute.

[81] The principle of diminishing returns affords a method of estimating profitability in each of these three alternatives. Nevertheless, the irrigator may be prevented from maximizing profits because of the quantity limitation. It should also be emphasized that if a restriction is to be applied, it should be in acre-feet, rather than in c.f.s. The latter in-

port of only 100 acres, he will only be permitted to divert 1.4 c.f.s.)

In eastern Nebraska the statutory maximum may well be ample. But such is not the case in western Nebraska today, and the limitation will be even more of a hindrance as farmers switch to intensive operations utilizing crops with even greater water requirements. For example, irrigated grass is coming into prominence. It needs water, not just in July and August (the usual months for irrigating row crops), but from April to October. For grass to be efficiently utilized, not only may the one c.f.s. per seventy acre limitation be undesirable, but the three acre-feet per acre maximum may also be wholly inadequate.

Just how large an appropriation should an individual irrigator be granted? Economic theory can provide at least a generalized answer, as is illustrated by Figure 1 below.[82]

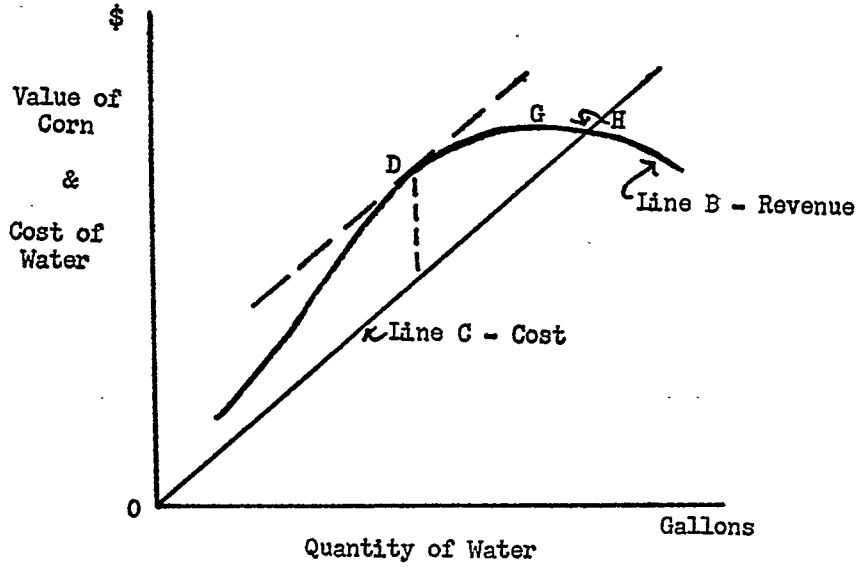

FIGURE 1

Line C indicates that if water costs anything at all, the cost per acre of corn rises as additional increments of water are added.

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creases seepage and evaporation losses, and may prevent the application of necessary quantities at critical times.

[82] See Timmons, *Theoretical Considerations of Water Allocation Among Competing Uses & Users*, 38 J. FARM ECON. 1244, 1249-51 (Dec. 1956), for a more thorough explanation of this graph and the principles on which it is developed. For a more general presentation, see LEFTWICH, THE PRICE SYSTEM & RESOURCE ALLOCATION 174 (rev. ed. 1961).

But returns also rise and, so long as line B (the value of the corn produced on that acre) is above line C the farmer is profiting by the use of irrigation. At point G, he is applying so much water per acre that his yield actually begins to decrease. He does not, however, show a financial loss until point H is reached.

In economic terminology, application of a variable resource (water) to a given set of fixed resources (the acre of land, a specific amount of fertilizer, and a given seeding rate) should proceed until such time as marginal revenue equals marginal cost.[83] In Figure 1, this occurs at point D, where the slope of line C is equal to the slope of line B. This means that at this point the cost of an additional gallon of water would be equal to the value of the additional corn produced. Between points D and G yields continue to increase, but not as rapidly as costs.

The net return per acre is also maximized at D; at no other point on the graph is the vertical distance between total revenue (line B) and total cost (line C) as great. If the quantity represented by point D is greater than the statutory maximum, the law is preventing this farmer from operating efficiently. This illustrates the fallacy and futility of establishing statutory limitations that at some time, for some use, will unquestionably be outmoded and detrimental to the public welfare.

It must be conceded that no water administrator has sufficient research data at hand to determine the location of point D in any particular case. Water demand depends on the crop to be grown, soil structure, expected rainfall, humidity, product prices, and a host of other factors. But this does not mean that he should be excused from attempting to estimate point D when a permit is granted; the economic concept should not be ignored.[84]

If, however, the legislature is unwilling to depart entirely from the use of maximums, a step in the proper direction would be to vary them from west to east as is done in Kansas.[85] Another step that might be taken would be to reject future applications for the use of water on poor quality land where marginal productivity will undoubtedly be low.[86]

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[83] See HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY 40 (1960); LEFTWICH, *op. cit. supra* note 82, at 198.

[84] See Fisher, *supra* note 77, at 109.

[85] See Smrha, *Problems of Water Law Administration in Kansas,* 5 KAN. L. REV. 649, 655 (1957). Kansas at the time of this article used as a guide two-acre feet per acre in the west, 1½ in the central and one in the east. Though the flexibility is desirable, all these quantities would appear to be much too low today.

[86] See Fisher, *supra* note 77, at 100.

C. WATER SHORTAGES

Many of Nebraska's streams are overappropriated. This means that it is not at all unusual for junior appropriators to find their headgates closed during an irrigation season. An irrigator on the Platte River in the western half of the state has little security unless his priority precedes 1900.[87] Yet headgates may be closed on the crop or at the location where water could be used most effectively at that particular time.[88] The determinative factor is seniority, and seniority alone. Some day we may not be able to afford this luxurious waste. Therefore, it would behoove legislators and others interested in the problems of water allocation to begin developing and evaluating other devices and mechanisms that might be used in the allocative process and still protect vested rights. Despite all the explanations that have been given as to why a market in water rights will not work,[89] we may yet discover that it can be a useful tool. All too often the market is compared with an administrative agency on an either-or basis, and frequently with overtones of socialism on the one hand and laissez faire on the other. Why not evaluate the middle ground, where a market might possibly function within an administrative framework?[90]

A number of writers have advocated prorating water in times of shortage.[91] This, of course, has been the foundation of the riparian doctrine of reasonable use. Prorating has an equalitarian

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[87] In 1961, for example, all canal grants on the Platte River west of Kearney subsequent to November 24, 1894, were shut off on June 24 and remained so until September. In July, post-1894 noncanal appropriations were also shut off. [1961-1962] NEB. DEP'T OF WATER RESOURCES BIENNIAL REP. 13.

[88] See Fisher, *supra* note 77, at 102.

[89] These may be found in many articles written on the subject of administration of water rights. See, *e.g.*, Haber, *Protection of Investment, the Public Interest, and State Water Policy*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 417, 423 (1958); McPherson, *Can Water Be Allocated by Competitive Prices?*, 38 J. FARM ECON. 1259 (Dec. 1956), discussed by Kristjanson, 39 J. FARM ECON. 1252 (Dec. 1957). Strong exception to this trend is taken in HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY (1960). An excellent exposition on this point may be found in Bagley, *Some Economic Considerations in Water Use Policy*, 5 KAN. L. REV. 499 (1957).

[90] See discussion by Barlowe of the McPherson article, *supra* note 89, in 38 J. FARM ECON. 1280 (Dec. 1956).

[91] Texas irrigation companies are required by statute to prorate when water is limited. "In case of shortage of water from drouth, accident or other cause, all waters to be distributed shall be divided among all customers pro rata, according to the amount he or they may be entitled to, to the end that all shall suffer alike, and preference be given none."

ring, and a connotation of fairness and justice.[92] Nonetheless, it will be economically unsound if the concept of marginal productivity is forgotten. Figure 2 illustrates how proration should take place, not just in times of shortage, but at any time.[93]

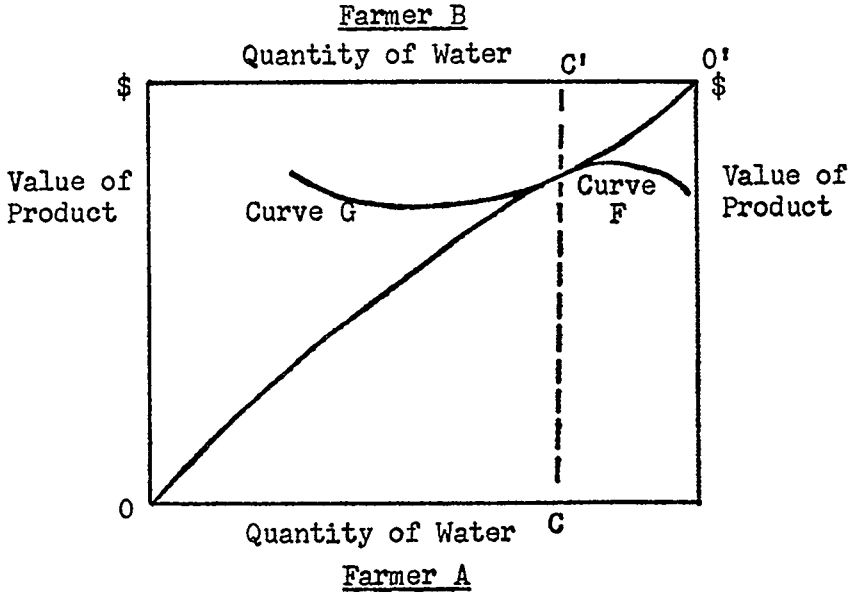

FIGURE 2

Curve F represents the total revenue of Farmer *A*, curve G the total revenue of Farmer *B*. The latter curve is deliberately placed upside down on the graph so that the two curves can be placed tangent to each other. Curve G is noticeably flatter than curve F. This means that Farmer *B* is not obtaining as much yield

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TEX. REV. CIV. STAT. art. 7557 (1954). See discussion of this statute in Roberts, *Problems Connected with the Distribution of Irrigation Water in Texas*, in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 79, 93 (Nov. 20-21, 1954). Roberts emphasizes the need for clarification of this provision because water needs vary according to soil, maturity status of the crop, etc. This results in some fields suffering more than others.

92 Trelease, *A Model State Water Code for River Basin Development*, 22 LAW & CONTEMP. PROB. 301, 308 (1957).

93 See HEADY, ECONOMICS OF AGRICULTURAL PRODUCTION & RESOURCE USE 118-22 (4th ed. 1961); Timmons, *Theoretical Considerations of Water Allocation Among Competing Uses & Users*, 38 J. FARM ECON. 1244, 1254-56 (Dec. 1956).

response with irrigation as is Farmer *A*. Water should be allocated between these two irrigators so that their marginal revenues are equal. This will occur where the slope of the two curves is equal—at the point of tangency. Of the total quantity of water allocated to these two farmers, Farmer *A* should receive OC, and Farmer *B*, O′C′. The latter quantity is smaller because of the lesser yield response. This principle should be applied if Nebraska ever uses a pro rata system of water distribution.[94]

Rotating might also be used in time of shortage.[95] This would ordinarily be on a voluntary basis with some farmers using double their grants one week and nothing the following week, while others would operate on just the opposite schedule. Such rotations would reduce seepage and evaporation losses in transmission, and would quite likely reduce farm labor requirements. The rotation principle could also be used by having some farmers irrigate in the spring and fall, while others would irrigate only in the summer.

A rotation system is the antithesis of pro rata distribution, and thus much more efficient. It must be recognized, however, that the cost of administration may sometimes override the benefits.[96]

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[94] This has also been described as the concept of "equimarginal value in use." See the comprehensive coverage of this point in HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY 37 (1960).

[95] Fisher, *supra* note 77, at 110. See *Proposed Surface Water Law for Michigan* § 25, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 49, 60 (1958): "The users of water . . . may rotate in the exercise of their rights . . . to which they are collectively entitled, so long as the rights of others are not injuriously affected; provided that the schedule of rotation shall be approved in advance by the Commission."

Model Water Use Act § 501, in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 581 (1958), grants the water administrator the right to rotate uses in times of shortage, but domestic uses and preserved riparian uses must be preferred.

[96] By statute, Texas permits seasonal permits and temporary permits of not more than three months duration. TEX. REV. CIV. STAT. art. 7467(c) (1954). The seasonal permits have not been adequately supervised because of limited funds and personnel. It is assumed that many of these permit holders continue to divert after their permits run out. Rollins, *Policies of the Board of Water Engineers in Passing Upon Applications for Appropriative Rights*, in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 221, 223 (June 10-11, 1954); Hutchins, *Western Water Rights Doctrines & Their Development in Kansas*, 5 KAN. L. REV. 533, 566 (1957).

Both seasonal and temporary permits are deserving of consideration in Nebraska.

D. TRANSFERABILITY OF APPROPRIATION RIGHTS

With most streams overappropriated, the only way that a potential water user in Nebraska can obtain a secure water right is to purchase land bearing an appropriation of early priority. The water right itself cannot be transferred because of an unwise statutory prohibition that may discourage water-using industries from entering the state.[97] All the locational advantages of a particular area or city are meaningless if water rights are unavailable.

But aside from the issue of economic development, such a prohibition negates the possibility of shifting water from one irrigator to another or from an irrigator to a power plant or manufacturing company, even though such shifts might be economically justified.[98] This is a most serious shortcoming in Nebraska law. Professor Ciriacy-Wantrup has noted that appropriation law made many mistakes in its initial allocation of water supplies. Marginal concepts were ignored and water is not nearly as productive as it should be. But he adds that this is no great tragedy so long as water can move from one user to another, one use to another, and one region to another. The drawback of seniority loses its economic significance if statutes afford flexibility.[99]

Nebraska does not now have such flexibility. It should, therefore, remove its restrictions on transferability except where detrimental to the public interest[100] or violative of vested rights.[101]

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97 NEB. REV. STAT. § 46-233 (Reissue 1960), which requires that applications for irrigation permits must describe the land to be irrigated and the amount thereof. Contrast this with the proposed Michigan statute which provides that water rights may be separately conveyed, and that irrigation permits are applicable to a gross area not more than five times the estimated maximum acreage irrigable in one year with the quantity authorized. Purpose of use and location of gross area may be changed by permit after hearing. See *Proposed Surface Water Law for Michigan,* in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 49, 58-60 (1958).

98 Although § 46-233 makes no references to land descriptions other than for irrigation, neither does it provide a mechanism whereby transfers involving power, industry, or other uses could take place. Since the appropriation statutes are intended to be comprehensive, it is doubtful that the court would imply the power to establish such a mechanism within the general authority given the Department of Water Resources.

99 See discussion by Professor Ciriacy-Wantrup in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 557 (1958).

100 See Trelease, *supra* note 92, at 315; Trelease, *Trends in the Law of Prior Appropriation,* in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 206, 216 (June 10-11, 1954); Trelease, *Preferences to the Use of Water,* 27 ROCKY MT. L. REV. 133, 138-40 (1955) (discussing reservations for future city growth and for preferred uses).

E. FORFEITURE OF APPROPRIATION RIGHTS

If an appropriation has not been used for beneficial purposes, or having once been so used, has not been used for such purpose for more than three years, the Department of Water Resources may, after a show cause hearing, declare such appropriation forfeited. This decision may be appealed to the state supreme court.[102]

By virtue of the above statute, one would assume that there are now two ways in which an appropriation right may be lost: (1) by abandonment, or intentional relinquishment of such right;[103] and (2) by statutory forfeiture for nonuse regardless of intent. After some confusion created by an earlier case,[104] the Nebraska Supreme Court recognized the two methods listed above and added still a third, nonuse of water rights for the ten year period of statutory limitations relating to real estate.[105]

As the statute is presently worded, nonuse for a three year period might necessitate forfeiture even though accounted for by high rainfall or loss to senior appropriators because of a water

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101 See discussion of the problems of return flow in section F *infra*.

102 NEB. REV. STAT. §§ 46-229 to -229.05 (Reissue 1960). The constitutionality of this provision was upheld in Kersenbrock v. Boyes, 95 Neb. 407, 145 N.W. 837 (1914), and in Dawson County Irr. Co. v. McMullen, 120 Neb. 245, 231 N.W. 840 (1930).

103 State v. Birdwood Irr. Dist., 154 Neb. 52, 56 N.W.2d 884 (1951), held that the department could, if it so desired, cancel only part of an appropriation, rather than all of it. See Doyle, *Water Rights in Nebraska*, 29 NEB. L. REV. 385, 409 (1950).

104 In State v. Oliver Bros., 119 Neb. 302, 304-05, 228 N.W. 864, 865 (1930), plaintiff sought to secure the cancellation of defendants' water rights on grounds of nonuse for the three year statutory period. The complaint was dismissed by the department, with subsequent affirmation by the state supreme court. In support of its holdings, the court cited an Idaho case defining abandonment as "the relinquishment of a right by the owner thereof, without any regard to future possession by himself or any other person, but with the *intention* to forsake or desert the right," and an Arizona case stating that abandonment is "a matter of *intent* as such intent may be evidenced by the declaration of the party or as may be fairly inferred from his acts." (Emphasis added.) That such confusion might result from the wording of the Nebraska statutes is suggested by Fisher, *supra* note 77, at 119.

105 State v. Nielsen, 163 Neb. 372, 381, 79 N.W.2d 721, 728 (1956): "The procedure referred to in sections 46-229 to 46-229.05 . . . is not exclusive. The courts of this state have recognized two methods of loss of irrigation rights independent of statutory procedure for concellation by the department of such rights. These two methods may be classified as abandonment of water rights, or nonuser of such rights for the period of statutory limitations relating to real estate." Section 25-202 is cited on the latter point.

shortage. Undoubtedly the Department of Water Resources would take such factors into consideration in its decision after a show cause hearing,[106] but a clarifying statutory amendment is also in order.[107]

Nebraska has a unique statute providing that the Department of Water Resources shall examine the condition of irrigation ditches in the state, and the condition of its appropriations. If, after such examination, a forfeiture proceeding seems justified, the department serves notice of the show cause hearing.[108] In contrast, the burden of initiating forfeiture proceedings in most states is on other water users.[109] Logically, the Nebraska procedure is much superior and has been commended as such,[110] but has not proven to be so in

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[106] Forfeiture statutes are not generally applied when the nonuse is involuntary and not attributable to the neglect of the appropriator. See Trelease, *supra* note 92, at 316.

[107] See *Proposed Surface Water Law for Michigan* § 23(b), in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 49, 59 (1958), which reads as follows:

"The abandonment of any such water rights shall be evidenced as follows:

(1) Intent to abandon the use of water, whether expressly declared or reasonably implied from the acts of the user, accompanied by actual cessation of the use of the water; or

(2) A continuous failure, for a period of five years, to effect a beneficial use of the water, in which event the intent to abandon to the extent of such failure shall be conclusively presumed; provided no intention to abandon shall be presumed either where the available water supply is inadequate to enable the holder of the right to exercise the beneficial use of water contemplated thereunder, or, in the case of irrigation, where due to climatic conditions irrigation is unnecessary during the period of continuous failure to effect use of the water."

See also *Model Water Use Act* § 306, in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 570 (1958).

[108] NEB. REV. STAT. §§ 46-229.01 to -.02 (Reissue 1960).

[109] See Trelease, *Trends in the Law of Prior Appropriation*, in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 206, 215 (June 10-11, 1954).

[110] See Fisher, *Western Experience & Eastern Appropriation Proposals*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 75, 121 (1958). Trelease, *supra* note 109, at 215-16, states: "The courts have in some states been understandably reluctant to declare that a person has lost his rights and have gone beyond simply protecting the appropriator and have placed restrictions upon abandonment procedures that make them almost impossible of enforcement. Wyoming's court has held that these proceedings can be initiated only by a water user who can clearly show that he will be directly benefited by the water, a condition extremely hard to prove on a fluctuating stream . . . . With

practice. With thousands of appropriations to supervise, the department simply has not had the time, funds, nor personnel to gather evidence and conduct the hearings necessary to bring its permits up to date. Many smaller streams are unsupervised, the department assuming that so long as no complaints are heard everyone is receiving enough water. Presumably, the department does not object to irrigators withdrawing quantities in excess of their appropriations so long as no other appropriator is thereby injured. This is practical administration and sound economics, since otherwise the surplus flow would forever be lost to the state.

The department is fully cognizant of the fact that there are many appropriations in the state that have not been used for more than three years. Yet, in the absence of additional funds, it is powerless to remedy the situation.[111] Nebraska is not alone in this problem. In Texas, for example, it has been found that appropriation permits total four times the amount of water in actual use.[112]

Unfortunately, this dilemma carries over into other aspects of water administration. With unused appropriation rights scattered throughout the state, the department cannot possibly perform its administrative functions with maximum effectiveness.[113] Streams that statistically appear to be overappropriated may in actuality be underappropriated. For this reason the department policy is to

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water as scarce as it is, no state can today afford to permit appropriators to take a dog in the manger attitude and reserve water although they never use it."

111 An official report to the Oregon Legislature recommended that the cost of surveys such as those contemplated in Nebraska be reduced by requiring each applicant to file an annual statement of the amount of water beneficially used, with loss of the right on failure so to file. See Fisher, *supra* note 110, at 121. See also text accompanying note 118 *infra*.

Texas does require reports with penalties of up to $150 for failure to submit such reports. TEX. REV. CIV. STAT. arts. 7611-7612(a) (1948).

112 See Trelease, *supra* note 92, at 313. Trelease notes that in Oregon certificates had been issued covering twice the acreage actually irrigated, and he adds that ineffective abandonment and forfeiture procedures are responsible for this condition.

113 Dean Trelease points out that such "stale claims" have created considerable uncertainty both for existing appropriators and would-be new users needing to know the amount of water covered by valid rights senior to theirs. *Ibid.*

For a discussion of the Texas situation, see Rollins, *The Need for a Water Inventory in Texas*, in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 67, 68 (Nov. 20-21, 1954); Comment, *Stale Claims in Texas Stream Waters*, 28 TEXAS L. REV. 931 (1950).

approve all applications for permits.[114] Although the applicant knows he is a junior appropriator, he has no way of determining just how "junior" he really is. The department can tell him the quantity of appropriations senior to his, but cannot tell him how much of that quantity will likely be used each year. In such a situation the applicant takes a tremendous investment risk; and security, which supposedly is the bulwark of the appropriation doctrine, is a myth.[115]

At least two ameliorating steps would seem appropriate. First, the Department of Water Resources can be adequately financed so that this phase of its duties can be properly handled.[116] Second, the forfeiture procedure can be simplified so that it is less expensive and time consuming.

Due process requires that a hearing be part of a foreclosure proceeding. But statutes can be drafted so as to discourage its use by permit holders with impossibly weak cases. A suggested procedure might operate as follows. The April 1 acreage report[117] would not only require a listing of all acres to be irrigated during the coming season, but also all acres irrigated during the past year.[118] Negative reports would not be required. Should any

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114 See Fisher, *supra* note 110, at 144 n.262.

115 See Trelease, *supra* note 109, at 216: "One really limiting factor on new enterprise and growth is the reluctance of the person launching a new enterprise to take his place on the bottom of the priority list. This is especially true of the persons contemplating the founding of a new industry which needs a firm water supply, but it is no less true of a person contemplating the entrance into a new agricultural enterprise or the irrigator who desires to put the water presently used on poor lands onto more productive land. These new enterprises need and should be given the opportunity to buy, at the going rate, a firm water right of a sufficiently early priority to insure the stability of the enterprise."

116 The department is hampered not only by limited total financial resources, but also by a pay scale that is inadequate to attract engineering graduates. Statutes that have been passed should be carried out and compliance therewith should be secured. Contrast the discussion in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 374, 375 (1958), where Mississippi Water Commissioner Nelson asserted on the subject of having many people irrigating without permits, "I think what we try to do in Mississippi is to bring the law into accordance with what is actually going on in the State rather than to try to force people to conform to the law."

117 See discussion at section IV(D) *supra*.

118 See note 111 *supra*. The department could spot check the veracity of these statements from sources such as county ASCS offices. A provision for penalty in the event fraud can be shown might be included in the statute.

appropriator not submit a report for three consecutive years, the department would have authority to temporarily cancel the entire appropriation; should a reduced acreage be reported for three consecutive years, the department could temporarily reduce the appropriation. Such action could not, however, be taken if it appeared that nonuse was due to either a water shortage or high rainfall. The shortage question would be determined from the department's own records on the closing of headgates; the rainfall question from Weather Bureau data.

The appropriator would be given written notice of the temporary cancellation. He would then have thirty days in which to file a written request for a hearing before the Department of Water Resources. The department would have no authority to deny such a request. All costs, however, would be borne by the permit holder if the appropriation were not reinstated either by the department or by the state supreme court on appeal. At the hearing, the permit holder would bear the burden of showing that the temporary cancellation should be withdrawn. If no hearing were requested, or if he were unsuccessful at such hearing, the cancellation would be made permanent.[119]

F. Downstream Senior v. Upstream Junior Appropriators

One of the most patent examples of legalized water waste is that involved in upstream junior-downstream senior appropriator conflicts. It is also an administrator's nightmare, particularly in Nebraska because of its many appropriations spread across the state.

The Department of Water Resources considers all streams in the Platte River basin between the Wyoming and Colorado borders and Kearney to be overappropriated.[120] Thus, a number of permit holders must be shut off during the dry summer months in nearly every year. But should the headgate of a junior appropriator at North Platte be closed if his grant would entirely evaporate before reaching the senior appropriator at Kearney? Of course not, and the Nebraska Supreme Court would so hold.[121] But what if two-

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[119] In addition to the procedure just discussed, the legislature could appropriately authorize a voluntary relinquishment procedure without hearing.

[120] See [1961-1962] Neb. Dep't of Water Resources Biennial Rep. 13.

[121] State *ex rel.* Cary v. Cochran, 138 Neb. 163, 173, 292 N.W. 239, 246 (1940): "If it appear that all the available water in the stream would be lost before its arrival at the headgate of the . . . [downstream] canal, it would, of course, be an unjustified waste of water to attempt delivery."

thirds of it would actually reach Kearney? The average person would probably say that in such a case the junior appropriator should be shut off. This leaves an intermediate area in which much discretion must necessarily be placed in the state's water commissioners. Their decisions, based on the best hydrologic, geologic, and meteorologic data available, may still often be wrong because of uncontrollable factors such as unlawful diversions, abnormal weather, or delayed compliance with closing orders.[122]

In 1940, several irrigators and a power company in Buffalo County sought to compel state administrative officials to stop alleged unlawful diversions by junior upstream appropriators on the Platte River. Plaintiffs had grants totalling 162 c.f.s. which dated back to 1882. But the state supreme court, in *State ex rel. Cary v. Cochran,*[123] held the upstream diversions to be lawful. The court noted that losses from evaporation and transpiration in the Platte River are heavy because of its width, the hot summer weather, wind, and a low velocity of only twenty-five miles per day. In addition, east of North Platte percolation losses become severe, with from 50,000 to 100,000 acre-feet of water seeping into the Republican River basin each year. Streamflow is also reduced by pump irrigation in the Platte Valley, especially in Dawson County. Expert testimony indicated that it would take 700 c.f.s. of flow at North Platte to deliver 162 c.f.s. to the plaintiffs at Kearney. In resolving the dispute, the court held that junior appropriators must be restrained from taking water from the river so long as such water can be delivered in *usable* quantities at the headgate of the Kearney canal.[124] A "usable" quantity, said the court, is a question of fact for the administrators. So long as their decision is not arbitrary or unreasonable, it will not be overturned by the judiciary.[125]

It has been suggested that downstream appropriators be protected only when the amount that will reach them is *reasonable* (not just usable) in relation to the amount that a junior upstream appropriator must allow to flow past.[126] This is an effort to insure that economic considerations are interjected into the dispute so

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In Robinson v. Dawson County Irr. Co., 142 Neb. 811, 8 N.W.2d 179 (1943), the court again held in favor of the upstream appropriator upon testimony that it would take 1,000 c.f.s. to get water to the downstream appropriator, whereas there was only 100 c.f.s. in the river at the time.

122 See State *ex rel.* Cary v. Cochran, *supra* note 121, at 172, 292 N.W. at 245.

123 138 Neb. 163, 292 N.W. 239 (1940).

124 *Id.* at 173, 292 N.W. at 246.

125 *Ibid.*

126 Fisher, *supra* note 110, at 113.

that waste is circumvented to the greatest extent possible. Although it is apparent that the Nebraska court's definition of a "usable" quantity may differ little from what is "reasonable," the court did specifically reject the latter doctrine in the *Cary* case. In explanation of this holding, the court said that to permit administrators to say whether prospective losses would or would not justify the delivery of usable quantities would be to clothe them with a discretion incompatible with the vested interests of the downstream appropriators.[127]

Dean Trelease suggests another approach to the problem:

> The solution . . . may be economic, in that if the benefits that would accrue from upstream use are, in fact, much greater than those realized by the senior appropriator, it would seem feasible for the upstream user to buy out the lower prior rights and transfer the use upstream.[128]

In Nebraska, the Trelease remedy to this wasteful situation is presently out of the question because of the statutory prohibition of changes in place of use. But even if this obstacle can be hurdled by legislation, one is faced with the additional task of protecting the vested rights of permit holders located between the old and new places of use. This is a major stumbling block because changes may be made in place of use, point of diversion, or purpose of use, all of which may affect the amount of return flow available to downstream irrigators.[129] Permits to transfer water rights are thus usually made subject to the restriction that no damage to the

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[127] State *ex rel.* Cary v. Cochran, 138 Neb. 163, 175, 292 N.W. 239, 247 (1940). *But cf.* Kearney Water & Elec. Powers Co. v. Alfalfa Irr. Dist., 97 Neb. 139, 143, 149 N.W. 363, 367 (1914).

[128] Trelease, *A Model State Water Code for River Basin Development*, 22 LAW & CONTEMP. PROB. 301, 306 (1957).

[129] See Fisher, *supra* note 110, at 99 n.65: "A change in the point of diversion, whether the move is up or down the stream, will affect other users between the old and new points by altering the velocity, quantity, and level of the flow reaching them. A change in the place of use (or the location of conveyance ditches) may mean that seepage water and water flowing from the surface of the field where used will take a different course back toward the stream, perhaps cutting the supply of persons who had used the water along its previous route and perhaps water-logging land along its new route. Because the nature of the soil at the new place of use or along the new return route may be different, the unconsumed water may re-enter the stream at a different time or with a greater content of dissolved solids to the injury of downstream users. A change in the purpose of use may be reflected in all these factors of timing, velocity, quantity, level, and purity of flow, and such a change may be especially disruptive of established conditions if the new purpose is a more consumptive use than the former one."

rights of other appropriators may result.[130]

If the new upstream use is nonconsumptive, return flow will be unaffected. Power and many industrial uses fall into this category, or at least closely approximate it. Irrigation, on the other hand, is consumptive in nature and reduces return flow by more than half the quantity diverted.[131] How then can such a transfer be accomplished without violating the constitutional rights of injured third parties? Among the possibilities are these:[132]

(1) Apply a "balancing the equities" doctrine.[133] This would mean usually, but not always, denying these third parties the injunction remedy and relegating them to actions for damages.[134]

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130 Gaffney, *Water Law & Economic Transfers of Water: A Reply*, 44 J. FARM ECON. 427, 431 (May 1962): "[A]ppropriative law does not provide that injured parties shall be compensated when diversion points are moved; rather, it provides that parties shall not be injured. The injured party has not just a damage claim, but a veto worth what the traffic will bear. This puts the water-buyer in the position of a right-of-way agent unarmed with eminent domain." See generally Trelease, *supra* note 128, at 314; Trelease, *Trends in the Law of Prior Appropriation*, in PROCEEDINGS, WATER LAW CONFERENCE, UNIVERSITY OF TEXAS SCHOOL OF LAW 206, 216 (June 10-11, 1954).

131 In HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY 182 (1960), the authors estimate that surface irrigation is consumptive of 70-90% of the applied water. They add that it is not unusual for less than 60% of the quantity diverted to be applied at the farm. The remaining 40% constitutes seepage, which is usable by downstream appropriators, and evapotranspiration, which is not. Duprey cites a Senate committee report estimating consumptive use as follows: Irrigation - 59%; Municipal - 13%; Manufacturing - 9%; Mining - 20%; and Steam Electric Power Cooling - 1%. Duprey, *Water Problems—National and Regional*, 38 N.D.L. REV. 233, 235 (1962).

132 See Busby, *American Water Rights Law*, 5 S.C.L.Q. 106, 162 (1952); Ellis, *Some Legal Aspects of Water Use in North Carolina*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 189, 397 (1958).

133 I have suggested that such a rationale might also be applied in diffused surface water conflicts. See Comment, *Diffused Surface Water Law in Nebraska*, 41 NEB. L. REV. 765 (1962).

134 See Trelease, *Water Law & Economic Transfers of Waters: A Rejoinder*, 44 J. FARM ECON. 435, 440 (May 1962). He would not apply this doctrine unless benefits of the change would be overwhelming in comparison to the disadvantages of not permitting such change, emphasizing that we should be hesitant to go further than this in giving private individuals the right of eminent domain over another's property. His suggested statutory wording is as follows: "A change may be granted in part or subjected to conditions including the payment of damages to an injured person in order to avoid injury to private property or to the public interest."

Arens, *Michigan Law of Water Allocation*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 377, 397 (1958) states: "An

(2) Approve the change only on condition that the new user pay such third party damages as have been calculated by the Department of Water Resources.[135]

(3) Approve the change unconditionally where a de minimis theory[136] would be appropriate. As no damages would be recoverable, this might necessitate reducing the quantity approved for transfer.[137]

(4) Approve the change unconditionally, recognizing that damages will be suffered by third parties, but assuming that such parties will be compensated by reduced taxes.[138]

For the protection of the public interest, all such transfers should be made subject to the approval of the Department of Water Resources, with appeal to the Nebraska Supreme Court. Within this framework, however, a market might be permitted to function.[139]

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injunction seems unbelievable . . . where . . . [it] would result in a relatively small gain to the plaintiff compared to the loss to the defendant or the loss to the community's economy, and where the defendant could get compensation by way of damages."

The Supreme Court of Nebraska refused to balance equities in an early decision, Barton v. Union Cattle Co., 28 Neb. 350, 44 N.W. 454 (1889). Though injury to the complainant apparently was trifling the court said this was immaterial and, furthermore, an injunction would be granted without regard to the magnitude of the interest enjoined.

135 The burden of providing evidence for such calculation, and the burden of supporting such proof before the state supreme court on appeal, could be placed upon the applicant, the department, or the injured parties. This choice should be legislatively delineated.

136 The law does not recognize trifles.

137 This would be an impractical solution if a sizable appropriation were essential to the operation of the new use.

138 Gaffney, *supra* note 130, at 431-32: "It would be hard to find a public or private decision or transaction without effects on others than the principal parties. In fields other than water, the law wisely refrains from requiring the active parties to come to terms with all the discommoded passive ones, else transactions would cease and society would stagnate. A commodity is not merchantable if not cut clean from the cloying entourage of indirect interests.

"It would still be desirable to devise means to compensate losers from the gains of winners. It is monstrously impractical to do so in each individual transaction. A workable alternative lies in the tax mechanism. Many indirect gains and losses accrue to individuals in their capacity as landholders. Let the fisc therefore rely heavily on *ad valorem* land taxes, keep assessments punctiliously current, and the winners automatically compensate the losers. Progress in this direction would seem to hold forth greater promise than litigating *ad infinitum* the external costs and gains of every transaction."

139 The return flow issue with its accompanying effects on third parties

G. PREFERENCES

(1) *The Legal Implications*

Nebraska statute, section 46-204, provides:

> Priority of appropriation shall give the better right as between those using the water for the same purposes, but when the waters of any natural stream are not sufficient for the use of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming it for any other purpose, and those using the water for agricultural purposes shall have the preference over those using the same for manufacturing purposes.[140]

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is one of the most confused in all of water law. Little progress will be made on the question until legal and economic authors begin to understand it.

For example, Seastone & Hartman, in *Alternative Institutions for Water Transfers: The Experience in Colorado & New Mexico*, 39 LAND ECON. 31, 34 (1963), assert that the Colorado courts employ consumptive use as the essential determinant of water transfers. Consumptive use has two dimensions: (1) beneficial use, and (2) return flow. If only ten c.f.s. of a twenty c.f.s. appropriation has been used in the past, the court will permit a transfer only of that amount. The other ten c.f.s. will be declared abandoned. There can be no legal-economic objections to this. But then, of the ten c.f.s. that have been used in the past, the court permits the transfer of only the portion that has been consumed. If, *e.g.*, 60% has been consumed, six c.f.s. would be transferred. The authors say that this assures no change in return flow so that downstream users are protected. This is only partially correct. Assume that the original diversion is at point *A*, and the new diversion is upstream at point *B*. The downstream users below *A* are protected; they will receive four c.f.s. of return flow as before since this quantity was not transferred. They will even better their previous position if the six c.f.s. that is transferred upstream is not completely consumed. But the users between *A* and *B* are not protected. All ten c.f.s. had been flowing by their land in the past; now six c.f.s. will be diverted at point *B*, lessening the flow past their land unless all six c.f.s. come back as return flow. In other words, a transfer upstream will damage all users between the old downstream location and the new upstream location unless the new use upstream is totally nonconsumptive.

If, on the other hand, the new use is downstream, the users between the old and new points of diversion will benefit. They formerly had four c.f.s. of return flow; now all ten c.f.s. will move past their land. If six c.f.s. is transferred, as the court apparently would do, those downstream from the new diversion point will not be damaged either. They will still get four c.f.s. of the flow that is not transferred, the same as they received in return flow before the transfer, and will gain if the new use is not completely consumptive. If the new use is less consumptive than the old, more than six c.f.s. could be transferred. The court needs only to insure that four c.f.s. return to the stream. Thus, if the new use is nonconsumptive, there is no reason why all ten c.f.s. should not be transferred.

140 NEB. REV. STAT. § 46-204 (Reissue 1960).

Another provision, section 70-668, is copied almost verbatim from the above paragraph, except that a preference for agricultural over power purposes, where turbine or water wheels are installed, is added.[141]

Since the above statutes permit certain junior appropriators to temporarily deprive senior appropriators of their water rights, compensation must be required. To provide otherwise would be an unconstitutional deprivation of vested rights. As a consequence, section 70-669 asserts that no inferior right to the use of water shall be acquired by a superior right without just compensation.[142] Compensation paid to those using water for power purposes cannot be greater than the cost of replacing that power from another source. This is the well known economic doctrine of opportunity cost, aptly applied.

The statutes go on to elucidate specific procedures whereby irrigation districts may condemn water being used for power purposes. If the condemnor and condemnee are unable to agree on the amount of compensation to be paid, the property will be condemned by court action under sections 76-704 to 76-724. Public power and irrigation districts are also given the power of eminent domain to acquire property owned and used in the generation, transmission, and distribution of electrical energy. But the statutes do not provide a procedure whereby an *individual* holder of a junior domestic appropriation may condemn a senior irrigation or power appropriation, or whereby an individual holder of a junior irrigation appropriation may condemn a senior power appropriation. Presumably, such a right could be implied; otherwise the preferences given such individuals in sections 70-668 and 46-204 are worthless.[143] Nevertheless, some would contend that condemnation by individuals is doomed on constitutional grounds.[144] This question merits further analysis.

In *Crawford Co. v. Hathaway,* the following comment on preferences is made:

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141 NEB. REV. STAT. § 70-668 (Reissue 1958). It was noted in section III *supra,* that the appropriation doctrine enacted in 1895 could not be used to destroy vested riparian rights. The same rationale applies to the preference statutes, also first enacted in 1895. They can have no effect on riparian or appropriation rights in existence at that time. See Kearney Water & Elec. Powers Co. v. Alfalfa Irr. Dist., 97 Neb. 779, 151 N.W. 319 (1915), *modifying* 97 Neb. 139, 149 N.W. 363 (1914).

142 NEB. REV. STAT. § 70-669 (Reissue 1958).

143 See Trelease, *Preferences to the Use of Water,* 27 ROCKY MT. L. REV. 133, 151 n.138 (1955).

144 Doyle, *Water Rights in Nebraska,* 29 NEB. L. REV. 385, 409 (1950).

> What the legislature has done with a view of promoting irrigation . . . is to provide for the appropriation of . . . the streams of the state and to authorize the condemnation of . . . waters belonging to riparian proprietors . . . .[145]

The right of an individual to use the powers of eminent domain could easily be implied from the above statement. It is all-inclusive in nature, with no apparent limitations or qualifications. Furthermore, the plaintiff was a *private* irrigation company.

But then *Vetter v. Broadhurst*[146] cast a dark shadow over the above interpretation. In *Vetter,* a farmer obtained a permit to construct and maintain a storage reservoir for irrigation purposes, in accordance with the provisions of what is now section 46-241 of the Nebraska statutes. Section 46-241 refers to "every person," which certainly could be construed to include private individuals; and it gives the "applicant" the right to condemn land for use as a storage reservoir. On this basis the defendant sought to condemn several acres of the plaintiff's farm which would be inundated by the stored water. The court, however, held that condemnation must be for a public use and that the proposed storage would not so qualify.

In contrast, the United States Supreme Court had held in *Clark v. Nash*[147] that in Utah irrigation was a public use, and that a similar condemnation was constitutional.[148] The Court did say that its decision was based on the unique soil and climatic conditions of Utah, and that it was not approving the broad proposition that private property may be taken in all cases where the taking may promote the public interest and tend to develop the natural resources of the state.[149] The Nebraska court used this qualification in distinguishing *Clark v. Nash,* and further supported its holding by means of stare decisis.[150] The court went on to take judicial notice of the fact that "neither climatic, agricultural, industrial or social conditions in this state indicate that any such advantage will accrue by permitting such a taking as this statute authorizes."[151]

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145 67 Neb. 325, 342, 93 N.W. 781, 786 (1903).

146 100 Neb. 356, 160 N.W. 109 (1916).

147 198 U.S. 361 (1905).

148 For other authorities in support of this point see THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 82, 125 (1958).

149 *Id.* at 369-70.

150 Earlier Nebraska cases had held that public use, in a constitutional sense, must be common, and must not refer to a particular individual. See Vetter v. Broadhurst, 100 Neb. 356, 361-62, 160 N.W. 109, 111 (1916).

151 *Id.* at 363, 160 N.W. at 112.

The above decision means that an irrigation district can condemn senior power appropriations, but an individual irrigator cannot. The court, however, reconciled this apparent anomaly by distinguishing the irrigation district as being, in essence, a common carrier of water, and thus formed for a public purpose.

Irrigators in Nebraska do purchase power appropriations. This has been done in the Loup River basin for many years.[152] Compensation is determined by contractual agreement between the irrigators and the power company. But what if agreement cannot be reached? And what if the power company refuses to relinquish its appropriation rights for any price? In such a situation the irrigators would have no alternative but to attempt condemnation through court proceedings. If and when this occurs, the court will have to determine the applicability of the *Vetter* case to Nebraska's preference statutes.

The dicta of two decisions arising from the Loup basin may signal an eventual overruling of the *Vetter* rationale. In the first, *Loup River Pub. Power Dist. v. North Loup River Pub. Power & Irr. Dist.*,[153] the plaintiff power company was successful in preventing the defendant irrigation district from making upstream diversions in excess of its appropriation rights. But in discussing preferences, the court said:

> Section 6 of Article XV of the Constitution, fixing a priority of uses for which public waters may be appropriated, is a self-executing provision and the courts, in the absence of a statutory method, would be obliged to provide the means for enforcing its provisions.[154]

The *Vetter* case is not even mentioned in this opinion, which contains none of the earlier limitations and qualifications. The above statement would seem to clearly and definitively support the right of individual eminent domain under the preference statutes.

Hickman v. Loup River Pub. Power Dist.,[155] a 1962 case, went even further. Hickman, an irrigator, attempted to secure cancellation of the power district's appropriation. By way of compromise, the district agreed to permit him to perpetually interfere with their senior appropriation to the extent of his 1.28 c.f.s. irrigation permit.

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152 See Hickman v. Loup River Pub. Power Dist., 173 Neb. 428, 432, 113 N.W.2d 617, 620 (1962).

153 142 Neb. 141, 5 N.W.2d 240 (1942).

154 *Id.* at 153, 5 N.W.2d at 248.

155 173 Neb. 428, 113 N.W.2d 617 (1962).

Hickman refused the offer and the Department of Water Resources dismissed his cancellation proceeding.

The court reversed, holding that the effect of the dismissal was to force Hickman to accept the power district's offer against his will.[156] In further amplifying the meaning of the preference statute, the court said:

> [W]here the owner of a superior right seeks to acquire water being used for power purposes, and compensation to be paid cannot be agreed upon, the procedure to condemn property shall be exercised in the manner set forth in sections 76-704 to 76-724 . . . . We point out that Hickman has not attempted to condemn any of the waters appropriated by Loup District. Neither has he agreed with Loup District on the amount of compensation to be paid in lieu of condemnation.[157]

It will indeed be a short step for the court to move from its *Hickman* dicta to a specific holding authorizing condemnation of water rights by private individuals. But how can this be reconciled with constitutional provisions that private property shall only be taken for public needs? The Colorado court did so in the following manner:[158]

> Although the words "private use" occur in our constitution and statutes, it is obvious that they do not mean a *strictly* private use; that is to say, one having no relation to the public interest. The fact that the constitution permits private property to be taken for certain specified uses is an implied declaration that such uses are so closely connected with the public interest as to be at least quasi public, or, in a modified sense, affected with a public interest . . . .[159]

Scarcity of water will eventually force the Nebraska court to move in the same direction. After all, the Colorado opinion is but a mirror of *Clark v. Nash.*[160] In *Vetter,* the Nebraska Supreme

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156 *Id.* at 437, 113 N.W.2d at 623.

157 *Ibid.*

158 See Pine Martin Mining Co. v. Empire Zinc Co., 90 Colo. 529, 537, 11 P.2d 221, 224-25 (1932), discussed in Thomas, *Appropriations of Water for a Preferred Purpose,* 22 ROCKY MT. L. REV. 422, 429 (1950).

159 See COLO. CONST. art. XVI, § 7: "All persons and corporations shall have the right of way across public, private and corporate lands for the construction of ditches, canals and flumes for the purpose of conveying water for domestic purposes, for the irrigation of agricultural lands, and for mining and manufacturing purposes, and for drainage, upon payment of just compensation."

COLO. CONST. art. II, § 14 provides: "Private property shall not be taken for private use unless by consent of the owner, except for private ways of necessity, and except for reservoirs, drains, flumes or ditches on or across the lands of others, for agricultural, mining, milling, domestic or sanitary purposes."

160 198 U.S. 361 (1905).

Court did not feel that the state had yet reached the point where storage of water by an individual was so essential to the public welfare that another person's land could be taken for that purpose.[161] Presumably Utah has reached that point.[162] Continued arid conditions coupled with the inexorable population increase will inevitably demand that *Vetter* be distinguished or overruled.

(2) *The Economic Implications*

Nebraska's water preferences are not only established by statute, but are also included in the state constitution.[163] The wisdom of this is open to serious doubt. As one writer has said, the order of preference in most states reflects economic conditions of a bygone era.[164] Nebraska is no exception.

Domestic uses should always be accorded first priority;[165] no one would debate this point. This is an issue, not of economics, but of human survival. Irrigation, power, manufacturing, and other uses are an entirely different matter. Their respective priorities have been determined on political grounds, when they should have been determined on economic grounds. Furthermore, even from an economic standpoint, generalization into broad categories cannot be justified. The key determinant should be marginal value productivity, and this will vary with type of use, scale of use, and many other factors. In some locations power may have a higher marginal

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161 *Vetter* was followed in Onstott v. Airdale Ranch & Cattle Co., 129 Neb. 54, 260 N.W. 556 (1935). The court then admitted that both New Mexico and Utah were *contra.*

162 This would seem to be the tenor of Clark v. Nash, 198 U.S. 361 (1905).

163 NEB. CONST. art. XV, § 6. See also NEB. CONST. art. XV, §§ 5, 7 for other constitutional provisions relating to water.

164 Fisher, *Western Experience & Eastern Appropriation Proposals,* in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 75, 126 (1958).

Trelease comments on this point as follows: "[P]references may insure the economic growth of certain types of water use deemed desirable when the statutes were enacted, but admittedly, most of today's preferences embody the economic thinking of yesterday. To the extent that a legislature, perhaps under the guidance of a planning agency, can foresee that a certain purpose is now and will be tomorrow more desirable than another use, such preferences are valid, but they should be periodically reviewed in order to keep abreast of modern thinking." Trelease, *A Model State Water Code for River Basin Development,* 22 LAW & CONTEMP. PROB. 301, 315 (1957).

165 See Larson, *Development of Water Rights & Suggested Improvements in the Water Law of North Dakota,* 38 N.D.L. REV. 243, 271 (1962); Trelease, *Preferences to the Use of Water,* 27 ROCKY MT. L. REV. 133, 159 (1955).

value product than industry; in others, the reverse may be true. Or power may have a higher marginal value product than one industry, but not another. And irrigation may be above, below, or between power and industry in marginal value productivity.[166]

The state of Washington has eliminated statutory preferences in favor of a court procedure which provides for determination of the preference issue in each individual case.[167] Nebraska would do

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[166] Uses for irrigation and industry, where there is no substitute for water, should also take precedence over uses such as power and commercial navigation for which substitutes can be found. *Ibid.* But substitutability and marginal value productivity analyses must be modified if *supplementary* or *complementary* relationships are found. Enterprises are supplementary if, with resources constant, the output of one can be increased without affecting the other. An increase in power production, for example, may have no impact, detrimental or beneficial, on the use of water for irrigation, manufacturing, or any other purpose. Enterprises are complementary if, with resources constant, an increase in the output of one will also result in an increase in the output of the other. The aforementioned increase in power production, for example, might actually benefit another use such as irrigation by raising the stream level and concentrating a large quantity of water in one location.

From an economic standpoint nonconsumptive supplementary and complementary water uses should be encouraged, irrespective of the marginal value productivity of such uses or the availability of alternative sources of production. But the latter considerations should be determinative whenever uses are *competitive* and *consumptive.* See HEADY, ECONOMICS OF AGRICULTURAL PRODUCTION & RESOURCE USE 221-34 (4th ed. 1961).

[167] See Fisher, *supra* note 164, at 126-27; Ciriacy-Wantrup, *Some Economic Issues in Water Rights,* 37 J. FARM ECON. 875, 881 (Dec. 1955). Ciriacy-Wantrup points out that a fairly good economic argument could be made in favor of a reversal of the usual statutory ranking which places agriculture above industry, recreation, power, and other uses. The average value product of consumptive use is far higher in industry than in agriculture. Since a reversal would, however, merely impose further rigidities and would not be politically feasible, he advocates use of the Washington procedure.

WASH. REV. CODE ANN. § 90.03.040 (1962) reads as follows: "The beneficial use of water is hereby declared to be a public use, and any person may exercise the right of eminent domain to acquire any property or rights now or hereafter existing when found necessary for the storage of water for, or the application of water to, any beneficial use, including the right to enlarge existing structures employed for the public purposes mentioned in this chapter and use the same in common with the former owner, and including the right and power to condemn an inferior use of water for a superior use. 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: *Provided,* That no property right in water or the use of water shall be acquired hereunder by condemnation for irrigation purposes, which shall deprive

well to follow the Washington lead, except that the decision should be made by the Department of Water Resources, with appeal to the state supreme court.[168]

Preference decisions should be based on the economic principles delineated below.[169]

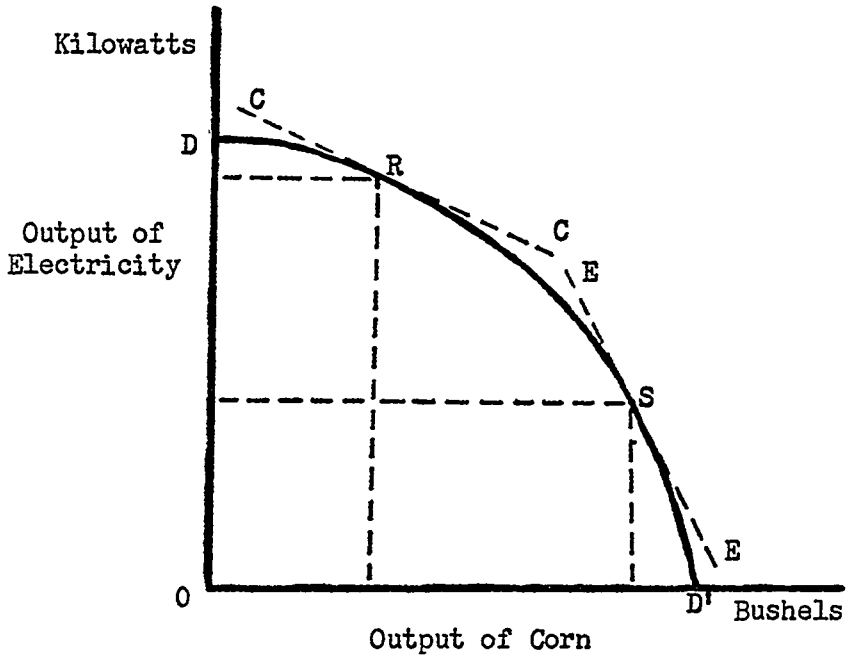

FIGURE 3

any person of such quantity of water as may be reasonably necessary for the irrigation of his land then under irrigation to the full extent of the soil, 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. In any case, the court shall determine what is the most economical method of irrigation. Such property or rights shall be acquired in the manner provided by law for the taking of private property for public use by private corporations."

168 For an excellent coverage of the preference problem see Marquis, Freeman & Heath, *The Movement for New Water Rights Laws in the Tennessee Valley States*, 23 TENN. L. REV. 797, 835 (1955).

169 See Timmons, *Theoretical Considerations of Water Allocation Among Competing Uses & Users*, 38 J. FARM ECON. 1244, 1251-54 (Dec. 1956), for a more detailed explanation of this graph.

DD' in economic parlance is a production possibilities curve. It indicates that a certain quantity of water applied to a given amount of other resources (land, labor, and capital) can be used to produce either OD of electricity or OD' of corn. The respective prices of corn and electricity can then be used to determine how much water should be devoted to each product. CC is a price line representing a relatively high price for electricity. The point of tangency to the production possibilities curve (R) shows that in such a price situation most of the water should be used for power production. The price line EE, on the other hand, is more nearly vertical, and thus represents a price ratio which is more favorable to corn. As a result the point of tangency shifts to S, and more of the water supply should be devoted to irrigation.[170]

Again, it must be conceded that practical application of a theoretical model is not easy. The Department of Water Resources cannot increase or decrease permits with every change in product price. But in a given dispute, on a given day, this theoretical concept is useful. If it is ignored, decisions will be noneconomic in nature and gross inefficiencies will arise by pure chance, if for no other reason. In addition, on many occasions there will be great differences in marginal value productivity of competing uses. For example, if one were to substitute certain industries for power in Figure 3, the point of tangency would be such that irrigation could not compete on an economic basis.[171]

Should the people of Nebraska fear this potential adjustment in the state's economy? Three factors negate any feeling of undue concern: (1) The state as a whole will always benefit from the more efficient use of a natural resource;[172] (2) displaced permit holders will not suffer because preference adjustments require compensation; and (3) Nebraska cannot legitimately be classified as a potential dust bowl—industrial, power, and recreational uses which have higher marginal productivities than agriculture are relatively insignificant at the moment. Furthermore, such uses are virtually nonconsumptive; therefore, even large demands for them

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170 A somewhat different presentation of the same principles may be found in HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY 52 (1960).

171 There is evidence available that some industrial uses are fifty times more productive than irrigation. See Davis, *Water and the Law*, in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 39 (1958). It should not be forgotten that industrial uses which pollute the water may be more consumptive as well as more productive than irrigation.

172 Profitable economic adjustments should not be prevented merely by a human resistance to change.

will have little impact on the water supply available for irrigation.[173]

H. TRANS-WATERSHED DIVERSIONS

In most western states, water may be appropriated for use outside the watershed in which it naturally flows.[174] Such appropriations are subject to the condition that no injury be inflicted upon existing rights in the original watershed.[175] Though this rule is almost universal, Nebraska supposedly stands as an exception thereto.[176] Because of the great potential impact that trans-watershed diversions might have on the state, the Nebraska law deserves much closer scrutiny than has thus far been given it.

Section 46-206 of the Nebraska statutes provides:

> The water appropriated from a river or stream shall not be turned or permitted to run into the waters or channel of any other river or stream than that from which it is taken or appropriated, unless such stream exceeds in width one hundred feet, in which event not more than seventy-five per cent of the regular flow shall be taken.[177]

Section 46-265 of the Nebraska statutes provides:

> The owner or owners of any irrigation ditch or canal . . . shall *return* the unused water from such ditch or canal with as little waste thereof as possible *to the stream from which such water was taken, or to the Missouri River.*[178]

In 1936, the Central Nebraska Public Power and Irrigation District applied for an appropriation of 600,000 acre-feet of water from the Platte River. Sixty per cent of this was to be transported out of the Platte watershed into the basins of the Blue and Republican Rivers. Despite the vociferous objections of downstream appropriators and riparians, the Department of Roads and Irrigation

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173 This is the most important point. Fears that economic change is imminent are almost never justified. The shift in Nebraska from an agricultural to an industrial economy will not take place overnight, if it ever takes place at all. Any such adjustment will be gradual. Furthermore, many industries will prefer ground water sources to the use of streamflow; and many others will not require a water supply at all, except for ordinary needs.

174 See Trelease, *supra* note 164, at 304; Hutchins & Steele, *Basic Water Rights Doctrines & Their Implications for River Basin Development*, 22 LAW & CONTEMP. PROB. 276, 283 (1957). In Texas a permit is required. See TEX. REV. CIV. STAT. art. 7590 (1948).

175 Hutchins & Steele, *supra* note 174, at 283.

176 Trelease, *supra* note 164, at 304.

177 NEB. REV. STAT. § 46-206 (Reissue 1960).

178 NEB. REV. STAT. § 46-265 (Reissue 1960). (Emphasis added.)

found:[179] (1) that there were unappropriated waters in the river; (2) that the contemplated appropriation would not substantially deplete the ground waters of the Platte Valley; and (3) that approval would not be detrimental to the public welfare.

The case came before the state supreme court in *Osterman v. Central Neb. Pub. Power & Irr. Dist.*[180] The department's decision was reversed in what is perhaps one of the most poorly reasoned opinions ever handed down by the court.[181]

Three basic reasons for reversal were given. First, on what seemed to be emotional rather than legal grounds, the court declared:

> It would be a sad commentary on our political organization, upon the department of roads and irrigation, and upon this reviewing court, if in rationing this necessity of life this beautiful valley should be left with a dry river bed and ruined farms, because of any mistaken theory that the protection of its natural fertility did not constitute a public interest within the policy of our laws.[182]

Then the court added:

> [A]n additional reason for awarding these riparians the right to appear in this present proceeding is to be found in their situation. A peculiarly valuable portion of their lands is . . . subirrigation . . . . While subterranean channels may not exist or be completely identified, these subterranean waters come to and flow under their lands from definite sources and en route to definite termini. The lateral boundaries of this body of water may not be certainly located, but its existence as a body of water finding its way through the soil of the riparian land is completely established. We are committed to the rule: "The owner of land is entitled to appropriate subterranean waters found under his land, but his use thereof must be reasonable, and not injurious to others who have substantial rights in such waters."[183]

These combined reasons take issue with the department's finding that unappropriated water was available in the Platte and that ground water tables would not be appreciably lowered. This is a question of fact with which the court would not ordinarily be expected to tamper unless the finding were arbitrary or unreason-

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[179] Brief for Appellant, vol. 1, p. 27, Osterman v. Central Neb. Pub. Power & Irr. Dist., 131 Neb. 356, 268 N.W. 334 (1936).

[180] 131 Neb. 356, 268 N.W. 334 (1936).

[181] Brief for Amicus Curiae, vol. 2, Osterman v. Central Neb. Pub. Power & Irr. Dist., 131 Neb. 356, 268 N.W. 334 (1936).

[182] Osterman v. Central Neb. Pub. Power & Irr. Dist., 131 Neb. 356, 362, 268 N.W. 334, 337 (1936).

[183] *Id.* at 364, 268 N.W. at 338.

able.[184] Yet no declaration of arbitrariness is evident in the *Osterman* holding.

The appellants' brief and the court's opinion have confused the rules of ground water and riparian watercourse law. The appellants based their argument on the ground water issue of a lowered water table, but supported it on riparian authority. Of some twenty-four irrigators who testified on behalf of the appellants at the department's hearing, at least twenty operated farms bordering on the Platte River.[185] Nevertheless, their testimony dealt only secondarily with water levels in the Platte; it was almost exclusively directed to the subirrigation issue.[186] Since the best farmland lies away from the river,[187] it seems strange that the testimony of so many river farmers was presented, particularly since the appellants alleged that all irrigators within the watershed must be considered riparians.[188] The first five propositions of law in the appellants' brief are devoted to riparian law;[189] yet there are no allegations that these underground waters are part of a subsurface stream to which riparian rights would attach.[190] Nor are there any allegations that the principles of ground water law should be applied in the case. In their contention that trans-watershed diversions are prohibited, the appellants cited several riparian cases,[191]

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184 State *ex rel.* Cary v. Cochran, 138 Neb. 163, 174, 292 N.W. 239, 246 (1940): "The rule is that where the action of the administrative officer of the state is not unreasonable or arbitrary, and does not exceed the duties and powers imposed, this court will not interfere with the findings of fact so made because to that extent they involve an administrative, as distinguished from a judicial function."

185 Brief for Appellants, vol. 2, pp. 30-126, Osterman v. Central Neb. Pub. Power & Irr. Dist., 131 Neb. 356, 268 N.W. 334 (1936).

186 *Ibid.*

187 Concomitantly, the greatest damages would also lie away from the river. Much of the land bordering the Platte River in central Nebraska is in native grass, whereas that farther away from the stream is farmed intensively. Some of the bordering land is also lowered in value by alkalinity, a factor which diminishes in significance with geographical movement away from the stream. In addition, the major concern over subirrigation arises because of its need in alfalfa production. This area has become the leading alfalfa producing region of the world. But the prime concentration of alfalfa production is also away from the river.

188 No authority is provided for this unique contention.

189 Brief for Appellants, *supra* note 179, at 35.

190 Courts generally attempt to distinguish underground streams, to which riparian rights attach, from percolating water, to which so-called ground water rules apply.

191 Cases from Pennsylvania, Virginia, New Jersey, California, and Kansas are cited. The first three are riparian states, the latter two are hybridized, as is Nebraska.

but not a single appropriation case that would so hold.

In support of its reasoning, the supreme court cited *Olson* v. *City of Wahoo*,[192] a ground water decision that did not deal with trans-watershed diversions. Never before had the court been presented with the question of trans-watershed diversions of ground water; yet it did not even discuss the question as such. If the court, on the other hand, really intended to decide the case on the basis of vested riparian rights, it ignored a whole body of its own law that had limited riparians to actions for damages in such situations.[193]

The court's third reason for denying the diversion was based on statutory interpretation involving sections 46-206 and 46-265. Section 46-206 was enacted in its present form in 1893. It clearly permits trans-watershed diversions from the state's larger streams. Section 46-265 was added in 1895 and is consistent with section 46-206 in that it provides for the return of surplus waters either to the stream from which taken or to the Missouri River. The court, in holding for the appellants, was forced into an interpretational corner since the surplus from diversions to the Republican and Blue basins would eventually reach the Missouri. To avoid this, the court simply declared that the words "or to the Missouri River" were not applicable in the *Osterman* case.[194] But such a construction leaves section 46-265 prohibiting trans-watershed diversions and section 46-206 permitting them—an incongruous result.

Perhaps the court reached a proper decision in this case. The cause for alarm in the Platte Valley was obvious, and this is the agricultural heart of Nebraska. Furthermore, farmers from one edge of this broad valley to the other would in all probability have been damaged, at least to some unknown extent. But if the decision is correct, the Nebraska statutes unconditionally permitting trans-watershed diversions are unconstitutional, and should have been held unconstitutional.

Apart from the above issue, the case should have been decided by balancing the equities. If the benefits of this appropriation were overwhelming in comparison to the damages, it should have been approved, and those damaged would then have been entitled to compensation.[195] If, on the other hand, the appellee's equities were not sufficiently strong to counterbalance the infringement of vested rights, the reversal was correct.

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192 124 Neb. 802, 248 N.W. 304 (1933).

193 See discussion in section III *supra*.

194 Osterman v. Central Neb. Pub. Power & Irr. Dist., 131 Neb. 356, 368, 268 N.W. 334, 340 (1936).

195 See text accompanying note 134 *supra*.

As might be expected, the court was later forced to retreat from its position in *Ainsworth Irr. Dist. v. Bejot.*[196] The Ainsworth project involved damming the Snake River, a tributary of the Niobrara, the intent being to carry the water by canal out of the Snake watershed into the basin of the Niobrara for the purpose of irrigating some 33,960 acres of land. None of this water was to be returned to the Snake. In *Osterman,* the court ignored the fact that the Platte, Blue, and Republican Rivers might all be considered part of the same watershed, *i.e.,* that of the Missouri. But in *Bejot* it had no difficulty at all in determining that the Snake and Niobrara Rivers were all one watershed. Superficial analysis would indicate that the difference in the two opinions is merely one of defining watershed boundaries. But such is not the case at all. The court balanced equities in *Bejot,* and in so doing upheld what might just as well have been construed as a trans-watershed diversion. The Snake River Valley is not a farming area; subirrigation was not an issue. And the only two downstream appropriators on the Snake were small power plants that were to be compensated for any damages suffered. As a consequence, the proposed diversion would interfere with no one in the original watershed (the Snake), and would materially benefit the receiving watershed (the Niobrara). Under such circumstances diversion is most appropriate.

Sections 46-206 and 46-265 should be redrafted to correct their susceptibility to constitutional attack. Then the court should clarify its legal reasoning in future cases dealing with this issue. If this is done, Nebraska will quite likely find that trans-watershed diversions are not prohibited after all.

I. Administrative Standards

In the near future every state in the nation may have a statutory system of water law. This is a commendable trend, but the concomitant terminological trend in such statutes is disturbing. Such words as "reasonable," "public interest," "beneficial use," and a multitude of others[197] permeate the law and leave tremendous discretion in administrative agencies.

For example, section 46-233 of the Nebraska statutes provides that an applicant must prosecute construction of his diversion

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196 170 Neb. 257, 102 N.W.2d 416 (1960).

197 "Consumptive use," though not usually a statutory term, has been misunderstood for years. Any use which reduces either the *quantity* or *quality* of water available for subsequent use is consumptive. This means that municipal or industrial uses which are often categorized as relatively nonconsumptive may, by polluting a stream, become more consumptive than irrigation.

works "vigorously, diligently, and uninterruptedly." But the legislature furnishes no standards by which vigor and diligence can be measured. And just how is the department to determine when work has been "interrupted"? Admittedly, legislation must often be general; a statute cannot be expected to cover every situation. But can we not do better?[198] Use of the above wording makes it potentially possible for an administrator to juggle priorities in response to political or personal pressures.[199] In addition, irrespective of the administrator's integrity and competence, such terminology serves only to breed litigation.[200] The Department of Water Resources has itself sought to avoid some of these potential sources of conflict by specifying when construction of diversion works is to begin, when it is to be completed, and when water is to be applied to beneficial use.[201]

Section 46-233 goes on to provide that the department may extend the time for completion of works or the time for application of water to a beneficial use for a "reasonable" length of time. This latter subsection merely compounds the ambiguities.

Section 46-240 states that an appropriation cannot exceed the quantity that experience might indicate as necessary, in the exercise of good husbandry, for the production of crops. What an administrative enigma this must be. Whose experience is to be applied—the irrigator's, the department's, that of a research organization? In what manner is the department to determine what constitutes "good husbandry"?

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198 See, e.g., the problems of interpretation that this statute caused in Hickman v. Loup River Pub. Power Dist., 176 Neb. 416, 126 N.W.2d 404 (1964), and North Loup River Pub. Power & Irr. Dist. v. Loup River Pub. Power Dist., 162 Neb. 22, 74 N.W.2d 863 (1956).

199 Nebraska, fortunately, has an outstanding administrator and highly respected Department of Water Resources. This does not, however, justify the statutory inadequacies.

200 See cases cited note 197 *supra.*

201 *Proposed Surface Water Law for Michigan* § 16(b), in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 49, 56 (1958), provides that permits will specify the period within which: (1) construction shall be commenced; (2) construction shall be completed; (3) beneficial use of water shall be commenced; and (4) initial irrigation of the estimated maximum acreage irrigable in one year shall be completed.

The statute goes on to provide that, within the above time limits, construction must proceed with reasonable diligence or the permit may be cancelled even before the times specified above are reached.

This procedure gives the administrator much more definitive control than is found in most such statutes.

Some of the newer statutes use the term "highest beneficial use,"[202] but do not bother to declare how such is to be determined. And inevitably, as a catch-all, the administrator is charged with protecting the "public interest."[203]

Water administrators should not have to be subjected to the kind of pressures that are inherent in these nebulous statutes.[204] Neither should they have to bear the burden and responsibility of presumed omniscience.[205] Professor Beuscher, in a study of mid-western water law, expressed his views on this question as follows:

> One of the factors contributing to the importance of administrative interpretations, rule-making, adjudications and other activities in the water regulatory field . . . is a shocking sloppiness in . . . drafting . . . . Probably the presence of vague, poorly thought out water statutes is another evidence that up to the present water has been . . . plentiful and the problems of . . . allocation . . . have not been acute. Because of this sloppiness, however, the work and responsibility of the agency charged with the administration of the poorly drawn statutes increases. Questions that should have been answered by the legislator . . . are left for the administrators . . . .[206]

It is to be hoped that new statutes coming into existence in the

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202 The *Model Water Use Act*, in UNIVERSITY OF MICHIGAN LAW SCHOOL, WATER RESOURCES & THE LAW 541, 557 (1958), provides that the commission established therein shall regulate surface water so as to obtain "the most beneficial" use of water within the state.

203 NEB. REV. STAT. § 46-235 (Reissue 1960): "If there is unappropriated water in the source of supply named in the application, and if such application and appropriation when perfected is not otherwise detrimental to the *public welfare*, the Department of Water Resources shall approve the same . . . . " (Emphasis added.)

204 HIRSHLEIFER, DE HAVEN, & MILLIMAN, WATER SUPPLY 84 (1960): "The danger of misuse of power will be greater the wider the discretionary authority given the agency, and the broader the scope of its activities."

205 See discussion by Wolman in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 65 (1958).

The following statement is also appropriate: "Regardless of the extent of the authority conferred upon the State administrator, his job will be more clearly defined, and his orders and decisions more soundly based, if there is a statutory declaration of general policies as to water rights and regulation of development." Thomas, *Hydrology vs. Water Allocation in the Eastern United States*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 165, 176 (1958).

206 BEUSCHER, PART VI, A FOUR-STATE COMPARATIVE LEGAL ANALYSIS OF PRIVATE & PUBLIC RIGHTS IN WATER & OF THE LEVELS & AGENCIES OF GOVERNMENT THAT ENUNCIATED THEM 148 (Phase Report No. 21, 1961). This was a report under a contract between the University of Wisconsin and the USDA for a study of legal and economic aspects of water rights in Minnesota, Wisconsin, Indiana, and Ohio.

East will be more than adapted paraphrases of western appropriation law.[207]

J. Conclusion

The intent of the preceding discussion has been to discover appropriate means whereby economic principles may more effectively be integrated into the legal-administrative framework of Nebraska watercourse law. Among the major recommendations are:

1. An increased recognition of the economics discipline by administrators and courts.

2. A reduction of pre-1895 appropriation and riparian rights to amounts actually being used by the holders of such rights.

3. Repeal of statutory quantity limitations so that permits for competitive, consumptive uses may be granted on a marginal value productivity basis.

4. The discarding of all vestiges of the pro rata principle inherent in riparian law.

5. Authorization of the voluntary use of rotation systems.

6. Authorization of temporary and seasonal appropriations.

7. Repeal of the provision restricting water rights to specific tracts of land.

8. Authorization of transfers between uses and between users except where detrimental to the public interest or violative of vested rights.[208]

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[207] Larson, *Development of Water Rights & Suggested Improvements in the Water Law of North Dakota*, 38 N.D.L. Rev. 243, 270-71 (1962), commented on the use of terms such as "beneficial use," "willful waste," and "public interest" in the relatively new North Dakota statute as follows: "These statutory directions are clearly inadequate to give more than the vaguest criteria by which to judge between competing uses of water. To the extent that any conflict develops over allocation of water rights, additional guides are needed if the standard of greatest utilization of water resources is to be realized."

[208] If transferability is not permitted, at least some flexibility could be achieved by granting appropriations for specific time periods, rather than in perpetuity. The period should be sufficient to permit full amortization of the proposed investment. See Fisher, *Western Experience & Eastern Appropriation Proposals*, in The Law of Water Allocation in the Eastern United States 75, 133 (1958); Harr & Gordon, *Legislative Change of Water Law in Massachusetts*, in *id.* at 1, 38; *Model Water Use Act* § 406, in University of Michigan Law School, Water Resources & the Law 574 (1958) (fifty year permit); Ciriacy-Wantrup, *Some Economic Issues in Water Rights*, 37 J. Farm Econ.

9. Development of a master plan for use of the state's water resources,[209] such plan to give the Department of Water Resources guidance in the realm of "public interest," and to indicate wherein a market might be permitted to function within an administrative framework.

10. Clarification of the state's forfeiture statute.

11. Application of the balancing of the equities doctrine to upstream junior-downstream senior conflicts.

12. Removal of both the statutory and constitutional provisions on preferences. Determination of such use conflicts by the Department of Water Resources on the basis of economic considerations within a public interest framework.

In the absence of this, enactment of a statute specifically granting private individuals and firms the right to condemn senior water rights of a lower preference.

13. Use of the balancing of the equities doctrine in trans-watershed cases. Amendment of the watershed diversion statutes to remedy their constitutional defects.

875, 880 (Dec. 1955). See also IOWA CODE ANN. § 455A.20 (1963) (ten year maximum often too short for amortization).

209 A word of caution provided by Dr. Robert C. Otte might be apropos here: "[I] wonder if we should not pause in our headlong plunge into increasingly complex organization and planning and ask ourselves, 'Is *this* trip really necessary?' . . .

"Considering the whole field of land and water use, could we not invest more research and intellectual effort in developing alternatives which are less cumbersome organizationally and which rely more on the unencumbered actions of individuals? A look at our problems in land and water use does not bring to mind many good examples where we could move in the direction of more laissez faire within a general legal and institutional framework; but how hard have we been looking?" Otte, *Discussion: New Approaches in Organizing for Land & Water Use*, 44 J. FARM ECON. 1694, 1695-96 (Dec. 1962).

But cf. BEUSCHER, *op. cit. supra* note 206, at 154: "In each state the legislature has made a bow toward the need for broad-based water resource planning but funds and staff are lacking. The principal water regulatory agencies in the four states have staffs hardly adequate for the accomplishment of the day-to-day regulatory responsibilities assigned to them by the legislature. These people have little or no time left for the time-consuming and expensive basic studies and analysis essential to the setting of major goals for water use and development in the future."

These two statements are not at all incompatible. Water resource planning does not necessarily entail the conceptualization of new administrative hierarchies.

14. A general overhaul of all ambiguous water statutes in an effort to secure a more precise declaration of legislative intent.[210]

15. Increased appropriations for the Department of Water Resources so that it may more effectively carry out its statutory responsibilities.

Though this article has been critical of some aspects of Nebraska watercourse law, its purpose is not negative. In a changing world, a utopian system for the administration of any natural resource is but a dream. Conversely though, we must never settle for the status quo. Our goals in water administration, like those in our personal lives, should be just out of reach—not too far, lest we become discouraged, and not too close, lest we become complacent.

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[210] Because of length considerations, no attention has been given in this article to the interrelationships of surface water and ground water law. Quite obviously this cannot long be postponed. Nebraska already has more than 25,000 irrigation wells, many of which are directly affecting streamflow. A 1963 statute declares that the pumping of water from pits located within 50 feet of the bank of a natural stream may have a direct effect on its surface flow and that, therefore, a permit to so pump must be obtained from the Department of Water Resources. Neb. Laws c. 274, p. 827 (1963). In deciding whether or not to grant the permit the department must consider its effect on streamflow, and the ability of the stream to meet prior appropriation requirements. See Hutchins & Steele, *supra* note 174, at 297, and Trelease, *supra* note 164, at 311, for comments recognizing this problem. Professor Richard Harnsberger of the University of Nebraska College of Law will deal with the issue in detail in a future article to be devoted to a model ground water statute.