

## Syllabus.

## NEBRASKA v. WYOMING ET AL.

## NO. 6, ORIGINAL. BILL IN EQUITY.

Argued March 5, 6, 7, 1945.—Decided June 11, 1945.

1. In a proceeding within the original jurisdiction of this Court, brought by Nebraska against Wyoming, in which Colorado was impleaded as a defendant and the United States was granted leave to intervene, this Court makes an equitable apportionment between the States of the water of the North Platte River. P. 591, 610.
2. Colorado and Wyoming having the rule of priority of appropriation, and that rule being dominant in the Nebraska areas affected, the case is treated as involving appropriation rights in the three States. P. 599.
3. Since the dependable natural flow of the river during the irrigation season has long been over-appropriated, since the claims of the States to the water of the river are based not only on present uses but on projected additional uses as well, and since the claims to the water exceed the supply, there exists a conflict of interests of that character and dignity which makes the controversy a justiciable one within the original jurisdiction of this Court. *Wyoming v. Colorado*, 259 U. S. 419, followed. P. 610.
4. The water rights on which the North Platte Project and the Kendrick Project rest having been obtained in compliance with state law, it is unnecessary to determine what rights to unappropriated water of the river the United States may have. Nor is it important to the decree to be entered in this case that there may be unappropriated water to which the United States may in the future assert rights through the machinery of state law or otherwise. P. 611.  
Assuming *arguendo* that the United States did own all of the unappropriated water, the appropriations under state law were made to the individual landowners pursuant to the procedure which Congress provided in the Reclamation Act, and the rights so acquired are as definite and complete as if they were obtained by direct cession from the federal government. P. 615.
5. Allocation of the water rights here in question to the States, who represent their citizens *parens patriae* in this proceeding, in no wise interferes with the ownership and operation by the United States of its storage and power plants, works, and facilities. P. 616.
6. The difficulties of drafting and enforcing a decree apportioning the water of the river among the claimant States—where efforts at settlement have failed; a genuine controversy exists; and the grav-

ity and importance of the case are apparent—do not justify refusal by this Court to perform the important function entrusted to it by the Constitution. P. 616.

7. Equitable apportionment among appropriation States does not require a literal application of the priority rule. P. 618.

Although priority of appropriation is the guiding principle, other relevant factors include: physical and climatic conditions; the consumptive use of water in the several sections of the river; the character and rate of return flows; the extent of established uses; the availability of storage water; the practical effect of wasteful uses on downstream areas; the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former.

8. The decree of equitable apportionment to be entered in this case must deal with conditions as they exist at present and must be based on the dependable flow of the river which is not greater than the average condition which has prevailed since 1930. P. 620.
9. The decree of equitable apportionment which is entered apportions the natural flow of the river among the three States to the Tri-State Dam in Nebraska but not below it. Pp. 621, 654.
10. The United States is not given a separate allocation of water, since the water rights appropriated by the Secretary of the Interior were adjudicated to be in the individual landowners and since the United States as an appropriator of storage water is represented by the State of Wyoming. P. 629.
11. Storage water is not included in the apportionment, although it is taken into account in determining each State's equitable share of the natural flow. P. 639.
12. The Court retains jurisdiction of the suit for the purpose of any order, direction, or modification of the decree, or any supplementary decree, that may at any time be deemed proper in relation to the subject matter of the controversy. P. 655.

BILL IN EQUITY by Nebraska against Wyoming (in which Colorado was impleaded as a defendant and the United States was granted leave to intervene) seeking an equitable apportionment of the water of the North Platte River and an injunction restraining alleged wrongful diversions.

*Mr. Paul F. Good*, with whom *Walter R. Johnson*, Attorney General of Nebraska, and *John L. Riddell*, Assist-

ant Attorney General, were on the brief, for the State of Nebraska, complainant.

*Mr. W. J. Wehrli*, with whom *Louis J. O'Marr*, Attorney General of Wyoming, was on the brief, for the State of Wyoming, defendant.

*Mr. Jean S. Breitenstein*, with whom *H. Lawrence Hinkley*, Attorney General of Colorado, *Messrs. George J. Bailey, Thomas J. Warren, Gail L. Ireland* and *Clifford H. Stone* were on the brief, for the State of Colorado, impleaded defendant.

*Mr. Frederic L. Kirgis*, with whom *Solicitor General Fahy*, *Messrs. J. Edward Williams, Walter H. Williams* and *William J. Burke* were on the brief, for the United States, intervenor.

A brief was filed on behalf of the States of Arizona, California, Idaho, Kansas, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Texas, Utah and Vermont, as *amici curiae*.

MR. JUSTICE DOUGLAS delivered the opinion of the Court.

Nebraska brought this suit in 1934 against Wyoming, invoking our original jurisdiction under Article III, § 2 of the Constitution. 293 U. S. 523. Colorado was impleaded as a defendant. 296 U. S. 553. The United States was granted leave to intervene. 304 U. S. 545. Issues were joined. A Special Master, Honorable Michael J. Doherty, was appointed and hearings were held before him. The matter is before us on exceptions to his report.

## I

The controversy pertains to the use for irrigation purposes of the water of the North Platte River, a non-navigable stream. Nebraska alleged that Wyoming and Colorado by diversions of water from the river for irrigation

purposes were violating the rule of priority of appropriation in force in the three States and depriving Nebraska of water to which she was equitably entitled. The prayer was for a determination of the equitable share of each State in the water and of the priorities of all appropriations in both States, and for an injunction restraining the alleged wrongful diversions. Wyoming denied the diversion or use of any water to which Nebraska was equitably entitled but joined in the prayer of Nebraska for an equitable apportionment. Colorado filed an answer, together with a cross-bill against Nebraska and Wyoming, which denied any use or threatened use of the water of the North Platte beyond her equitable share, and prayed for an equitable apportionment between the three States, excepting only the tributary waters of the South Platte and Laramie rivers.<sup>1</sup> At the conclusion of Nebraska's case and again after all the evidence was in, Colorado moved to dismiss the suit on the ground that the evidence was insufficient to sustain any judgment in favor of, or against, any party. Colorado argues here that there should be no affirmative relief against her and that she should be dismissed from the case.

The North Platte River rises in Northern Colorado in the mountainous region known as North Park.<sup>2</sup> It pro-

<sup>1</sup> The waters of the South Platte and the Laramie were previously apportioned—the former between Colorado and Nebraska by compact (44 Stat. 195), the latter between Colorado and Wyoming by decree. *Wyoming v. Colorado*, 259 U. S. 496. Those apportionments are in no way affected by the decree in this case.

<sup>2</sup> Approximate length of the North Platte:

Colorado .....	70 miles
Wyoming.....	435 miles
Nebraska (to North Platte).....	180 miles

Drainage area of the North Platte, exclusive of the Laramie River:

Colorado .....	1, 630 sq. mi.	6%
Wyoming.....	17, 540 sq. mi.	63%
Nebraska.....	8, 730 sq. mi.	31%

Total .....

	27, 900 sq. mi.
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ceeds in a northerly direction on the east side of the Continental Divide, enters Wyoming west of Cheyenne, and continues in a northerly direction to the vicinity of Casper. There it turns east across the Great Plains and proceeds easterly and southerly into and across Nebraska. About 40 miles west of the Nebraska line it is joined by the Laramie River. At North Platte, Nebraska, it is joined by the South Platte, forming the Platte River. It empties into the Missouri River at Plattsmouth, near the western border of Iowa. In North Park it is a rapid mountain stream. In eastern Wyoming it gradually broadens out, losing velocity. In western and central Nebraska its channel ranges from 3,000 to 6,000 feet; it frequently divides into small channels; and in times of low water is lost in the deep sands of its bed. Here it is sometimes characterized as a river "two miles wide and one inch deep."

There are six natural sections of the river basin: (1) North Park, Colorado, or more accurately Jackson County; (2) Colorado-Wyoming line to the Pathfinder Reservoir located between Rawlins and Casper, Wyoming; (3) Pathfinder Reservoir to Whalen, Wyoming, which is 42 miles from the Nebraska line; (4) Whalen, Wyoming to the Tri-State Dam in Nebraska near the Wyoming-Nebraska line; (5) Tri-State Dam to the Kingsley Reservoir, west of Keystone, Nebraska; (6) Kingsley Reservoir to Grand Island, Nebraska.<sup>3</sup>

<sup>3</sup> The average annual contributions from 1895 to 1939 to the water of the North Platte were computed by the Special Master as follows:

North Park . . . . .	635, 100 acre feet
Wyoming state line to Pathfinder . .	1, 059, 240 acre feet
Pathfinder to Whalen . . . . .	390, 000 acre feet
Whalen to Tri-State Dam . . . . .	281, 940 acre feet
Tri-State Dam to Kingsley . . . . .	1, 027, 890 acre feet
Kingsley to Grand Island . . . . .	308, 200 acre feet

By States the contributions were as follows:

Colorado . . . . .	819, 220 acre feet	21%
Wyoming . . . . .	1, 731, 600 acre feet	45%
Nebraska . . . . .	1, 336, 090 acre feet	34%

The river basin in Colorado and Wyoming is arid, irrigation being generally indispensable to agriculture. Western Nebraska is partly arid and partly semi-arid. Irrigation is indispensable to the kind of agriculture established there. Middle Nebraska is sub-humid. Some crops can be raised without irrigation. But the lack of irrigation would seriously limit diversification. Eastern Nebraska, beginning at Grand Island, is sufficiently humid so as not to justify irrigation.

Irrigation in the river basin began about 1865, when some projects were started in eastern Wyoming and western Nebraska. Between 1880 and 1890 irrigation began on a large scale. Until 1909 storage of water was negligible, irrigation being effected by direct diversions and use. Prior to 1909 the development in Colorado and Wyoming was relatively more rapid than in Nebraska. Since 1910 the acreage under irrigation in Colorado increased about 14 per cent, that of Wyoming 31 per cent, and that of Nebraska about 100 per cent.<sup>4</sup> The large increase in Nebraska is mainly attributable to the use of storage water from the Pathfinder Reservoir.<sup>5</sup>

The Pathfinder Reservoir is part of the "North Platte Project" which followed the adoption by Congress in 1902 of the Reclamation Act. 32 Stat. 388. Pathfinder was completed in 1913. It has a capacity of 1,045,000 acre

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	Colorado	Wyoming	Nebraska*	Total
1880.....	200	11,000		11,200
1890.....	44,500	86,000	15,300	145,800
1900.....	83,500	169,100	105,690	358,290
1910.....	113,500	224,500	192,150	530,150
1920.....	129,140	265,375	306,930	701,445
1930.....	130,540	307,105	371,300	808,945
1939.....	131,810	325,720	383,355	840,885

\*Not including about 65,000 acres now irrigated from the Platte River between North Platte and Kearney, Neb.

<sup>5</sup> Of the 174,650 acre increase since 1910, 104,000 acres are North Platte Project lands.

feet, which is 79 per cent of the average annual run-off of the North Platte River at that point. This project includes an auxiliary channel reservoir called Guernsey, located above Whalen, Wyoming. Its capacity is 50,870 acre feet. The project also includes two small reservoirs in Nebraska—Lake Alice and Lake Minatare—having a capacity of 11,400 and 67,000 acre feet respectively. There are two main supply canals—Interstate and Fort Laramie—which take out from the North Platte at the Whalen diversion dam. The Interstate canal runs on the north side and the Fort Laramie on the south side of the river. Both extend far into Nebraska. Northport—a third canal—is located wholly in Nebraska. These canals and their laterals extend over 1,600 miles. The project also includes a drainage system and two hydroelectric power plants. The United States contracted with land-owners or irrigation districts for use of the water—selling it, as contemplated by the Reclamation Act, so as to recoup the cost of the project which was about \$19,000,000. It also entered into so-called Warren Act contracts pursuant to the Act known by that name (36 Stat. 925) which authorized the Secretary of the Interior to contract for the storage and delivery of any surplus water conserved by any reclamation project in excess of the requirements of the project.

We have mentioned the Interstate, Ft. Laramie, and Northport canals which are part of the North Platte Project, the first two of which take out at the Whalen diversion dam. About a mile east of the Wyoming-Nebraska line is the Tri-State Dam. Just above that dam in Nebraska are the headgates of three large Nebraska canals—Tri-State, Gering, and Northport. Water for the Northport is diverted through the Tri-State headgate, Northport physically being an extension of the Tri-State canal. Another Nebraska canal is the Ramshorn which also receives its supply through Tri-State. Just above the state line is the headgate of the Mitchell canal serving Nebraska land.

While these five canals are commonly referred to as the Nebraska State Line Canals, this opinion generally uses the term as excluding Northport which, as we have said, is a North Platte Project canal. There are also nine Wyoming private canals diverting below Whalen. One of these, French Canal, serves lands in both Wyoming and Nebraska. The section of the river from Whalen to the Tri-State Dam is the pivotal section of the entire river. In this short stretch of 40-odd miles is concentrated a demand for water as great as in the entire preceding 415 miles apart from the Kendrick project to which we will refer. We will return to a consideration of the problems of this pivotal section shortly.

The North Platte Project has greatly increased the water resources of the river available for irrigation. Unused and wasted water are stored and held over from one season to another. Moreover, the storage water has affected the water tables through saturation of the subsoil. This has increased the return flows available for rediversion and irrigation. The Special Master found that due largely to the influence of the North Platte Project and the application of storage water to lands in eastern Wyoming and western Nebraska the return flows increased from a negligible quantity in 1911 to 700,000 acre feet in 1927. While that amount sharply declined during the drought beginning in 1931, it still is substantial. Thus from 1931-1936 it amounted to 54,300 acre feet in the Whalen-Tri-State Dam section. And as we have already said, the great and disproportionate increase in acreage irrigated in Nebraska since 1910 as compared with the increase in Colorado and Wyoming is largely attributable to the North Platte Project. While the North Platte Project has increased the water resources, it has complicated the problem of water administration in Wyoming and Nebraska. It has necessitated a segregation of storage and natural flow. The storage plants and diversion works are in Wyoming, although much of the beneficial use is in Nebraska. Appro-

priators in Nebraska are dependent on regulation and control in Wyoming.

There is a second large federal irrigation project in Wyoming known as the Kendrick project, the estimated cost of which is over \$19,000,000. Its primary purpose is the irrigation of some 66,000 acres north and west of Casper, Wyoming. The first unit, capable of serving 35,000 acres, was completed in 1940. Due to the lack of water supply it has not yet been put into operation. The second unit is under construction. The storage facilities are completed. They consist of two channel reservoirs—the Seminoe, thirty miles above Pathfinder, with a capacity of 1,026,400 acre feet; the Alcova, thirteen miles below Pathfinder, with a capacity of 190,500 acre feet. Casper Canal will divert the water at Alcova and serve the lands of the project.

The combined storage capacity of the reservoirs of these two federal projects—Kendrick and North Platte—is 2,313,270 acre feet which, as the Special Master found, is 175 per cent of the long-time average annual run-off of the river at Pathfinder.

There are also two projects in Nebraska—Sutherland, with a capacity of 175,000 acre feet, and Tri-County, with a capacity of 2,000,000 acre feet. The latter is expected to bring under irrigation an additional 205,000 acres in Nebraska. Including that acreage but excluding the 60,000 acres expected to be irrigated in Wyoming under the Kendrick project, the Special Master found that the acreages under irrigation in the three States would be approximately as follows:

Colorado .....	131,800	acres	(12%)
Wyoming .....	325,720	"	(29%)
Nebraska .....	653,355	"	(59%)
Total .....	1,110,875		(100%)

Prior to the time when the North Platte project went into operation there was a serious shortage of water for

irrigation in western Nebraska and to some extent in eastern Wyoming. Many irrigation enterprises were closed. After the North Platte Project had been in operation for awhile most of the projects which had been abandoned were reopened. From then until 1931 the supply was reasonably adequate for most of the canals. But the year 1931 started the driest cycle or swing in the North Platte and Platte River valleys of which there is any record. The annual flow at Pathfinder <sup>6</sup> had always fluctuated widely.<sup>7</sup> The average flow for the 37 years commencing in 1904 was 1,315,900 acre feet, the maximum was 2,399,400 in 1917, the minimum was 382,200 in 1934. But a critical condition arose in 1931 with the advent of the dry cycle. The flow for each of the years between 1931 and 1940 as compared with the mean of the flow for the 37-year period ending in 1940 was as follows:

1931.....	55 per cent	1936.....	81 per cent
1932.....	116 per cent	1937.....	87 per cent
1933.....	89 per cent	1938.....	103 per cent
1934.....	30 per cent	1939.....	54 per cent
1935.....	54 per cent	1940.....	44 per cent

<sup>6</sup> Which the Special Master found to be the best single index on the river due to the fact that the main accretions of Colorado and Wyoming are already in the river and the natural flow is not appreciably distorted by storage releases as it is below Pathfinder.

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Year	Acre Feet	Year	Acre Feet	Year	Acre Feet
1904.....	1,262,000	1917.....	2,399,400	1930.....	1,072,800
05.....	1,159,400	18.....	1,486,100	31.....	706,300
06.....	1,351,000	19.....	859,700	32.....	1,506,600
07.....	1,851,100	1920.....	1,870,100	33.....	1,149,500
08.....	918,600	21.....	1,782,000	34.....	382,200
09.....	2,381,800	22.....	1,148,200	35.....	696,200
1910.....	918,100	23.....	1,500,800	36.....	1,045,600
11.....	1,123,400	24.....	1,489,900	37.....	1,130,600
12.....	1,820,500	25.....	1,244,700	38.....	1,334,900
13.....	1,265,000	26.....	1,776,500	39.....	698,200
14.....	1,550,900	27.....	1,456,200	1940.....	560,800
15.....	900,200	28.....	1,725,400		
16.....	1,253,400	29.....	1,902,700		

Since 1930 only one year equalled the mean of the 1904 to 1930 period. Previous droughts had not exceeded two or three years. The present cycle has persisted for 13 years.

The commencement of this dry cycle plus the initiation of the Kendrick project precipitated the present controversy. Nebraska rests her case essentially on evidence of shortage and of misappropriation of water by the upper States since 1930 and of threats of more serious shortage and diversions in the future.

## II

The equitable apportionment which Nebraska seeks is based on the principle of priority of appropriation applied interstate. Colorado and Wyoming have the rule of priority of appropriation as distinguished from the rule of riparian rights. Colo. Constitution, Art. XVI, §§ 5, 6; *Farmers' High Line Canal Co. v. Southworth*, 13 Colo. 111, 21 P. 1028; *Sternberger v. Seaton Co.*, 45 Colo. 401, 102 P. 168; Wyo. Constitution, Art. VIII, § 3; Wyo. Rev. Stat. 1931, §§ 122-401, 122-418, 122-419; *Moyer v. Preston*, 6 Wyo. 308, 44 P. 845. And see the discussion of the problem in *Wyoming v. Colorado*, 259 U. S. 419, 459. Nebraska on the other hand was originally a riparian doctrine State. See *Meng v. Coffee*, 67 Neb. 500, 93 N. W. 713. But when the more arid sections of the State were settled and the need for irrigation increased, legislation was enacted adopting the appropriation principle. See Neb. L. 1889, ch. 68; L. 1895, ch. 69. That principle was recognized in the constitution which Nebraska adopted in 1920. See Article XV, §§ 4, 5, and 6. The adoption of the rule of appropriation did not extinguish riparian rights which had previously vested. See *Clark v. Cambridge & Arapahoe Co.*, 45 Neb. 798, 64 N. W. 239; *Crawford Co. v. Hathaway*, 60 Neb. 754, 84 N. W. 271, 61 Neb. 317, 85 N. W. 303, 67 Neb. 325, 93 N. W. 781; *Osterman v. Central*

*Nebraska District*, 131 Neb. 356, 268 N. W. 334. But riparian rights may be condemned in favor of appropriators; and violation of riparian rights by appropriators will not be enjoined, only compensation or damages being awarded. *Cline v. Stock*, 71 Neb. 79, 102 N. W. 265; *McCook Irrigation Co. v. Crews*, 70 Neb. 115, 102 N. W. 249. In that sense riparian rights are considered inferior to rights of appropriators. More important, the rights asserted by Nebraska in this suit are based wholly on appropriations which have been obtained and recognized under Nebraska law. The appropriation system is dominant in the regions of Nebraska which are involved in the present litigation. Hence we, like the Special Master, treat the case as one involving appropriation rights not only in Colorado and Wyoming but in Nebraska as well.

*North Park*. There are at present in the North Park area in Colorado (Jackson County) 131,800 acres irrigated. The climate is arid. The sole industry is cattle raising, the only crops being native hay and pasturage. The growing season is short. While the diversions are high per acre (about  $4\frac{1}{2}$  acre feet) the return flows are large, making the average consumptive use<sup>8</sup> rate only .74 acre foot per acre. The 131,800 acres of irrigated land consume 98,572 acre feet annually, including reservoir evaporation. Exportations from the basin are expected to average 6,000 acre feet, making the total annual depletion 104,540 acre feet. Though Colorado claimed that an additional 100,000 acres in North Park was susceptible of irrigation, the Special Master found that there are only about 34,000 acres of additional land that could be brought under irrigation; 30,390 of those acres are irrigable from constructed ditch systems having water rights. Those projects, however, are not completed; they are indeed projects for the indefinite future. In addition to these

<sup>8</sup> Consumptive use represents the difference between water diverted and water which returns to the stream after use for irrigation.

projects in North Park, Colorado also has proposed that large quantities of water from the river be exported from the basin into other rivers.

There have been out-of-priority diversions in Colorado and Wyoming above Pathfinder in relation to the priorities and needs of Nebraska users. Their full extent is not known. But as respects Pathfinder, the Special Master estimated that Colorado appropriators junior to Pathfinder consume about 30,000 acre feet a year. Since Pathfinder after 1930 has never been filled and has always been in need of water for storage, those Colorado junior diversions may be said to have violated the Pathfinder priority. The claims of Colorado to additional demands were construed by the Special Master as a threat of further depletion of the river within North Park. He found that there was no surplus in the supply and that any material increase in diversions in Colorado would be in violation of established priorities, notably Pathfinder.

*Colorado Line to Pathfinder Reservoir.* In the region between the Colorado-Wyoming line and Pathfinder appropriation rights cover about 272,000 acres, 149,400 of which are irrigated. But of those only 9,400 acres are irrigated from the main stream, the balance being irrigated from tributaries. The consumptive use rate is about 1 acre foot per acre. Over two-thirds of the volume of diversions (main stream and tributaries) and 88 per cent from the main stream are senior to the North Platte Project. They are in the main junior to the State Line Canals in Nebraska. Those projects junior to Pathfinder have been operated since 1930 in violation of its priority. The Special Master found that there is no present prospect of any large expansion of irrigation in this area, though five additional projects have been contemplated, some of them being partially constructed. The accretions to the river from tributaries in this section are very large—about 790,240 acre feet net. Land consumption is 16 per

cent of the net accretions, while that of rights junior to Pathfinder is about 5.6 per cent of the net.

*North Platte Project.* The priority of Pathfinder is December 6, 1904 and of Guernsey April 20, 1923. Between Pathfinder and the Nebraska state line there are 32 canals on the main river which have priorities senior to Pathfinder. The State Line Canals in Nebraska also are senior to Pathfinder. And Guernsey is junior to all canals below it down to the Nebraska line. The percentage of rights in each section senior and junior to the North Platte Project are as follows:

	Per- centage Senior	Per- centage Junior
North Park.....	67	33
Colorado State Line to Pathfinder Reservoir.....	88	12
Pathfinder Reservoir to Whalen.....	52	48
Whalen to Nebraska State Line (Wyoming private canals) .....	91	9
Nebraska State Line Canals.....	100	0

Under Wyoming law reservoirs in storing water must observe the priority of all senior Wyoming canals below them on the main river.

*Kendrick Project.* Seminoe Reservoir has a priority of December 1, 1931; Casper Canal, July 27, 1934 (natural flow); Alcova Reservoir, April 25, 1936. Apart from minor exceptions Seminoe is junior to every appropriator from Alcova to the Tri-State Dam. The project is expected to operate chiefly on storage water. In its early stages its water requirements will be heavier than they will be later, due to ground absorption and storage. When the project has been in operation a while, the depletion during the irrigation season will be about 122,000 acre feet, except as water stored in non-irrigation season is used. The Special Master found, however, that without violating the Pathfinder priority, the Kendrick project could have stored no water since 1930 and can store none in the future if present conditions continue. He also

found that under the average conditions which prevailed from 1895 to 1939 water could be conserved by Seminoe and Alcova without violation of the priorities between Pathfinder and Tri-State Dam and in sufficient quantities to supply Kendrick and to leave considerable return flow to the river in the irrigation season. There are in the first unit of the project two sump areas into which return water will flow and from which the United States has constructed drainage ditches so as to return the water to the river. On the uncompleted unit three sump areas are planned. These are designed to return to the river water which otherwise would be lost.

*Pathfinder to Whalen.* The total land irrigated in this section is in excess of 55,000 acres, of which about 14,000 acres are supplied from the main river. Alfalfa, sugar beets, potatoes, and grains are the principal irrigated crops. There are 60 canals taking out of the main river with priorities ranging from 1887 to 1937. In terms of acreage about 48 per cent of the rights on the river in this section are junior to the North Platte Project. All except one are junior to the Tri-State canal and most of them are junior to the other Nebraska State Line Canals. The irrigation projects on the river average not over 160 acres. The consumptive use rate is about 1.1 acre feet per acre. The diversion rate of 2.5 acre feet per acre is deemed adequate. But during the 1931-1940 period the average seasonal diversion rate for the section was only 2 acre feet, since in low stages of flow some of the ditches are unable to divert any water. But at the rate of 2.5 acre feet the total seasonal headgate diversion for the 14,000 acres is 35,000 acre feet of which 18,200 acre feet would be returned to the river. Of that return all but 15 per cent (2,730 acre feet) would occur during the irrigation season. The tributary inflow is greater than river depletion due to irrigations and other losses. The average annual net gain from 1931-1940 was 64,200 acre feet. During

the 1931-1940 period, the maximum seasonal average consumption out-of-priority in relation to the Nebraska State Line Canals was found by the Special Master to be 5,400 acre feet. With probable minor exceptions there are no further possibilities for irrigation developments in this section.

*Whalen to Tri-State Dam.* As we have said, this is the pivotal section of the river around which the central problems of this case turn. Apart from the Kendrick project, the demand for water is as great in this short section of the river as in the entire preceding 415 miles from North Park to Whalen. The lands irrigated from the river in this section total 326,000 acres as compared with 339,200 acres in the upper valley—main river and tributaries. The consumptive use on this 326,000 acres far exceeds that of the upper sections combined. We have mentioned the various canals which take out from the river in this section. The Special Master found their annual requirements to be 1,072,514 acre feet. The total net seasonal requirement of all the canals diverting in this section was found to be 1,027,000 acre feet. In the ten-year period from 1931 to 1940 this net seasonal requirement of 1,027,000 acre feet largely exceeded the supply in three years and was less than the supply in seven years.<sup>9</sup> In those seven years the seasonal flows passing the Tri-State Dam were far less than the excesses, indicating as the Special Master concluded that canal diversions in the section were greater than the requirements. He pointed out that if the diversions during the period had been re-

<sup>9</sup> The excess or deficiency for each of those years is indicated by the following:

1931 .....	+113,300	1936 .....	+ 5,480
1932 .....	+352,500	1937 .....	+225,350
1933 .....	+465,100	1938 .....	+143,150
1934 .....	-515,400	1939 .....	+ 66,050
1935 .....	-157,000	1940 .....	-382,080

stricted to the determined requirements and if the excess had been held in storage in the upper reservoirs and released indiscriminately to all canals as needed, irrespective of storage rights, any surplus water would have been conserved and would not have passed Tri-State. He estimated that under that method of operation the total supply (excluding any supply for Kendrick) would have been approximately sufficient for the section.

But on the basis of the 1931-1940 supply the seasonal requirement of 1,027,000 acre feet cannot be met by natural flow alone and without storage water. The Special Master roughly estimated the deficiency of natural flow as follows for the period of 1931 to 1940:

Year	Deficiency of natural flow <sup>1</sup>
1931.....	552,952 acre feet
1932.....	305,000 " "
1933.....	251,980 " "
1934.....	841,488 " "
1935.....	666,058 " "
1936.....	495,737 " "
1937.....	489,975 " "
1938.....	501,991 " "
1939.....	450,908 " "
1940.....	751,244 " "

<sup>1</sup> "Natural flow," as used by the Special Master and as used in this opinion, means all water in the stream except that which comes from storage water releases.

On that basis the average seasonal supply of natural flow available in this section was only 48 per cent of the total requirement. In 1933, the year of largest flow, it was only 75 per cent. In general the practice has been to allow storage right canals having early priorities to receive natural flow water on a priority basis, using storage water merely as a supplementary supply. In this area 90 per cent of the lands have both natural flow and storage rights.<sup>10</sup> Seventy-eight per cent of the lands having stor-

<sup>10</sup> Of this 90 per cent, 68 per cent are project lands and 32 per cent have Warren Act contracts.

age rights are in Nebraska, 22 per cent in Wyoming. Of the lands having natural flow rights only 49 per cent are in Nebraska and 51 per cent in Wyoming.

As respects priority, the canals (listed later in this opinion) fall into thirteen groups, seven in Wyoming and six in Nebraska. The earliest in priority are some canals in Wyoming, then some in Nebraska, then others in Wyoming and so on.

The exceptional features of this section of the river were summarized by the Special Master as follows:

“(1) the great concentration of demand in a short compact section, (2) the presence of water, both natural flow and storage, to which Nebraska users are entitled under Wyoming appropriations, (3) the total dependence of Nebraska State Line Canals and the North Platte project canals upon water originating in Wyoming and Colorado, (4) the joint use of canals to serve both Wyoming and Nebraska lands, (5) the location in Wyoming of the head gates and works which divert great volumes of water for Nebraska, (6) the distinctly interstate scope and character of the water distribution without any real interstate administration.”

The Special Master made a detailed study of the requirements of each canal in this section and the diversions of each during the 1931–1940 period. We need not recapitulate it. The nine Wyoming canals and the Tri-State canal fared well. A comparison of the average seasonal diversions with the seasonal requirements shows that they had an excess supply for the ten-year period—122 per cent and 111 per cent respectively—the former having a deficiency in only one of the ten years, the latter a deficiency in three. For the rest of these canals it appears that the average seasonal diversions supplied from 78 per cent to 98 per cent of their seasonal requirements. The Ft. Laramie was short in eight of the ten years, Gering, Ramshorn and Northport in seven each.

*Tri-State Dam to Bridgeport, Neb.* Nebraska originally claimed that any equitable distribution which was made should extend to all irrigated lands as far east as Grand Island, Neb. It is now conceded that the lands east of Bridgeport, Neb., which is some sixty miles from the Wyoming-Nebraska state line, can be reasonably satisfied out of local supplies. Hence we are not concerned in this case with that section.

In the section west of Bridgeport, there are twelve canals exclusive of the Ramshorn relevant to the present problem. Their requirements are 132,420 acre feet; their demand on the main river is 102,810 acre feet, the balance being obtained from interceptions of drains, return flows, and tributary streams. The Special Master concluded that local supplies even during the drought period were adequate to take care of the needs of these canals without calling upon up-river water. Some shortages occurred, caused for example by excessive use by some canals at the expense of others or by the withdrawal of water from the section to supply senior canals below. It would seem that the construction and operation of the Kingsley and Sutherland Reservoirs would largely eliminate the latter condition. And water passing Tri-State Dam and usable in the Tri-State to Bridgeport section is substantial—the mean divertible flow for the irrigation season in the 1931–1940 period being 81,700 acre feet. Over half of this occurred in May and June; very little in August and September.

### III

*Motion to Dismiss.* As we have noted, Colorado moves to dismiss the proceeding. She asserts that the pleadings and evidence both indicate that she has not injured nor presently threatens to injure any downstream water user. She emphasizes the large increase since 1910 in acreage under irrigation in Wyoming and Nebraska as compared

with the increase in Colorado. She asserts there is a surplus of water in the stream, as evidenced by the fact that during the recent drought or dry cycle the Kendrick Project in Wyoming and the Tri-County Project in Nebraska have been constructed, indicating that the sponsors considered that the available water supply was not entirely used by existing projects. And she emphasizes that during the drought there was a divertible flow passing Tri-State Dam during the irrigation season. The argument is that the case is not of such serious magnitude and the damage is not so fully and clearly proved as to warrant the intervention of this Court under our established practice. *Missouri v. Illinois*, 200 U. S. 496, 521; *Colorado v. Kansas*, 320 U. S. 383, 393-394. The argument is that the potential threat of injury, representing as it does only a possibility for the indefinite future, is no basis for a decree in an interstate suit since we cannot issue declaratory decrees. *Arizona v. California*, 283 U. S. 423, 462-464, and cases cited.

We fully recognize those principles. But they do not stand in the way of an entry of a decree in this case.

The evidence supports the finding of the Special Master that the dependable natural flow of the river during the irrigation season has long been over-appropriated. A genuine controversy exists. The States have not been able to settle their differences by compact. The areas involved are arid or semi-arid. Water in dependable amounts is essential to the maintenance of the vast agricultural enterprises established on the various sections of the river. The dry cycle which has continued over a decade has precipitated a clash of interests which between sovereign powers could be traditionally settled only by diplomacy or war. The original jurisdiction of this Court is one of the alternative methods provided by the Framers of our Constitution. *Missouri v. Illinois*, 180 U. S. 208, 241; *Georgia v. Tennessee Copper Co.*, 206 U. S. 230, 237. The

Kendrick Project plainly is an existing threat to senior appropriators downstream. As we have noted, it is junior to practically every appropriation on the river between Alcova and the Tri-State Dam. Since 1930 there would have been no water for it if it were operated on a priority basis. And in view of the general position taken by Wyoming with respect to Nebraska priorities, it cannot be assumed that the Kendrick Project would be regulated for the benefit of senior appropriators in Nebraska. Neither Wyoming nor Colorado has ever recognized any extension of priorities across state lines. They have never limited or regulated diversions by their appropriators in subordination to the senior appropriators of a downstream State. Out-of-priority diversions by Colorado have had an adverse effect downstream. We do not know their full extent; but we do know that Colorado appropriators junior to Pathfinder consume about 30,000 acre feet a year and that Pathfinder has never been filled since 1930 and has always been in need of water. This alone negatives the absence of present injury. The fact that on the average there is some water passing Tri-State Dam unused is no answer. While over half of that excess amount occurred in May and June, there was comparatively little in August and September. Moreover, we are dealing here with the problems of natural flow. The critical condition of the supply of the natural flow during 1931-1940 in the Whalen to Tri-State Dam section is obvious. The claim of Colorado to additional demands may not be disregarded. The fact that Colorado's proposed projects are not planned for the immediate future is not conclusive in view of the present over-appropriation of natural flow. The additional demands on the river which those projects involve constitute a threat of further depletion. Colorado in her argument here asserts that "if Jackson County is to maintain its livestock industry to the same extent as it has in the past it will have to develop this additional summer

pasture and it cannot do this without increasing its irrigated acreage."

What we have then is a situation where three States assert against a river, whose dependable natural flow during the irrigation season has long been over-appropriated, claims based not only on present uses but on projected additional uses as well. The various statistics with which the record abounds are inconclusive in showing the existence or extent of actual damage to Nebraska. But we know that deprivation of water in arid or semi-arid regions cannot help but be injurious. That was the basis for the apportionment of water made by the Court in *Wyoming v. Colorado*, *supra*. There the only showing of injury or threat of injury was the inadequacy of the supply of water to meet all appropriative rights. As much if not more is shown here. If this were an equity suit to enjoin threatened injury, the showing made by Nebraska might possibly be insufficient. But *Wyoming v. Colorado*, *supra*, indicates that where the claims to the water of a river exceed the supply a controversy exists appropriate for judicial determination. If there were a surplus of unappropriated water, different considerations would be applicable. Cf. *Arizona v. California*, 298 U. S. 558. But where there is not enough water in the river to satisfy the claims asserted against it, the situation is not basically different from that where two or more persons claim the right to the same parcel of land. The present claimants being States, we think the clash of interests to be of that character and dignity which makes the controversy a justiciable one under our original jurisdiction.

*Colorado v. Kansas*, *supra*, is not opposed to this view. That case turned on its special facts. It is true that an apportionment of the water of an interstate river was denied in that case. But the downstream State (Kansas) did not sustain the burden of showing that since the earlier litigation between the States (see *Kansas v. Colorado*,

206 U. S. 46), there had been a material increase in the depletion of the river by Colorado. Improvements based upon irrigation had been made by Colorado while Kansas stood by for over twenty years without protest. We held that in those circumstances a plain showing was necessary of increased depletion and substantial injury to warrant a decree which would disrupt the economy of the upstream State built around irrigation. Moreover, we made clear (320 U. S. p. 392, note 2) that we were not dealing there with a case like *Wyoming v. Colorado, supra*, where the doctrine of appropriation applied in each of the States which were parties to the suit and where there was not sufficient water to meet all the present and prospective needs.

Colorado's motion to dismiss is accordingly denied.

#### IV

*Claim of United States to Unappropriated Water.* The United States claims that it owns all the unappropriated water in the river. It argues that it owned the then unappropriated water at the time it acquired water rights by appropriation for the North Platte Project and the Kendrick Project. Its basic rights are therefore said to derive not from appropriation but from its underlying ownership which entitles it to an apportionment in this suit free from state control. The argument is that the United States acquired the original ownership of all rights in the water as well as the lands in the North Platte basin by cessions from France, Spain and Mexico in 1803, 1819, and 1848, and by agreement with Texas in 1850. It says it still owns those rights in water to whatever extent it has not disposed of them. An extensive review of federal water legislation applicable to the Platte River basin is made beginning with the Act of July 26, 1866, 14 Stat. 251, the Act of July 9, 1870, 16 Stat. 217 and including the Desert Land Law (Act of March 3, 1877, 19 Stat. 377)

and the Reclamation Act of June 17, 1902, 32 Stat. 388. But we do not stop to determine what rights to unappropriated water of the river the United States may have. For the water rights on which the North Platte Project and the Kendrick Project rest have been obtained in compliance with state law. Whether they might have been obtained by federal reservation is not important. Nor, as we shall see, is it important to the decree to be entered in this case that there may be unappropriated water to which the United States may in the future assert rights through the machinery of state law or otherwise.

The Desert Land Act "effected a severance of all waters upon the public domain, not theretofore appropriated, from the land itself." *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U. S. 142, 158. It extended the right of appropriation to any declarant who reclaimed desert land and provided: "all surplus water over and above such actual appropriation and use, together with the water of all, lakes, rivers and other sources of water supply upon the public lands and not navigable, shall remain and be held free for the appropriation and use of the public for irrigation, mining and manufacturing purposes subject to existing rights." See *Ickes v. Fox*, 300 U. S. 82, 95; *Brush v. Commissioner*, 300 U. S. 352, 367.

Sec. 8 of the Reclamation Act provided: "That nothing in this Act shall be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use, or distribution of water used in irrigation, or any vested right acquired thereunder, and *the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws*, and nothing herein shall in any way affect any right of any State or of the Federal Government or of any landowner, appropriator, or user of water in, to, or from any interstate stream or the waters

thereof: *Provided, That the right to the use of water acquired under the provisions of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right.*" (Italics added.)

The Secretary of the Interior pursuant to § 3 of the Reclamation Act withdrew from public entry certain public lands in Nebraska and Wyoming which were required for the North Platte Project and the Kendrick Project. Initiation of both projects was accompanied by filings made pursuant to § 8 in the name of the Secretary of the Interior for and on behalf of the United States. Those filings were accepted by the state officials as adequate under state law. They established the priority dates for the projects. There were also applications to the States for permits to construct canals and ditches. They described the land to be served. The orders granting the applications fixed the time for completion of the canal, for application of the water to the land, and for proof of appropriation. Individual water users contracted with the United States for the use of project water. These contracts were later assumed by the irrigation districts. Irrigation districts submitted proof of beneficial use to the state authorities on behalf of the project water users. The state authorities accepted that proof and issued decrees and certificates in favor of the individual water users. The certificates named as appropriators the individual landowners. They designated the number of acres included, the use for which the appropriation was made, the amount of the appropriation, and the priority date. The contracts between the United States and the irrigation districts provided that after the stored water was released from the reservoir it was under the control of the appropriate state officials.

All of these steps make plain that those projects were designed, constructed and completed according to the

pattern of state law as provided in the Reclamation Act. We can say here what was said in *Ickes v. Fox*, *supra*, pp. 94-95: "Although the government diverted, stored and distributed the water, the contention of petitioner that thereby ownership of the water or water-rights became vested in the United States is not well founded. Appropriation was made not for the use of the government, but, under the Reclamation Act, for the use of the land owners; and by the terms of the law and of the contract already referred to, the water-rights became the property of the land owners, wholly distinct from the property right of the government in the irrigation works. Compare *Murphy v. Kerr*, 296 Fed. 536, 544, 545. The government was and remained simply a carrier and distributor of the water (*ibid.*), with the right to receive the sums stipulated in the contracts as reimbursement for the cost of construction and annual charges for operation and maintenance of the works."

The property right in the water right is separate and distinct from the property right in the reservoirs, ditches or canals. The water right is appurtenant to the land, the owner of which is the appropriator. The water right is acquired by perfecting an appropriation, i. e., by an actual diversion followed by an application within a reasonable time of the water to a beneficial use. See *Murphy v. Kerr*, 296 F. 536, 542, 544, 545; *Commonwealth Power Co. v. State Board*, 94 Neb. 613, 143 N. W. 937; *Kersensbrock v. Boyes*, 95 Neb. 407, 145 N. W. 837. Indeed § 8 of the Reclamation Act provides as we have seen that "the right to the use of water acquired under the provisions of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right."

We have then a direction by Congress to the Secretary of the Interior to proceed in conformity with state laws in appropriating water for irrigation purposes. We have a

compliance with that direction. Pursuant to that procedure individual landowners have become the appropriators of the water rights, the United States being the storer and the carrier.<sup>11</sup> We intimate no opinion whether a different procedure might have been followed so as to appropriate and reserve to the United States all of these water rights. No such attempt was made. Though we assume *arguendo* that the United States did own all of the unappropriated water, the appropriations under state law were made to the individual landowners pursuant to the procedure which Congress provided in the Reclamation Act. The rights so acquired are as definite and complete as if they were obtained by direct cession from the federal government. Thus even if we assume that the United States owned the unappropriated rights, they were acquired by the landowners in the precise manner contemplated by Congress.

It is argued that if the right of the United States to these water rights is not recognized, its management of the federal projects will be jeopardized. It is pointed out, for example, that Wyoming and Nebraska have laws which regulate the charges which the owners of canals or reservoirs may make for the use of water. But our decision does not involve those matters. We do not suggest that where Congress has provided a system of regulation for federal projects it must give way before an inconsistent state system. We are dealing here only with an allocation, through the States, of water rights among appropriators. The rights of the United States in respect to the storage of water are recognized. So are the water rights of the

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<sup>11</sup> The right of the United States as storer and carrier is not necessarily exhausted when it delivers the water to grantees under its irrigation projects. Thus in *Ide v. United States*, 263 U. S. 497 the right of the United States was held to extend to water which resulted from seepage from the irrigated lands under its project and which was not susceptible of private appropriation under local law.

landowners. To allocate those water rights to the United States would be to disregard the rights of the landowners. To allocate them to the States, who represent their citizens *parens patriae* in this proceeding,<sup>12</sup> in no wise interferes with the ownership and operation by the United States of its storage and power plants, works, and facilities. Thus the question of the ownership by the United States of unappropriated water is largely academic so far as the narrow issues of this case are concerned.

## V

There is some suggestion that if we undertake an apportionment of the waters of this interstate river, we embark upon an enterprise involving administrative functions beyond our province. We noted in *Colorado v. Kansas, supra*, p. 392, that these controversies between States over the waters of interstate streams "involve the interests of quasi-sovereigns, present complicated and delicate questions, and, due to the possibility of future change of conditions, necessitate expert administration rather than judicial imposition of a hard and fast rule. Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the federal Constitution. We say of this case, as the court has said of interstate differences of like nature, that such mutual accommodation and agreement should, if possible, be the medium of settlement, instead of invocation of our adjudicatory power." But the efforts at settlement in this case have failed. A genuine controversy exists. The gravity and importance of the case are apparent. The difficulties of drafting and enforcing a decree are no justification for us to refuse to perform the important function entrusted to us by the Constitution. Those

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<sup>12</sup> *Kansas v. Colorado*, 206 U. S. 46; *Missouri v. Illinois*, 180 U. S. 208.

considerations did not prevail in *Wyoming v. Colorado*, *supra*, where an apportionment of the waters of an interstate stream was made. Nor did they prevail in the drainage canal cases. *Wisconsin v. Illinois*, 278 U. S. 367, 281 U. S. 179, 309 U. S. 569, 311 U. S. 107, 313 U. S. 547. And see *Sanitary District v. United States*, 266 U. S. 405. We do not believe they should prevail here.

We recognize the difficulties of the problem. The matter is a delicate one and extremely complex. To begin with we are confronted with the problem of equitable apportionment. The Special Master recommended a decree based on that principle. That was indeed the principle adopted by the Court in *Wyoming v. Colorado*, *supra*, where an apportionment of the waters of an interstate stream was made between two States, each of which had the rule of appropriation. In speaking of that rule in application to a controversy between States the Court, through Mr. Justice Van Devanter, said: "The cardinal rule of the doctrine is that priority of appropriation gives superiority of right. Each of these States applies and enforces this rule in her own territory, and it is the one to which intending appropriators naturally would turn for guidance. The principle on which it proceeds is not less applicable to interstate streams and controversies than to others. Both States pronounce the rule just and reasonable as applied to the natural conditions in that region; and to prevent any departure from it the people of both incorporated it into their constitutions. It originated in the customs and usages of the people before either State came into existence, and the courts of both hold that their constitutional provisions are to be taken as recognizing the prior usage rather than as creating a new rule. These considerations persuade us that its application to such a controversy as is here presented cannot be other than eminently just and equitable to all concerned." 259 U. S. p. 470. And see *Wyoming v. Colorado*,

286 U. S. 494; *Washington v. Oregon*, 297 U. S. 517, 526. Since Colorado, Wyoming, and Nebraska are appropriation States, that principle would seem to be equally applicable here.

That does not mean that there must be a literal application of the priority rule. We stated in *Colorado v. Kansas*, *supra*, that in determining whether one State is "using, or threatening to use, more than its equitable share of the benefits of a stream, all the factors which create equities in favor of one State or the other must be weighed as of the date when the controversy is mooted." 320 U. S. p. 394. That case did not involve a controversy between two appropriation States. But if an allocation between appropriation States is to be just and equitable, strict adherence to the priority rule may not be possible. For example, the economy of a region may have been established on the basis of junior appropriations. So far as possible those established uses should be protected though strict application of the priority rule might jeopardize them. Apportionment calls for the exercise of an informed judgment on a consideration of many factors. Priority of appropriation is the guiding principle. But physical and climatic conditions, the consumptive use of water in the several sections of the river, the character and rate of return flows, the extent of established uses, the availability of storage water, the practical effect of wasteful uses on downstream areas, the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former—these are all relevant factors. They are merely an illustrative, not an exhaustive catalogue. They indicate the nature of the problem of apportionment and the delicate adjustment of interests which must be made.

Practical considerations of this order underlie Nebraska's concession that the priority rule should not be strictly applied to appropriations in Colorado, though

some are junior to the priorities of appropriators in Wyoming and Nebraska. As the Special Master points out, the flowage time of water from North Park to Bridgeport, Nebraska is between two and three weeks. If a canal in North Park were closed to relieve the shortage of a senior appropriator in Nebraska, it would be highly speculative whether the water would reach the Nebraska appropriator in time or whether the closing of the Colorado canal would work more hardship there than it would bestow benefits in Nebraska. Moreover, there is loss of water in transit from the upper to the downstream sections, increasing with the distance. The lower appropriator thus receives less than the upper appropriator loses. And there is evidence that a river-wide priority system would disturb and disrupt long-established uses.

Nebraska, however, urges that priority of appropriation interstate be adopted from the Alcova Reservoir east and more particularly from the Whalen diversion dam east. She points out that there is a large acreage of Nebraska land which is irrigated by canals diverting at Whalen. There are four canals diverting in Wyoming and irrigating land entirely or in part in Nebraska—Mitchell, Interstate, Ft. Laramie and French. For example, the diversion point for Mitchell is in Wyoming though all the land it serves is in Nebraska. Nebraska has maintained that diversions of that canal should be regulated to observe the priorities of senior Nebraska canals including Tri-State. Wyoming was willing to regulate her upstream junior appropriators for the benefit of Mitchell provided the water go to Mitchell and not be used for Tri-State which is senior to both Mitchell and certain Wyoming appropriators.<sup>13</sup> Nebraska therefore urges an interstate allocation which would require junior appropriators in Wy-

<sup>13</sup> That controversy between the States is partly reflected in *State v. Mitchell Irrigation District*, 129 Neb. 586, 262 N. W. 543, and *Mitchell Irrigation District v. Whiting*, 59 Wyo. 52, 136 P. 2d 502.

ming to respect not only Mitchell's priorities but also those of Tri-State and other Nebraska canals in this section of the river.

The United States takes substantially the same position on this matter as Nebraska except that it argues that a priority allocation interstate be confined to that area between Whalen and Tri-State Dam.

Wyoming contends for a system of mass allocation between the States, saying that no attempt can or should be made in this proceeding to determine the priorities interstate of the various appropriators in each State. The proposal of Wyoming envisages distribution of natural flow and storage water indiscriminately as a common fund to all users. It is based on the theory that there is a sufficiency of water for everyone.

The decree recommended by the Special Master departs from the theory of allocation advanced by the parties. In recommending his apportionment the Special Master did not rest on the long-time average flow of the river. We have discussed the drought which has persisted in this river basin since 1930. No one knows whether it has run its course or whether it represents a new norm. There is no reliable basis for prediction. But a controversy exists; and the decree which is entered must deal with conditions as they obtain today. If they substantially change, the decree can be adjusted to meet the new conditions. But the decree which is fashioned must be based, as the Special Master recognized, on the dependable flow. *Wyoming v. Colorado, supra*. In that case the Court pointed out that the average of all years was far from being a proper measure of the available supply. "An intending irrigator acquiring a water right based on such a measure would be almost certainly confronted with drought when his need for water was greatest. Crops cannot be grown on expectations of average flows which do not come, nor on recollections of unusual flows which have passed down the stream in prior years." 259 U. S. p. 476. On this record

we cannot say that the dependable flow is greater than the average condition which has prevailed since 1930. For reasons which we discuss at a later point in this opinion, we deal only with natural flow, not with storage water as Wyoming urges. On the basis of the conditions which have obtained since 1930, it is plain that the natural flow of the river during the irrigation season has been over-appropriated.

*Colorado.* As we have noted, there are presently under irrigation in this section of the river 131,800 acres which consume (including reservoir evaporation) 98,540 acre feet annually. Exportations from the basin amount on the average to 6,000 acre feet, making the total annual depletion 104,540 acre feet. There are, as we have seen, additional demands made by Colorado for future projects. The Special Master recommended that Colorado be enjoined (a) from the diversion of water for the irrigation in North Park of more than 135,000 acres of land, (b) from the accumulation in storage facilities in North Park of more than 17,000 acre feet between October 1 of any year and September 30 of the following year, and (c) from the transbasin diversion out of North Park of more than 6,000 acre feet between October 1 of any year and September 30 of the following year. Colorado excepts to these proposals. But with minor exceptions which we will note, we do not believe those exceptions are well taken.

We are satisfied that a reduction in present Colorado uses is not warranted. The fact that the same amount of water might produce more in lower sections of the river is immaterial. *Wyoming v. Colorado, supra*, p. 468. The established economy in Colorado's section of the river basin based on existing use of the water should be protected.<sup>14</sup> Cf. *Colorado v. Kansas, supra*, p. 394. Appropriators in Colorado junior to Pathfinder have made out-of-

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<sup>14</sup> Nebraska objects to the margin of safety provided above actual existing uses. But we do not believe that the margin allowed is unjust under all the circumstances of the case.

priority diversions of substantial amounts. Strict application of the priority rule might well result in placing a limitation on Colorado's present use for the benefit of Pathfinder. But as we have said, priority of appropriation, while the guiding principle for an apportionment, is not a hard and fast rule. Colorado's countervailing equities indicate it should not be strictly adhered to in this situation. Colorado asserts, however, that the limitation of transbasin diversions to 6,000 acre feet a year should not be imposed. Her point is that 6,000 acre feet represent merely the average annual transbasin diversions, that annual diversions have exceeded that amount, and that a limitation of 6,000 acre feet annually will interfere with existing Colorado users. We think the point is well taken. The decree will enjoin Colorado exportations in excess of an average of 6,000 acre feet computed over a period of ten years.<sup>15</sup>

But Colorado's other exceptions to the suggested limitations to be placed on her use of the water of the North Platte are not sustained. The principal argument is that on the basis of the long-time averages there is enough water to go around, that no limitation on use is warranted, and that the proposed limitation is a deprivation suffered by Colorado for the benefit of downstream users. But that argument fails if we assume, as we must on the evidence before us, that the dependable supply does not exceed the amount of water which has been available since 1930. Nor can we see how existing projects can be protected on the basis of the 1931-1940 supply if additional projects in Colorado are permitted. If at any time additional projects are threatened in downstream areas, Colorado may make complaint. If conditions of supply substantially change, any party can apply for modification of

<sup>15</sup> In accord with Colorado's suggestion the decree will embrace Jackson County and not North Park since the two are not coterminous and since Jackson County is entirely within the river basin and includes areas not located in North Park.

the decree. The decree will not necessarily be for all time. Provision will be made for its adjustment to meet substantially changed conditions. Nor will the decree interfere with relationships among Colorado's water users. The relative rights of the appropriators are subject to Colorado's control.

Colorado finally says that the proposed restriction on her uses of the water violate the Act of August 9, 1937, 50 Stat. 564, 595, which appropriated funds for the Kendrick Project. That Act provided that "in recognition of the respective rights of both the States of Colorado and Wyoming to the amicable use of the waters of the North Platte River, neither the construction, maintenance, nor operation of said (Kendrick) project shall ever interfere with the present vested rights or the fullest use hereafter for all beneficial purposes of the waters of said stream or any of its tributaries within the drainage basin thereof in Jackson County, in the State of Colorado, and the Secretary of the Interior is hereby authorized and directed to reserve the power by contract to enforce such provisions at all times." But that Act does not limit or restrict Nebraska's or Wyoming's claim for apportionment against Colorado. Moreover, the Kendrick Project under present conditions (which are the basis of the decree) could store no water without violating other priorities. If the long-time average conditions return, it can do so. Only at that time could there be a possible conflict with the policy of Congress contained in the Act of August 9, 1937. If that condition arises and a conflict with Colorado's interests appear imminent, it will be time to consider the problem.

*Colorado State Line to Pathfinder and Guernsey.* The Special Master recommends that Wyoming be enjoined (a) from diverting water from the main river above Guernsey and from its tributaries above Pathfinder for the irrigation of more than 168,000 acres, and (b) from the accumulation of storage water in reservoirs above Pathfinder in excess of 18,000 acre feet between October

1 of any year and September 30 of the following year. We deem this restriction appropriate provided the limitation of storage above Pathfinder does not include Seminole Reservoir which lies above Pathfinder and which is to be the main source of supply for the Kendrick Project. As we have noted, most of the land under irrigation in the section above Pathfinder is irrigated from tributaries. The rights are small but very numerous. The total acreage under irrigation is 153,000 acres, allowing for a margin of error. Below Pathfinder and above Guernsey the Special Master dealt only with diversions from the main river. He concluded that the run-off of the tributaries becomes so far exhausted before any shortage of water occurs in the main river that any regulation of the tributary diversions would be of no material benefit. The tributary inflow is greater than the depletion of the river. There is some out-of-priority diversion as we have noted. But possibilities for future developments are largely non-existent. The Special Master concluded that if Wyoming were limited to the irrigation of 15,000 acres (which is the extent of present irrigation with a margin of error) natural conditions would militate against this section getting more than its equitable share of the water.

We think that is a practical and fair adjustment. So far as the tributaries above Pathfinder are concerned, practical difficulties of applying restrictions which would reduce the amount of water used by the hundreds of small irrigators would seem to outweigh any slight benefit which senior appropriators might obtain. This does not seem to be denied. And the conditions which obtain on the main river between Pathfinder and Guernsey support the limitation without more to the irrigation of 15,000 acres.

The United States, however, insists that some regulation of the tributaries between Pathfinder and Guernsey is essential. It claims that there are possibilities of future additional storage on these tributaries and that if future storage is increased there will be a reduction in tributary

flows into the main river available for storage in the Guernsey, Lake Alice and Lake Minatare reservoirs of the North Platte Project. We do not know from the present record the precise extent of existing reservoir storage in this area. We do know, however, that there is some storage capacity, e. g. 20,000 acre feet in the La Prele Project. In absence of evidence showing what contribution these tributaries now make to the supply of the reservoirs or what additional storage projects may be possible or what their effect might be, the Special Master concluded there was an insufficient basis for any present limitation on storage. We find no evidence of any present threat to the water supply from this source. If such threat appears and it promises to disturb the delicate balance of the river, application may be made at the foot of the decree for an appropriate restriction.

*Pathfinder, Guernsey, Seminoe and Alcova Reservoirs and the Casper Canal.* The Special Master recommends that Wyoming be enjoined from the storage of water in these four reservoirs and from the diversion of natural flow water through the Casper Canal for the Kendrick Project, between and including May 1 and September 30 of each year, otherwise than in accordance with the rule of priority in relation to the appropriations of the Nebraska lands supplied by the French Canal and by the State Line Canals; that all those Nebraska appropriations for that purpose be adjudged senior to those four reservoirs and to Casper Canal; and that the senior Nebraska appropriations be identified and defined as follows:

<i>Lands</i>	<i>Canal</i>	<i>Limitation in Second Feet</i>	<i>Seasonal Limitation in Acre Feet</i>
Tract of 1,025 acres .....	French .....	15	2,227
Mitchell Irrigation District .....	Mitchell .....	195	35,000
Gering Irrigation District .....	Gering .....	193	36,000
Farmers Irrigation District .....	Tri-State .....	748	183,050
Ramshorn Irrigation District .....	Ramshorn .....	14	3,000

We have noted the priorities of Pathfinder and Guernsey, as well as those of the Kendrick Project. We have noted that their priorities make them junior to many downstream appropriators including the State Line Canals. While the four reservoirs in question are Wyoming appropriators, Pathfinder and Guernsey were designed more for the benefit of Nebraska than of Wyoming lands. Recognition of the priorities interstate makes obvious the propriety of an interstate apportionment.

Wyoming objects to this treatment of the Kendrick Project. As we have said, she contends for a mass allocation of water between Nebraska and Wyoming under which a diversion requirement of 168,000 acre feet should be allotted for the Kendrick Project. Wyoming has presented a detailed analysis of the water supply of the river on the basis of which it is argued that the flow during the period since 1930 is not the true measure of the dependable supply. It is urged that the long-time averages must be considered in computing the dependable supply and if they are and if the storage capacity of these reservoirs is added to the natural flow, the dependable supply will be increased. Moreover, Wyoming argues that no allocation can be made to individual appropriators in any of the States because they are not parties and cannot be bound in their absence.

We have carefully considered these contentions of Wyoming and have concluded that they do not warrant a departure from the method of allocation proposed by the Special Master. On the record before us we are not justified in assuming that there will be a greater supply than has been available during the 1931-1940 period. To base the decree on a larger supply would not be to base it on a dependable supply. Under those conditions Kendrick can store no water. Even with reservoir regulation we are not convinced that Wyoming has shown an adequate supply to justify the allocation she seeks. The combined

storage capacity of the North Platte and Kendrick projects is equal to 175 per cent of the long-time annual average river run-off of the river at Pathfinder. We have here storage capacity in excess of the practicable limits of a dependable supply as that term has hitherto been construed. *Wyoming v. Colorado, supra.*

A mass allocation was made in *Wyoming v. Colorado*. But there is no hard and fast rule which requires it in all cases. The standard of an equitable apportionment requires an adaptation of the formula to the necessities of the particular situation. We may assume that the rights of the appropriators *inter se* may not be adjudicated in their absence. But any allocation between Wyoming and Nebraska, if it is to be fair and just, must reflect the priorities of appropriators in the two States. Unless the priorities of the downstream canals senior to the four reservoirs and Casper Canal are determined, no allocation is possible. The determination of those priorities for the limited purposes of this interstate apportionment is accordingly justified. The equitable share of a State may be determined in this litigation with such limitations as the equity of the situation requires and irrespective of the indirect effect which that determination may have on individual rights within the State. *Hinderlider v. La Plata Co.*, 304 U. S. 92, 106-108.

Nebraska contends that the allotment to Farmers Irrigation District be increased in the seasonal limitation recommended, so that the Warren Act contract which it has may be recognized. But for reasons which we will elaborate the only water subject to the present allocation is natural flow. Contracts requiring the supplementation of natural flow by storage are unaffected.<sup>16</sup>

<sup>16</sup> Whether, as between the United States together with the irrigation projects sponsored by it on the one hand and the Farmers Irrigation District on the other, the United States is estopped by *United States v. Tilley*, 124 F. 2d 850, to deny the amount of acreage covered by the Warren Act contract with the district is not relevant here.

The United States contends that Nebraska's equitable share of natural flow water should be limited to that which is in fact being diverted and used by any or all of the designated canals within the specified limitations in acre-feet and second-feet. It is said that these provisions of the proposed decree are the operative provisions which determine the amount of natural flow to be passed into the Whalen-Tri-State Dam section of the river. It is said that Nebraska can permit, as it has heretofore, water to pass the Tri-State Dam for use below that point even though her equitable share is calculated only on the basis of the needs of appropriators at or above Tri-State. And it is pointed out that the lands served by diversions below Tri-State have no equitable claim on water originating in Wyoming or Colorado, their needs being reasonably met by local supplies. We think, as we will develop later, that the record sustains the conclusion that equitable apportionment does not permit Nebraska to demand direct flow water from above Whalen for use below Tri-State. The reservoirs above Whalen may store water and Kendrick may divert whenever and to the extent that the Nebraska canals at or above Tri-State are not using or diverting natural flow. We do not believe, however, that any revision of this part of the proposed decree need be made. We cannot assume that Nebraska will undertake to circumvent the decree. Moreover, the proposed revision offers difficulties. As Nebraska points out, when a junior Nebraska canal having storage rights is closed to natural flow due to operation of Nebraska priorities, it should be allowed to make up the deficiency in its supply in relation to its requirements by asking for storage water under such contracts as it may have with the United States. The United States does not repudiate those contracts. We conclude that it would unduly complicate the decree to recast its provisions so as to take them into account. If, as the United States fears, the decree is admin-

istered so as to divert water from above Tri-State to the use of those diverting below Tri-State, application for appropriate relief may be made at the foot of the decree.

The United States asserts that it should be given a separate allocation of water even if it is not treated as the owner of unappropriated water and hence the possessor of an unbroken chain of title to project water. The Special Master concluded that the position of the United States or the Secretary of the Interior is that of an appropriator of water for storage under the laws of Wyoming and that its interests are represented in that connection by Wyoming. That was in line with the ruling of this Court when Wyoming moved to dismiss this very case on the ground, among others, that the Secretary of the Interior was a necessary party. *Nebraska v. Wyoming*, 295 U. S. 40, 43. The Court said: "The bill alleges, and we know as matter of law, that the Secretary and his agents, acting by authority of the Reclamation Act and supplementary legislation, must obtain permits and priorities for the use of water from the State of Wyoming in the same manner as a private appropriator or an irrigation district formed under the state law. His rights can rise no higher than those of Wyoming, and an adjudication of the defendant's rights will necessarily bind him. Wyoming will stand in judgment for him as for any other appropriator in that state. He is not a necessary party." We have discussed the procedure of appropriation which has been followed in this region. The Secretary of the Interior made the appropriations under Wyoming law. But we have noted that the water rights were adjudicated to be in the individual landowners. Hence, so far as the water rights are concerned, we think it is not proper to analogize this case to one where the United States acquires property within a State and asserts its title against the State as well as others.

The United States claims that it is at least entitled to be recognized as the owner of the storage water with full

control over its disposition and use under Wyoming law. That seems to be true under Wyoming law. Wyo. Rev. Stats. (1931) §§ 122-1601, 122-1602; *Scherck v. Nichols*, 55 Wyo. 4, 19, 95 P. 2d 74. The decree which is entered will in no way cloud such claim as it has to storage water under Wyoming law; nor will the decree interfere with the ownership and operation by the United States of the various federal storage and power plants, works, and facilities. We repeat that the decree is restricted to an apportionment of the natural flow.

The decree will, however, place a restraint on the storage of water in Pathfinder, Guernsey, Seminoe and Alcova Reservoirs, so as to protect the Nebraska lands served by the French Canal and the State Line Canals which are senior. The United States points out that if Nebraska permits some of the natural flow to go below the Tri-State Dam, as it may do, thus causing certain of the State Line Canals to go short, those canals would be entitled to have any deficiencies replaced by the United States under Warren Act contracts. It says that under the proposed decree only storage water and not natural flow could be supplied and unless storage water is appropriately defined by the decree, it might not be possible to meet the contract requirements without violation of the limitations on natural flow which are fixed by the decree. And it says that that would be the result if storage water were defined to exclude all water passed through a reservoir at any time when its inflow is as great as or greater than its outflow.

Nebraska recognizes the desirability of that course. She contends, however, that where the outflow is equal to or less than the intake, none of the released water can be considered as storage water. And she says that when the water being released is greater than the inflow, that portion which represents the amount of natural flow being taken in at the intakes cannot be considered as storage. See *Gila Valley Irrigation Dist. v. United States*, 118 F.

2d 507. She says that the United States by its proposal is attempting to transform into storage water what is in fact natural flow originating above the reservoirs.

For reasons which will be more fully discussed, we think that storage water should be left for distribution in accordance with the contracts which govern it. Accordingly, we think it is advisable to define storage water in the manner proposed by the United States, so as to make the operation of the decree more certain and to adjust it to the storage water contracts which are outstanding. Storage water therefore is defined for purposes of this decree as any water which is released from reservoirs for use on lands under canals having storage contracts in addition to the water which is discharged through those reservoirs to meet the requirements of any canal as recognized in the decree. This definition does not adversely affect rights recognized in the decree. It is perhaps a departure from the ordinary meaning of storage. But so long as the Warren Act contracts are outstanding that definition is necessary in order to give them effectiveness. For they do not provide that the United States will furnish water in such amounts as may from time to time be available. The United States agrees to deliver water which will, with all the water to which the land is entitled by appropriation or otherwise, aggregate a stated amount.<sup>17</sup>

<sup>17</sup> Thus the contract with the Gering Irrigation District provides:

"The United States will impound, and store water in the Pathfinder Reservoir, or elsewhere and release the same into the North Platte River at such times and in sufficient quantities to deliver, and does hereby agree to deliver at the Wyoming-Nebraska State line for the use of said District an amount of water which will, with all the water the lands of the District may be entitled to by reason of any appropriations and all water not otherwise appropriated, including drainage and seepage waters developed by the United States, aggregate a flow of water as follows: [Here follows the delivery schedule]; the total amount to be so delivered being approximately 35,500 acre feet."

There are other exceptions of a minor character to this part of the decree. We have considered them and conclude that they do not have merit.

*Pathfinder, Guernsey, Seminoe and Alcova Reservoirs.* The Special Master recommends that Wyoming be enjoined to respect the rule of priority of these reservoirs in respect to each other and that the order of seniority as between them be defined as follows: (1) Pathfinder, (2) Guernsey, (3) Seminoe, and (4) Alcova. He recommends, however, that water be allowed to be impounded in Seminoe "out of priority" in relation to Pathfinder and Guernsey for such use only in the generation of power by the Seminoe hydroelectric power plant as will not materially interfere with the administration of the water for irrigation purposes according to the priority as decreed for the French Canal and the State Line Canals.

The United States contends that the decree should permit joint operation of the federal reservoirs without reference to priorities among themselves or among the lands which they serve, in the event of an appropriate adjustment of storage contracts. Concededly the various storage water contracts, including Warren Act contracts, preclude joint operation of Seminoe and Pathfinder. The Special Master also concluded that joint operation would raise questions concerning rights under Wyoming natural flow appropriations senior to Seminoe but junior to Pathfinder. It may be that the latter problem would not be difficult. For as the United States suggests, under joint operation the reservoirs could operate on the Pathfinder priority until they had the combined storage equivalent to Pathfinder. Thereafter they would store no water except such as is needed for appropriations having priorities senior to Seminoe. Since joint operation, however, could not be presently instituted but would have to wait modifications of outstanding contracts, we think it best to defer consideration of the proposal until joint operation

in fact and in law is permissible. The decree will be without prejudice to the parties to make application for joint operation whenever changed conditions make it possible.

The Interstate, Ft. Laramie, and Northport canals are, as we have noted, part of the North Platte Project. The Kendrick Project is subordinate to the North Platte Project. The Special Master concluded that proper regulation for Kendrick would be one requiring the observance of priorities, Alcova to Tri-State Dam, both in the storage of water in Seminoe and Alcova and in the diversion of natural flow by the Casper Canal. The record supports that conclusion. Nebraska accordingly urges that the Interstate, Ft. Laramie, and Northport canals receive the same protection from Kendrick as the French Canal and the State Line Canals. If there were doubt that Interstate, Ft. Laramie, and Northport would receive priority in treatment, the decree could be fashioned so as to provide for it. But the matter is covered by contract between the United States and the Casper-Alcova Irrigation District. That contract, which the United States fully recognizes, precludes operation of the Kendrick Project except in recognition of prior rights in the North Platte Project.<sup>18</sup> We therefore do not think it is necessary to include in the decree the additional provision which Nebraska suggests.

*Return Flow of Kendrick Project.* The Special Master recommends that Wyoming be enjoined (1) from the recapture of return flow water of the Kendrick Project after

<sup>18</sup> The contract provides:

"It is expressly agreed that the development of the Casper-Alcova Project and the irrigation of lands under it is in no way to impair the water rights for the Federal North Platte Reclamation Project in Wyoming and Nebraska, and the said North Platte Project, and Warren Act contractors under it are to receive a water supply of the same quantity as would have been received if the Casper-Alcova Project had not been constructed and operated."

it shall have reached the North Platte River and become commingled with the general flow of the river, and (2) from diverting water from the river at or above Alcova Reservoir as in lieu of Kendrick return flow water reaching the river below Alcova.

The United States points out that the first part of this restriction may be construed to forbid Wyoming diverters from making the same use of Kendrick return flow water as is permitted Nebraska diverters. Natural flow in this case is used throughout as including return flow. Return flows once returned to the river and abandoned are part of the natural flow available for use by all natural flow diverters within the limitations of the apportionment. To avoid any possible misunderstanding, there should be substituted for the first clause of this proposed provision a clause which makes clear that return flows of the Kendrick Project are, for purposes of the decree, deemed to be natural flows when they have reached the North Platte River.

The question whether the United States may divert water from the river at or above Alcova Reservoir as in lieu of Kendrick return flow water reaching the river below Alcova presents complexities. Both the United States and Wyoming contend that that privilege should be granted. The return flow is estimated at 96,000 acre feet a year, 46,000 acre feet being the estimated return during the irrigation season. Some of that return flow will be natural drainage, some will be from sump areas, already noted, from which the United States will construct drainage ditches and thus return to the river water which would otherwise be lost. How much will be returned by natural drainage and how much from the sump areas is not presently known, since the Kendrick Project is not completed.

We will consider first the return flow from natural drainage. *Ide v. United States*, 263 U. S. 497, held that

the United States might recapture water which resulted from seepage from irrigated lands under a reclamation project and which was not susceptible of private appropriation under Wyoming law. The same conclusion was reached in *United States v. Tilley*, 124 F. 2d 850, where the United States was held to be entitled to use and apply the seepage from one division of the North Platte Project to supply lands of another division as against the claim of Nebraska of a right to intercept the seepage and apply it to appropriators senior to the project. And see *Ramshorn Ditch Co. v. United States*, 269 F. 80. Cf. *United States v. Warm Springs Irrigation Dist.*, 38 F. Supp. 239. In the *Ide* case this Court said:

“The seepage producing the artificial flow is part of the water which the plaintiff, in virtue of its appropriation, takes from the Shoshone River and conducts to the project lands in the vicinity of the ravine for use in their irrigation. The defendants insist that when water is once used under the appropriation it cannot be used again,—that the right to use it is exhausted. But we perceive no ground for thinking the appropriation is thus restricted. According to the record it is intended to cover, and does cover, the reclamation and cultivation of all the lands within the project. A second use in accomplishing that object is as much within the scope of the appropriation as a first use is. The state law and the National Reclamation Act both contemplate that the water shall be so conserved that it may be subjected to the largest practicable use. A further contention is that the plaintiff sells the water before it is used, and therefore has no right in the seepage. But the water is not sold. In disposing of the lands in small parcels, the plaintiff invests each purchaser with a right to have enough water supplied from the project canals to irrigate his land, but it does not give up all control over the water or to do more than pass to the purchaser a right to use the water so far as may be necessary

in properly cultivating his land. Beyond this all rights incident to the appropriation are retained by the plaintiff. Its right in the seepage is well illustrated by the following excerpt from the opinion of District Judge Dietrich in *United States v. Haga*, 276 Fed. 41, 43:

“One who by the expenditure of money and labor diverts appropriable water from a stream, and thus makes it available for fruitful purposes, is entitled to its exclusive control so long as he is able and willing to apply it to beneficial uses, and such right extends to what is commonly known as wastage from surface run-off and deep percolation, necessarily incident to practical irrigation. Considerations of both public policy and natural justice strongly support such a rule. Nor is it essential to his control that the appropriator maintain continuous actual possession of such water. So long as he does not abandon it or forfeit it by failure to use, he may assert his rights. It is not necessary that he confine it upon his own land or convey it in an artificial conduit. It is requisite, of course, that he be able to identify it; but, subject to that limitation, he may conduct it through natural channels and may even commingle it or suffer it to commingle with other waters. In short, the rights of an appropriator in these respects are not affected by the fact that the water has once been used.’” 263 U. S. pp. 505-506.

If that principle were literally applied, the United States could reclaim the return flows 200 miles downstream from Kendrick at Whalen where they could be diverted to the Interstate or Ft. Laramie Canal. Or if not reclaimed there, the return flows could be applied below the Nebraska line to Warren Act contract requirements. The Special Master thought any such program would be so disruptive of orderly administration as to be intolerable. That, of course, is not the proposal. The proposal is to divert water at or above Alcova in lieu of the return flows from Kendrick below Alcova. But we think the proposal is basically

not in accord with the principle underlying the *Ide* case. That principle is that although the water rights belong to the landowners, the owner of the irrigation project has an interest in the appropriative rights to the extent of obtaining the fullest use of the water for the project. It may, therefore, retain control over the water until abandonment. We think it goes too far to say that when the return flows are abandoned, they may nevertheless be exchanged for upstream diversions by the same amount. When the return flows are abandoned, they become subject to appropriation down stream. See 2 Kinney, *Irrigation and Water Rights* (2d ed. 1912) § 1114. They no longer remain subject to control for further use in the project. Any claim to them or their equivalent under the form of an "in lieu of" diversion is lost.

When it comes, however, to return flows resulting from drainage facilities installed by the United States, different considerations may be applicable. But for the drainage through artificial channels furnished by the United States, the unused water would never return to the river. The United States could rightfully leave the water in the sumps. In that case, no one would ever have the use of it. It is argued that since by artificial drainage the United States adds to the natural flow below Kendrick, it is only fair to allow Kendrick whatever benefit may result from that contribution. Cf. *Reno v. Richards*, 32 Ida. 1, 178 P. 81. One difficulty is that the drainage system has not been completed, Kendrick has not been put into operation, and we do not know what the contribution by artificial drainage will be. Accordingly, we do not at this time consider the claim on the merits. When Kendrick has been put into operation and there is a full development of return flows, application may be made for revision of the decree to permit "in lieu of" diversions at or above Alcova.

*Whalen to Tri-State Dam.* As we have said, this is the critical section of the river. The main controversy cen-

ters around it and around the Special Master's proposal for dealing with it. He proposes that the natural flow water in this section between May 1 and September 30 each year be apportioned on the basis of 25 per cent to Wyoming and 75 per cent to Nebraska. He recommends that Nebraska be given the right to designate from time to time the portion of its share which shall be delivered to the Interstate, Ft. Laramie, French and Mitchell Canals for use on Nebraska lands served by them and that Wyoming be enjoined from diversions contrary to this apportionment.<sup>19</sup>

None of the parties agrees to this apportionment.

Wyoming earnestly contends that storage water as well as natural flow should be included in the apportionment which is made for this section of the river. She points out that in *Wyoming v. Colorado, supra*, the Court made an apportionment based upon a supply "which is fairly constant and dependable, or is susceptible of being made so by storage and conservation within practicable limits." 259 U. S. p. 480. She argues that the Court has the power to allocate storage water though its disposition is controlled by contracts between the United States and irrigation districts; and that an apportionment which excludes storage water is unfair. The argument is that each State should be restricted to the use of such supplies only as are necessary to provide their respective irrigators, in-

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<sup>19</sup> He likewise recommends (1) that in the apportionment of water in this section the flow for each day, until ascertainable, shall be assumed to be the same as that of the preceding day as shown by the measurements and computations for that day; and (2) that in the segregation of natural flow and storage water, reservoir evaporation and transportation losses shall be determined in accordance with the formula and data which appear in the record identified as United States Exhibit 204A, unless and until Nebraska, Wyoming, and the United States may agree upon a modification thereof or upon another formula. We discuss the second of these recommendations later in this opinion. We adopt both of them.

cluding those receiving water under contracts, with such amounts as are necessary for beneficial use. The large excesses diverted by Nebraska are adverted to as showing the degree to which carry-over storage in the upper reservoirs has been diminished and the supply for Kendrick exhausted.

The Special Master concluded that since the North Platte Project storage water was disposed of under contracts between the United States and landowners under the project and under the Warren Act contracts, the obligations of those contracts and the necessity of performance under them must be recognized by the decree. He concluded, however, that in the allocation of the natural flow the storage water available might bear upon the equities of the States, although it would have no relevancy to the legal rights of individual appropriators *inter se* under the law of either Wyoming or Nebraska. We think the equities of the case support the failure to include storage water in the apportionment. We do not reach the question whether the presence of the storage water contracts would preclude an apportionment of storage water. The nine Wyoming private canals and the Mitchell and Ramshorn canals have no contract rights to receive storage water from the federal reservoirs. It is difficult for us to see how it would be equitable to make an apportionment on the basis that they do. In certain years in the past there have been excessive diversions by canals in this section, including the nine Wyoming private canals. We cannot assume that an apportionment of storage water is necessary to prevent a recurrence of those practices. Certainly an apportionment of storage water would disrupt the system of water administration which has become established pursuant to mandate of Congress in § 8 of the Reclamation Act that the Secretary of the Interior in the construction of these federal projects should proceed in conformity with state law. In pursuance thereto

all of the storage water is disposed of under contracts with project users and Warren Act canals. It appears that under that system of administration of storage water no State and no water users within a State are entitled to the use of storage facilities or storage water unless they contract for the use. See Wyo. Rev. Stats. (1931), §§ 122-1504, 122-1508, 122-1602. If storage water is not segregated, storage water contractors in times of shortage of the total supply will be deprived of the use of a part of the storage supply for which they pay. If storage water is not segregated, those who have not contracted for the storage supply will receive at the expense of those who have contracted for it a substantial increment to the natural flow supply which, as we have seen, has been insufficient to go around. In *Wyoming v. Colorado*, *supra*, the Court did not apportion storage water. It apportioned natural flow only. It took into account when it made that apportionment the effects of storage in equalizing natural flow in Wyoming. We think no more should be done here to effect an equitable apportionment.

We have already noted the exceptional features of this section—the great concentration of demand in a short, compact area, the distinctly interstate scope and character of water distribution, with Wyoming appropriations serving Nebraska uses, with the dependence of Nebraska canals on Wyoming diversions, with the joint use of canals to serve both States. There has been no effective interstate administration. The need to treat the section as an administrative unit without regard to state lines seems apparent. The Special Master concluded that the most feasible method of apportionment would be a distribution of natural flow on a percentage of daily flow basis.

If a division of flow were made according to total acreage, total requirements, or acreage or requirements of senior and junior appropriators, it would be as follows:

	Wyoming	Nebraska
Total Acreage .....	27%	73%
Total Requirement in Acre feet .....	23%	77%
Total Senior Acreage .....	24%	76%
Total Junior Acreage .....	28%	72%
Total Acre feet Requirement, Senior Acreage .....	22%	78%
Total Acre feet Requirement, Junior Acreage .....	23%	77%

If the river flow is separated according to priority groups, water values expressed in second feet, and it is assumed that each canal diverts, in order of priority, the maximum limit of one second foot for each 70 acres, the result is as follows:

Flow	Priority Basis		Percentages		Acreage Basis 24%-76%		Acre Feet Basis 22%-78%	
	Wyo.	Neb.	Wyo.	Neb.	Wyo.	Neb.	Wyo.	Neb.
1. Up to 103 second feet .....	103	0	100	0	24	79	23	80
2. 103 to 1,027 (924) .....	0	924			222	702	203	721
Cumulative Totals .....	103	924	10	90	246	781	226	801
3. 1,027 to 1,121 (94) .....	94	0			23	71	21	73
Cumulative Totals .....	197	924	18	82	269	852	247	874
4. 1,121 to 1,328 (207) .....	0	207			50	157	46	161
Cumulative Totals .....	197	1,131	15	85	319	1,009	293	1,035
5. 1,328 to 1,494 (166) .....	166	0			40	126	37	129
Cumulative Totals .....	363	1,131	24	76	359	1,135	330	1,164
6. 1,494 to 1,513 (19) .....	0	19			5	14	4	15
Cumulative Totals .....	363	1,150	24	76	364	1,149	334	1,179
7. 1,513 to 1,526 (13) .....	13	0			3	10	3	10
Cumulative Totals .....	376	1,150	25	75	367	1,159	337	1,189
					28%-72%		29%-77%	
8. 1,526 to 4,382 (2,858) .....	801	2,057	28	72	690	2,168	629	2,229
Grand Totals .....	1,177	3,207	27	73	1,057	3,327	966	3,418
		4,384				4,384		4,384
					27%-73%		23%-73%	
1 to 8 inclusive .....	1,177	3,207	27	73	1,184	3,200	1,008	3,376

It is thus apparent that whether a division be proportioned to total acreage or to total diversion requirements or be made on a strict priority basis, there would be no substantial difference except as to the first 1,500 second feet. The maximum difference as to other water would be 6%.

Wyoming argues for a mass allocation, e. g. 705,000 acre feet to be allocated to Nebraska for diversion in this section during the irrigation season for Nebraska lands. The Special Master rejected that method. He concluded that it was based on an assumption of dependability of flow which would be bound to result in injustice to one or other of the States; that it apportioned not only natural flow but also storage water, the disposition of which is governed by contracts. We have already considered Wyoming's exception that storage water should have been included in the allocation. We have also considered the other phases of her argument in favor of mass allocation. We repeat that the inadequacy of the supply is too clear to permit adoption of Wyoming's formula.

The United States and Nebraska claim that the adoption of a priority schedule in this section would achieve the most equitable results. On a 25-75 percentage basis, Nebraska would get 75 second feet out of the first 100, to none of which she would be entitled in times of an extreme low flow; Wyoming would get 225 second feet out of the next 900 to none of which she would be entitled on a priority basis. A priority basis would only coincide with the percentage basis when the supply available was 400 second feet or 1,500 second feet. If the supply were 800 second feet, a priority basis would give Wyoming 103 second feet and Nebraska the remaining 697 second feet. On the 25-75 percentage basis, Wyoming would receive 200 second feet and Nebraska 600 second feet. It is argued that the unfairness of the proposed apportionment is demonstrated by the record of the low flow of the river in this section during the irrigation season in 1931-1940 period.

Thus in 1932 the flow never rose above 1,500 second feet after August 10th. In the 1934 season it rose above 1,500 second feet only once after June 10th. And in the 1936 season it was not often over 1,500 second feet. In 1932, 1934 and 1936 the direct flow frequently fell below 1,000 second feet. In 1934 it rose above 800 second feet for only about 33 days during the entire season and was below 400 second feet about 34 days. In 1936 it was below 1,000 second feet for over 50 days during the season and below 800 second feet about 28 days. The argument is that fluctuation in the rights to water is inherent in the priority system and that the percentage apportionment of 25-75 is too rigid and does not give sufficient recognition to that fact. The frequency with which the flow has dropped below 1,500 second feet during the drought and the inequities which result if a strict priority apportionment is not made at such times are emphasized.

The United States and Nebraska advance as their preferred alternative a strict priority apportionment in which the rights of each appropriator would be fixed. Wyoming says that may not be done since the appropriators are not parties to this proceeding. The Special Master had serious doubts on that score. He also felt that an interstate priority schedule for this section, while not open to all the objections which would be present if it were applied to the whole river, would have other objections. Those were (1) that it would deprive each State of full freedom of intrastate administration of her share of the water and (2) that it would burden the decree with administrative detail beyond what is necessary to an equitable apportionment. Our judgment is that these latter considerations without more are sufficient justification for rejection of the strict priority allocation advanced by the United States and Nebraska. An equitable apportionment may be had without fashioning a decree of that detail. And greater administrative flexibility may be achieved within the respective States by choice of another alternative.

The United States and Nebraska, however, press on us a second alternative in lieu of the 25-75 percentage basis recommended by the Special Master. They suggest that a schedule of varying flows of the stream be adopted. Under that theory there would be an allocation on a priority basis to each of the seven "blocks" of second feet up to and including 1,526 second feet. All above 1,526 second feet would be apportioned on a percentage basis, *e. g.* 28 per cent to Wyoming and 72 per cent to Nebraska.

That alternative method has much to recommend it because of its rather strict adherence to the principle of priority during the periods of low flow. And it may be that it would involve no greater administrative burden than the flat percentage method. For as Nebraska points out, when the supply is determined it would seem to be as easy to give Wyoming the first 103 second feet and Nebraska the next 924 second feet as it would be to divide the second feet of flow by percentages. Moreover, the proposed alternative method would preserve, as well as the flat percentage method, the full control of each State over the internal administration of her water supply.

We are not satisfied, however, that the block system of allocation up to and including 1,526 second feet is the more equitable under the circumstances of this case. The combined requirement of the Tri-State and Mitchell Canals is 924 second feet. Under the block system of apportionment there would be no water for the Wyoming canals in groups 3, 5, and 7 of the foregoing table except such storage water as would be available to the Lingle and Hill Districts in group 5 under their Warren Act contracts. The Wyoming appropriations in these groups are, to be sure, junior to Tri-State and Mitchell. But as the Special Master points out those Wyoming appropriations, though junior, represent old established uses in existence from 40 to over 50 years. Their water supply was not challenged by Nebraska on behalf of Tri-State and Mitchell until the 1931-1940 drought cycle. For example, 6,282 acres are

served by two canals which have exercised their appropriate rights without interference for over 50 years. Furthermore, the great increase in return flows from the North Platte Project, which we discussed earlier, are relevant here. Those return flows are a "windfall" to irrigators who are so situated on the river as to use them yet who do not have storage rights and who share no part of storage costs. As we have seen, these return flows are substantial and should be taken into account in balancing the equities between Wyoming and Nebraska in this section of the river. Moreover, the storage water rights of the lands included in groups 1, 2, 3, and 4 of the foregoing table bear upon this problem. Eighty-two per cent of that Nebraska acreage has storage water rights under Warren Act contracts; 7 per cent of that Wyoming acreage has storage water rights. When groups 1 to 7 are considered, 82 per cent of the Nebraska acreage and 47 per cent of the Wyoming acreage have storage water rights under Warren Act contracts. The Mitchell and Ramshorn Canals are the only Nebraska canals in the 7 groups which have no storage water rights. As we have said, storage water, though not apportioned, may be taken into account in determining each State's equitable share of the natural flow. *Wyoming v. Colorado, supra*. Our problem is not to determine what allocation would be equitable among the canals in Nebraska or among those in Wyoming. That is a problem of internal administration for each of the States. Our problem involves only an appraisal of the equities between the claimants whom Wyoming represents on the one hand and those represented by Nebraska on the other. We conclude that the early Wyoming uses, the return flows, and the greater storage water rights which Nebraska appropriators have in this section as compared with those of Wyoming appropriators tip the scales in favor of the flat percentage system recommended by the Special Master. It should be noted, moreover, that that method of apportionment, though not strictly adher-

ing to the principle of priority, gives it great weight and does not cause as great a distortion as might appear to be the case. For on the first 412 second feet of flow the advantage would be with Nebraska, since 412 is the point at which 25 per cent of the flow would first equal the 103 second feet which on a priority basis would go to Wyoming. On the next 1,114 second feet the advantage would be with Wyoming, since Wyoming's share on a priority basis would equal 25 per cent of the flow only after the total flow had reached 1,526 second feet.

Accordingly, we conclude that the flat percentage method recommended by the Special Master is the most equitable method of apportionment. We have considered the arguments advanced against the apportionment being made on the basis of 25-75 per cent. But we do not believe the evidence warrants a change in those percentages.

Wyoming urges reductions in the requirements for the Whalen to Tri-State Dam section of the river. As we have seen, the seasonal requirement, as found by the Special Master, is 1,027,000 acre feet. Wyoming thinks this should be reduced 85,000 acre feet by lowering the estimates for the Interstate, Tri-State and Northport Canals and by eliminating the demand of Ramshorn. Wyoming would reduce Interstate by 60,000 acre feet—15,000 on account of alleged excessive acreage, 27,000 on account of possible large winter diversions to Lake Minatare and Lake Alice, 18,000 on account of water which can be pumped from wells. We have examined the evidence on the alleged excessive acreage and the Lake Minatare and Lake Alice diversions and are satisfied that Wyoming has not made a showing sufficient to sustain her exceptions. It would serve no useful purpose to burden this opinion with the details. As respects the desired reduction because of pumping little need be said. In 1940 Interstate received only 45 per cent of its requirements. Wyoming estimates that the water pumped during that year was the equivalent of 18,000 acre feet at the headgate. It is diffi-

cult to see the equity in Wyoming's demand that Interstate's quota from the river be reduced by that amount. These irrigators bore their share of the cost of the operation and maintenance of Pathfinder and Guernsey and also paid the cost of the pumping. It is not just that they forego the benefits of the water for which they are paying, give the benefits to others, and take on the additional expense of pumping.

We have carefully considered Wyoming's claim that excessive estimates have been allowed Tri-State and Northport. As respects Tri-State there is a sharp conflict over the evidence concerning the acreage served. While the acreage of 52,300 acres computed by the Special Master is liberal, it has support in the evidence and Wyoming has not made a sufficient showing which warrants a reduction from that figure. It is true that the Tri-State acreage expanded as the result of Warren Act contracts and that a demand on natural flow to supply that aggregate acreage on its face seems inequitable in relation to canals junior to Tri-State which have no storage rights. But the Special Master found that the supply for the Wyoming private canals in this section had also been enhanced through the operation of Pathfinder and return flows resulting from the use of storage water. We do not believe sufficient disparity has been shown to warrant an adjustment in the decree. The Special Master allowed 30 per cent for loss in the Tri-State Canal. Wyoming claims that should be reduced because water intercepted in the Tri-State Canal for delivery to Northport does not suffer as great a loss since it is not carried as far. But Wyoming's witness reached the same view as the Special Master. And no proof is advanced by Wyoming which undermines that conclusion. Moreover, an examination of the points at which the return flows are intercepted indicates that the room for difference of opinion is not as great as Wyoming suggests.

Wyoming's contention that in determining the requirements of the canals in this section Ramshorn should not have been allotted 3,000 acre feet per annum presents different problems. Ramshorn receives its supply through Tri-State. The Special Master in computing the requirements of Tri-State deducted the return flows below the Tri-State Dam which were intercepted and utilized by the canal.<sup>20</sup> But there apparently was not deducted the accretions from Spring Creek, a tributary which flows into the river below the Wyoming-Nebraska line and above Tri-State Dam.<sup>21</sup> The average run-off of Spring Creek from May to September during the 1932-1940 period appears to have been 2,855 acre feet. We agree that this accretion should be taken into account in computing Nebraska's requirement of water from Wyoming.

The Special Master found that the priorities of the canals in this section, the acres served, the requirements in second feet (one second foot for each 70 acres), and the acre feet requirement per season were as follows:

<i>Canal</i>	<i>Priority</i>	<i>Acres</i>	<i>Second Feet</i>	<i>Acre Feet</i>
1. Wyo.:				
Grattan.....	11/1/82	614	9	1,639
North Platte.....	9/22/83	3,153	45	8,418
Rock Ranch.....	Spring/84	2,250	32	5,908
Pratt Ferris.....	5/22/86	1,200	17	3,204
		7,217	103	19,169
2. Neb.:				
Tri-State.....	9/16/87	51,000	729	1,178,500
Mitchell.....	6/20/90	13,633	195	35,000
		64,633	924	213,500
3. Wyo.:				
Burbank.....	11/6/91	292	5	833
Torrington.....	11/28/91	2,061	29	5,503
Lucerne.....	2/21/93	4,221	60	11,270
		6,574	94	17,606

See footnotes at end of table.

<sup>20</sup> They are shown on Wyoming's Exhibit No. 149.

<sup>21</sup> They are shown on Wyoming's Exhibit No. 150.

<i>Canal</i>	<i>Priority</i>	<i>Acres</i>	<i>Second Feet</i>	<i>Acre Feet</i>
4. Neb.:				
Ramshorn.....	3/20/93	994	14	3,000
Gering.....	3/15/97	13,500	193	36,000
		14,494	207	39,000
5. Wyo.:				
Burbank.....	3/12/98	20	1	53
Narrows.....	11/13/99	110	2	334
Lingle-Hill (via Interstate).....	9/6/01	11,500	164	34,299
		11,630	167	34,686
6. Neb.: Tri-State.....	4/14/02	1,300	19	4,550
7. Wyo.:				
Wright.....	4/23/02	110	2	303
Grattan.....	1/27/04	70	1	187
Murphy.....	4/2/04	100	1	275
Grattan.....	12/2/04	639	9	1,706
		919	13	2,471
8. Wyo.:				
Lingle-Hill (via Interstate).....	12/6/04	2,300	33	11,655
Pathfinder Irrigation District (via Interstate) Wyoming lands.....	12/6/04	2,300	33	9,844
Goshen Irrigation District (via Ft. Laramie).....	12/6/04	50,000	714	137,500
		54,600	780	158,999
9. Neb.:				
Pathfinder Irrigation District (via Interstate) Nebraska Lands.....	12/6/04	<sup>2</sup> 84,950	1,213	363,586
Gering-Ft. Laramie Irrigation District (via Ft. Laramie).....	12/6/04	53,500	764	147,100
Northport.....	12/6/04	<sup>3</sup> 4,548	65	19,100
		142,998	2,042	529,786
10. Wyo.:				
Rock Ranch.....	1/3/10	822	12	2,195
French.....	2/20/11	504	7	1,346
		1,326	19	3,541
11. Neb.: French.....	12/21/11	770	11	2,056
12. Wyo.: French.....	7/14/15	147	2	392
13. Neb.:				
French.....	9/11/15	213	3	569
French.....	3/20/20	42	1	102
		255	4	167

<sup>1</sup> The value for Tri-State assumes that the historical interceptions (35,500 acre feet annually) by this canal below the state line will in the future be delivered to the Northport District, in compliance with the decree in *United States v. Tilley*, 124 F. 2d 850.

<sup>2</sup> 93,000 acres minus 10,748 acres supplied by winter diversions to inland reservoirs and minus 2,300 acres of Wyoming lands included in Pathfinder District. Second feet and acre feet requirements are adjusted correspondingly.

<sup>3</sup> This canal supplies a total of 13,000 acres, but 8,452 acres will be supplied in the future by interception below state line. See Note 1.

Nebraska contends that the requirements of Tri-State should be 196,000 acre feet and that the allotment to the Gering-Ft. Laramie Irrigation District should be 169,165 acre feet. The argument for the increase for Tri-State is based on the theory that Nebraska has not been given in this section the same margin of safety which was allowed Wyoming in the Pathfinder-Whalen section of the river. But Nebraska has not shown that this allowance was less accurate than the ones made to Wyoming in the other section of the river. And our reading of the record convinces us that the allowances to Nebraska are as liberal as those to Wyoming and that an increase to either would not be justified in view of the overappropriation of the natural flow. The argument of an increase in the allotment to the Gering-Ft. Laramie Irrigation District points out that it receives the same headgate allotment as the Goshen Irrigation District in Wyoming which supplies the Wyoming land under this canal and that the lower area should be given a substantially larger headgate allotment to compensate for canal losses in the upper section of the canal. This argument, however, is not supported by evidence. The same allowance for the lands in each State is supported by the record. For there is evidence that the delivery to the lands in each State in relation to headgate diversions is substantially the same.

The United States contends that the allowance of 65 second feet for the Northport Canal is error. As the Special Master indicated, the 65 second feet allowance is the amount necessary to serve the acreage under that canal which will not be served by return flow intercepted and transported for Northport by the Tri-State Canal. But as the United States points out, return flow is not steady during the irrigation season. It presented a study showing that in the seven best years from 1930 to 1940 the average return flow intercepted by Tri-State on May 1 was only 23 second feet, averaged only 43.9 second feet for the

month of May, averaged 135 second feet for the month of July and did not reach its peak of 200 second feet until September 30, the end of the irrigation season. On that basis Northport could irrigate very little of its acreage from return flow in the first part of the irrigation season, though at the end of the season it could irrigate all. The second feet requirement of Northport is 186. We conclude that Northport should be entitled to use that amount of flow during the season to meet its requirement of 19,100 acre feet. The 186 second feet will, however, be subject to reduction by the amount of return flow intercepted by the Tri-State Canal for delivery to Northport at any given point of time.

As we have noted,<sup>22</sup> the Special Master recommends that for this part of the decree segregation of natural flow and storage water be determined in accordance with the formula and data appearing in U. S. Exhibit 204A, unless and until Nebraska, Wyoming and the United States agree upon a modification or upon another formula. Wyoming contends that it is impossible to determine what is natural flow and what is storage water in the Whalen-Tri-State Dam section of the river from day to day. The problem is a perplexing one. Physical segregation is, of course, impossible. But on the basis of the record we think that it is feasible to determine what portion of the flow at a given point is storage water and what portion is natural flow. Precision is concededly impossible. But approximations are possible; and they are sufficient for the administration of the river under the decree. It is true, as Wyoming says, that in order to segregate storage water and natural flow, losses by evaporation must be determined and, since those losses vary from section to section, the number of days required for the water to travel from one point to another must be known. The time required for water to travel from Alcova to Nebraska varies under different conditions. As an expert of the Bureau of

<sup>22</sup> Note 19, *supra*.

Reclamation testified, since that time interval varies with the amount of water flowing in the river, it is difficult to make a formula which reflects it. Indeed U. S. Exhibit 204A does not include the time lag element and therefore does not supply all the data necessary in the segregation of natural flow and storage water at Whalen. But this expert testified that although it had not been possible to reflect the time interval in a formula, an adjustment for it was made:

“Q.—In making this time interval correction, you use your best judgment, based upon your experience on the river and your observation of what conditions were in the river, and, using that judgment, you arrive at the figure for this time interval correction, do you not?”

“A.—Yes, it is a more or less arbitrary correction . . .”

But while the adjustment is an arbitrary one, corrections can be made and are made so that over a short period of days the segregation is balanced.<sup>23</sup> And the

<sup>23</sup> This expert for the Bureau of Reclamation, C. F. Gleason, testified:

“Q.—If there is an error in a series of four or five days as to the amount of natural flow in relation to the storage, that might mean that a natural flow canal might get more or might get less than its due allotment of water, isn't that right?”

“A.—That might be true over a very short period. However, the corrections made which are shown in the work sheets as plus or minus storage in that section of the river are made to balance out in such a way that over the season there is no robbery of natural flow or storage and no particular accrual to it as a result of this method of calculation.

“Q.—That is, an attempt is made to balance out, according to your judgment of what ought to be the amount of natural flow and storage at the State line, is that right?”

“A.—It is not balanced out according to judgment. It is balanced out mathematically.

“Q.—But it is balanced out mathematically upon what factors?”

“A.—Upon the factors of plus and minus channel storage, if you want to use that term. If we plus storage into the channel some days,

evidence is that though this adjustment is only approximate and lacks precision, it is sufficiently accurate for administrative purposes. For this expert of the Bureau of Reclamation testified:

“Q.—But, giving consideration to all of these factors, there isn’t any way of making any accurate determination, day to day, of the actual balance of natural flow and storage at either Guernsey or the Nebraska-Wyoming line, is there?

“A.—That term ‘accurate’ depends upon what is accurate.

“Q.—I mean this, Mr. Gleason—if there is 5,000 second feet of water arriving at Guernsey, is there any way that you can correctly and accurately determine that 2,500, for instance, is storage and that 2,500 is natural flow?

“A.—Oh, I believe that we arrive at a figure that is correct enough for administrative purposes. It must be realized that an error of ten second feet in five hundred is inevitable. All hydrographic records are inaccurate to a varying extent, and the computations based upon them, and based upon assumptions as to evaporation in preparing formulae, so the judgment of the men doing it enters into the final figure, and the most we can hope to do is to arrive at daily figures which, summed up over a period of time, will more

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we minus the total of the same amount later on to make it balance out.

“Q.—That is to say, and you just testified in that way, that your balancing out of these plus and minus quantities that you put in is based upon your judgment of how much natural flow and storage water is at the State line, in view of the conditions and the quantities of natural flow and storage at Alcova?

“A.—Yes, that is correct.

“Q.—Accordingly, the plus or minus corrections are based upon this matter of judgment.

“A.—Yes.”

more closely approximate the accurate figures than the daily figures taken individually do."

No other expert testimony undermines that conclusion.

We cannot conclude that the segregation of natural flow and storage water lacks feasibility. If a comprehensive formula can be agreed upon, it may later be incorporated in the decree.

*Gauging Stations and Measuring Devices.* The Special Master recommends that such additional gauging stations and measuring devices at or near the Wyoming-Nebraska state line be installed as are necessary for effecting the apportionment in the Whalen-Tri-State Dam section of the river and that they be constructed and maintained at the joint and equal expense of Nebraska and Wyoming. The parties take no exception to this recommendation and it will be adopted.

*Tri-State Dam to Bridgeport, Neb.* The Special Master excluded this section of the river from the apportionment on the grounds that its canals are adequately supplied from return flows and other local sources. Nebraska takes exception to that exclusion. She points out that of the 12 canals in this section which bear on our problem, two have Warren Act contracts. Nine are senior to all Wyoming appropriations except the first 103 second feet for the oldest appropriators; only about 200 second feet of Wyoming appropriations are senior to these Nebraska appropriations. Nebraska says that four of these canals had insufficient supplies during the three dry years of 1934, 1936 and 1940. And she points out that during the same periods the nine Wyoming canals, serving substantially the same kinds of areas, had excessive diversions. But it appears that other Nebraska canals in the section had excessive diversions during the same years. And the record supports the conclusion of the Special Master that seasonal supplies are adequate. He explained the shortages as due (1) to lack of coincidence between the time

and quantity of supplies and the time and extent of needs; (2) the excessive diversions by some canals at the expense of others; (3) the withdrawal of water as a matter of priority to supply senior canals in the lower section. The latter he thought would be largely eliminated due to the construction of the Kingsley and Sutherland Reservoirs.

Nebraska has not convinced us that there is error in this conclusion. Two of the canals have Warren Act contracts. In the 1931-1940 period while there was no limitation on Wyoming uses for Nebraska's benefit, the mean divertible flow passing Tri-State Dam for the May-September period was 81,700 acre feet. This is in addition to the local supplies which even during the drought period were adequate to meet the needs of the canals without calling upon up-river water.

This section will accordingly not be included in the apportionment.

*Modification of the Decree.* The Special Master recommends that the decree permit any of the parties to apply at the foot of the decree for its amendment or for further relief, and that the Court retain jurisdiction of the suit for the purpose of any order, direction, or modification of the decree or any supplementary decree that may at any time be deemed proper in relation to the subject matter in controversy. Colorado and Wyoming object to this provision. Colorado's objection that this provision places administrative burdens on the Court which we should not assume has been sufficiently answered. Wyoming's objection is in the main that a complete equitable apportionment should be made, leaving open for future consideration only the question of additional development above Whalen in Wyoming and Colorado. But our rejection of the proposal for a mass allocation disposes of this objection. And we do not think it appropriate to bar, as Wyoming suggests, applications for modifications within a period of ten years, or alternately five years, from entry of the decree.

*Ordinary and Usual Domestic and Municipal Purposes.* The Special Master reports that the parties are agreed that there should be no restriction upon the diversion from the North Platte River in Colorado or Wyoming of water for ordinary and usual domestic and municipal purposes and consumption and that nothing in the recommended decree is intended to or will interfere with such diversions and uses. Wyoming suggests that that provision cover not only diversions from the North Platte River in Colorado and Wyoming but also diversion from its tributaries in those States and that stock-watering purposes be excepted as well as ordinary and usual domestic and municipal purposes. We think those suggestions are appropriate ones. They will be adopted.

*Records of Irrigation and Storage.* The decree, as has been seen, will limit Wyoming and Colorado to the irrigation of stated acreages above Pathfinder and to storage of more than stated amounts of water in that region. The United States insists that the decree should also require Wyoming and Colorado to maintain complete and accurate records of irrigation and storage of water in those areas and to keep them available. Wyoming says that is an unnecessary provision. Colorado says that its officials already have such duties. But the record in this case reflects the need for complete and accurate records. And it seems to us desirable that such records be kept. Otherwise, neither the States nor the other interested parties can know if the acreage and storage limitations are being met. Continuous records will simplify the program of administration. The proposal is adopted.

*Importation of Water.* The decree which we enter apportions only the natural flow of the North Platte River. The United States suggests that the decree explicitly state that it does not cover any additional supply of water which may be imported into this basin from the watershed of an entirely separate stream and which presently does not

flow into the basin. To remove any possible doubt on that score the decree will contain a provision that it does not and will not affect the use of such additional supplies of water or the return flow from it. All questions concerning the apportionment of such water will await the event.

The parties may within ninety days submit the form of decree to carry this opinion into effect. Costs will be apportioned and paid as follows: The State of Colorado, one-fifth; the State of Wyoming, two-fifths; and the State of Nebraska, two-fifths.

*It is so ordered.*

MR. JUSTICE JACKSON took no part in the consideration or decision of this case.

MR. JUSTICE ROBERTS.

I am unable to agree with the court's disposition of this case. I think the decision constitutes a departure from principles long established and observed by the court in litigations between the states of the Union, and adopts a course diametrically opposed to our most recent adjudication in the field of interstate waters.<sup>1</sup> Without proof of actual damage in the past, or of any threat of substantial damage in the near future, the court now undertakes to assume jurisdiction over three quasi-sovereign states and to supervise, for all time, their respective uses of an interstate stream on the basis of past use, including, over a ten-year term, the greatest drought in the history of the region, admitting, in effect, that its allocation of privileges to the respective states will have to be revised and modified when that drought ceases and more water becomes available for beneficial use. I doubt if, in such interstate controversies, any state is ever entitled to a declaratory judgment from this court. I am sure that, on the showing in the present record, none of the states is entitled to a dec-

<sup>1</sup> *Colorado v. Kansas*, 320 U. S. 383.

laration of rights. The precedent now made will arise to plague this court not only in the present suit but in others. The future will demonstrate, in my judgment, how wrong it is for this court to attempt to become a continuing umpire or a standing Master to whom the parties must go at intervals for leave to do what, in their sovereign right, they should be able to do without let or hindrance, provided only that they work no substantial damage to their neighbors. In such controversies the judicial power should be firmly exercised upon proper occasion, but as firmly withheld unless the circumstances plainly demand the intervention of the court. Such mutual accommodations for the future as Nebraska and Wyoming desire should be arranged by interstate compact, not by litigation.

Nebraska initiated this suit on the theory that Wyoming was diverting water under Wyoming appropriations junior to Nebraska appropriations, which, at the time, were either receiving no water or an insufficient supply. Nebraska, in support of its position, attempted to prove the worth of an acre-foot of water for irrigation. But, of course, this is not the way to prove damage in such a controversy; water for beneficial use is what counts. No injury results from the deprivation of water unless a need is shown for that water for beneficial consumptive use at the time by the State claiming to have been wrongfully deprived of it. If water is not needed by downstream senior rights, the denial of water to upstream junior rights can result only in waste. No State may play dog in the manger, and build up reserves for future use in the absence of present need and present damage.

Even on Nebraska's theory, she did not see fit to implead Colorado, obviously because she despaired of showing that anything Colorado was doing, or threatening presently to do, deprived her of any right. Wyoming impleaded Colorado not on the theory that Colorado was

injuring Wyoming, or threatening so to do, but on the theory that there ought to be an apportionment of "rights" in the waters of the stream as between the three States,—an advisory judgment on the subject.

I shall first discuss the contemplated decree as it affects Colorado. The Master finds:

"Equity does not require any restriction upon or interference with present uses of water by Colorado within the North Platte Basin in North Park or any reduction in the present rate of transbasin exportation from North Park.

"Furthermore, reduction in Colorado use would not correspondingly enhance the supply of the other States. In fact there is no clear showing as to the *extent* of benefit to the North Platte Project or other Wyoming or Nebraska users of any limitation upon present uses in North Park."

The Master concludes:

"From a consideration of all the factors bearing on those equities, my judgment is that equitable apportionment does not require any interference with present uses in North Park."

After referring to possible schemes for further use of water in Colorado as constituting a threat of further depletion, he says of the threat: "It can hardly be said to be immediate." He sums up his conclusions as to Colorado as follows:

"A prohibition against further expansion of irrigation in North Park seems to me recommended by consideration of (a) the insufficiency of the present supply at best to more than satisfy the requirements of presently established uses, (b) the principle laid down in *Wyoming v. Colorado*, (c) the consonance of such limitation with the general plan of apportionment being recommended herein. At the same time to impose a permanently fixed restriction against further irrigation development in North Park would not appear justified in view of the possibility of such future increase in supply as to render it unneces-

sary. The three alternatives are (1) an outright dismissal as to Colorado, (2) denial of any present relief against that state with retention of jurisdiction to grant such relief on a later showing of such continuation of present conditions of supply as to require the conclusion that they must be accepted as the measure of dependability, (3) imposition of a limitation to present uses of water with retention of jurisdiction to release the restriction if and when the 'dry cycle' shall run its course and it appears that the water supply has become such as to justify further expansion of irrigation in North Park. A reasonable argument can be made for any of these three alternatives. My recommendation in line with the third alternative is that Colorado be limited to the irrigation of 135,000 acres, to the accumulation annually of 17,000 acre feet of storage water, and the exportation of 6,000 acre feet per annum to the South Platte basin."

In the proposed decree, he would enjoin Colorado in accordance with this recommendation although, confessedly, Colorado is not diverting or contemplating diversion of the waters in question. A more gratuitous interference with a quasi-sovereign State I cannot imagine. It would disregard all that we have repeatedly said to the effect that a State should not be enjoined by this court at the suit of a sister State unless she is inflicting, or threatening immediately to inflict, grave and substantial damage upon the complainant. I cannot imagine that, as between private parties, an injunction would go against one who is not doing, or immediately threatening to do, harm to the complainant. The court is simply taking Colorado under its wing and proposes to act as guardian of the State in respect to the waters of the North Platte within her borders.

One need only examine the Master's report to determine that Nebraska's case against Wyoming stands no better than that against Colorado.

This court stated, in *Colorado v. Kansas*, 320 U. S. 383, 393: "Such a controversy as is here presented is not to be determined as if it were one between two private

riparian proprietors or appropriators." Nor is it to be determined by the relative priorities of the users in the upper and the lower States. Yet that is what in effect Nebraska sought by her complaint. She is not awarded the relief she asked but instead the so-called "natural flow" water is apportioned in percentages between Wyoming and Nebraska. This is done in spite of the fact that the Master finds that Nebraska needs none of the natural flow which passes the Tri-State Dam for lands lying below that point but has ample water for those lands, regardless of any such flow. Without a showing of need for water for beneficial use and, in spite of the fact that some of the water flowing past the Tri-State Dam is found now to go to waste, an apportionment is made between Wyoming and Nebraska. The Master's findings show that, under the heretofore uniform test, Nebraska has not proved such damage as would entitle her now to relief. The table quoted in footnote 4 of the court's opinion demonstrates that during a thirty-year period, while irrigation did not increase materially in Colorado and increased about one-third in Wyoming, Nebraska more than doubled her acreages under irrigation. Speaking of Nebraska agriculture's dependence on irrigation, the Master says:

"On the other hand, when scanned for evidence of serious drouth damage since 1931, the statistics are equivocal. It appears that there was a rather sharp reduction in the production of alfalfa and sugar beets, but the indication is that this was due to a reduction of acreage rather than of rate of yield. While there was some decline in the production rate of alfalfa, there was a rise in the rate for sugar beets. The acreages devoted to beans and potatoes increased to very closely offset the reduction in beets and alfalfa, the total acreages devoted to the four crops for the three five-year periods, being 124,281, 122,332, and 122,130 respectively. The large increase in total production of beans and potatoes should also be noted. The statistics, taken all in all, are, to say the least,

inconclusive as to the existence or extent of damage to Nebraska by reason of the drouth or by reason of any deprivation of water by wrongful uses in Wyoming or Colorado.

"Nebraska makes no strong claim for its showing in this regard. Her brief says:

' . . . the factors involved in the crop statistics which cannot be eliminated largely distort the picture and make it difficult to show one way or the other the effect and results of the shortage of irrigation water upon crop production. However, we believe that when the statistics are properly considered in the light of other factors, they indicate that crop production is seriously damaged when the water supply is low.'

"Another apparent demonstration of the importance of the part played by irrigation in the economic development of western Nebraska may be seen in its Exhibits 433 and 434, in which the growth of population in eight counties in which irrigation has been practiced is compared with that of six counties without irrigation, the latter lying immediately east and south of the irrigated group. The first or irrigated group of counties shows an increase in population in the 40-year period between 1890 and 1930 of 131 per cent. The second, the nonirrigated group, for the same period shows a population loss of three per cent. No attempt, however, is made to attribute this lack of growth in the second group to anything done in Wyoming or Colorado."

Again the Master says:

"It is of course obvious in general and without any detailed proof that in an arid or semi-arid country deprivation of water for irrigation in time of need cannot be otherwise than injurious to the area deprived. The weakness, if such there be, in Nebraska's proof is uncertainty as to the *extent* of any invasion of her equitable share except as measured by diversions 'out of priority' and uncertainty as to the *extent* of her injury consequent upon the alleged violation of her equitable rights, except as measured by the dollar value assigned to the water lost to her through such diversions. If to sustain her burden of proof Nebraska must establish not only violations of

her priorities or infringement otherwise on her equitable share by the other States, but also that as a result she has suffered injury of great magnitude in the broad sense of serious damage to her agriculture or industries or observable adverse effects upon her general economy, prosperity or population, then her proof has failed, for there is no clear evidence of any of these things." (Italics in Master's report.)

Further the Master finds:

"Another factor favoring Nebraska is that there will commonly be accidental water in substantial quantities passing the state line above that allocated to the State. Even during the dry cycle and with no restriction on Wyoming uses, the usable water passing Tri-State Dam averaged in the May-September period 81,700 acre feet. More than half of this flow, however, occurred in May and June with comparatively little in August and September. The quantity is perhaps too uncertain to be considered of great importance. It is a minor factor in the balancing of equities between the States."

Thus it is apparent that of the very natural flow of water with which the Master is dealing some of it went to waste in the area he considered critical. In other words, there was more water for Nebraska than she turned to beneficial use even in the drought years.

As respects both defendants the decree makes a provisional adjustment based upon drought conditions, with the understanding that if conditions change, by reason of events not now envisaged, the defendants may again come to this court for another provisional arrangement which shall stand until some party to the decree thinks that a further revision should be made. Thus three States, with respect to their quasi-sovereign rights, will be in tutelage to this court henceforth.

Such controversies between States are not easily put to repose. Even when judicial enforcement of rights is required, the attempt finally to adjudicate them often proves abortive. Our reports afford evidence of this fact. Kan-

sas and Colorado came here twice, at the instance of Kansas, in a dispute over the flow of the Arkansas River.<sup>2</sup> In a case presenting, on the whole, less difficulty than the present one this court entered a decree June 5, 1922,<sup>3</sup> only to find it necessary to revise it on October 9, 1922.<sup>4</sup> But the controversy would not down. The parties came back here on three occasions because of misunderstandings and disagreements with respect to the effect of our decree.<sup>5</sup>

The controversy with respect to the diversion of the waters of Lake Michigan seemed to require a decree conditioned upon, and containing provisions with respect to, future conduct. The difficulty of administering that decree is evidenced by the repeated appearance of the parties in this court.<sup>6</sup>

Experience teaches the wisdom of the rule we have so often announced, that, in such cases, the complaining State must show actual or immediately threatened damage of substantial magnitude to move this court to grant relief; and that, until such showing is made, the court should not interfere. The court, as I think, now departs from this course.

The bill should be dismissed.

MR. JUSTICE FRANKFURTER and MR. JUSTICE RUTLEDGE join in this opinion.

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<sup>2</sup> *Kansas v. Colorado*, 206 U. S. 46; *Colorado v. Kansas*, 320 U. S. 383.

<sup>3</sup> *Wyoming v. Colorado*, 259 U. S. 496.

<sup>4</sup> *Id.* 260 U. S. 1.

<sup>5</sup> *Id.* 286 U. S. 494; 298 U. S. 573; 309 U. S. 572.

<sup>6</sup> *Wisconsin v. Illinois*, 278 U. S. 367; 281 U. S. 179; 289 U. S. 395; 309 U. S. 569; 311 U. S. 107; 313 U. S. 547.

## DECREE.

(ENTERED OCTOBER 8, 1945.)

This cause having been heretofore submitted on the report of the Special Master and the exceptions of the parties thereto, and the Court being now fully advised in the premises:

It is ordered, adjudged and decreed that:

I. The State of Colorado, its officers, attorneys, agents and employees, be and they are hereby severally enjoined

(a) From diverting or permitting the diversion of water from the North Platte River and its tributaries for the irrigation of more than a total of 135,000 acres of land in Jackson County, Colorado, during any one irrigation season;

(b) From storing or permitting the storage of more than a total amount of 17,000 acre feet of water for irrigation purposes from the North Platte River and its tributaries in Jackson County, Colorado, between October 1 of any year and September 30 of the following year;

(c) From exporting out of the basin of the North Platte River and its tributaries in Jackson County, Colorado, to any other stream basin or basins more than 60,000 acre feet of water in any period of ten consecutive years reckoned in continuing progressive series beginning with October 1, 1945.

II. Exclusive of the Kendrick Project and Seminole Reservoir the State of Wyoming, its officers, attorneys, agents and employees, be and they are hereby severally enjoined

(a) From diverting or permitting the diversion of water from the North Platte River above the Guernsey Reservoir and from the tributaries entering the North Platte River above the Pathfinder Dam for the

irrigation of more than a total of 168,000 acres of land in Wyoming during any one irrigation season.

(b) From storing or permitting the storage of more than a total amount of 18,000 acre feet of water for irrigation purposes from the North Platte River and its tributaries above the Pathfinder Reservoir between October 1 of any year and September 30 of the following year.

III. The State of Wyoming, its officers, attorneys, agents and employees, be and they are hereby severally enjoined from storing or permitting the storage of water in Pathfinder, Guernsey, Seminoe and Alcova Reservoirs otherwise than in accordance with the relative storage rights, as among themselves, of such reservoirs, which are hereby defined and fixed as follows:

First, Pathfinder Reservoir;

Second, Guernsey Reservoir;

Third, Seminoe Reservoir; and

Fourth, Alcova Reservoir;

Provided, however, that water may be impounded in or released from Seminoe Reservoir, contrary to the foregoing rule of priority operation for use in the generation of electric power when and only when such storage or release will not materially interfere with the administration of water for irrigation purposes according to the priority decreed for the French Canal and the State Line Canals.

IV. The State of Wyoming, its officers, attorneys, agents and employees be and they are hereby severally enjoined from storing or permitting the storage of water in Pathfinder, Guernsey, Seminoe or Alcova Reservoirs, and from the diversion of natural flow water through the Casper Canal for the Kendrick Project between and including May 1 and September 30 of each year otherwise than in accordance with the rule of priority in relation to the appropriations of the Nebraska lands supplied by the French Canal and by the State Line Canals, which said

Nebraska appropriations are hereby adjudged to be senior to said four reservoirs and said Casper Canal, and which said Nebraska appropriations are hereby identified and defined, and their diversion limitations in second feet and seasonal limitations in acre feet fixed as follows:

<i>Lands</i>	<i>Canal</i>	<i>Limitation in Sec. Feet</i>	<i>Seasonal Limitation in Acre Ft.</i>
Tract of 1,025 acres.....	French .....	15	2,227
Mitchell Irrigation District.....	Mitchell .....	195	35,000
Gering Irrigation District.....	Gering .....	193	36,000
Farmers Irrigation District.....	Tri-State .....	748	183,050
Ramshorn Irrigation District.....	Ramshorn .....	14	3,000

V. The natural flow in the Guernsey Dam to Tri-State Dam section between and including May 1 and September 30 of each year, including the contribution of Spring Creek, be and the same hereby is apportioned between Wyoming and Nebraska on the basis of twenty-five per cent to Wyoming and seventy-five per cent to Nebraska, with the right granted Nebraska to designate from time to time the portion of its share which shall be delivered into the Interstate, Fort Laramie, French and Mitchell Canals for use on the Nebraska lands served by these canals. The State of Nebraska, its officers, attorneys, agents and employees, and the State of Wyoming, its officers, attorneys, agents and employees, are hereby enjoined and restrained from diversion or use contrary to this apportionment, provided that in the apportionment of water in this section the flow for each day, until ascertainable, shall be assumed to be the same as that of the preceding day, as shown by the measurements and computations for that day, and provided further, that unless and until Nebraska, Wyoming and the United States agree upon a modification thereof, or upon another formula, reservoir evaporation and transportation losses in the segregation of natural flow and storage shall be computed in accordance with the following formula taken from United States' Exhibit 204A:

*Reservoir Evaporation Losses.**Seminole, Pathfinder and Alcova Reservoirs.*

Evaporation will be computed daily based upon evaporation from Weather Bureau Standard 4 foot diameter Class "A" pan located at Pathfinder Reservoir. Daily evaporation will be multiplied by area of water surface of reservoir in acres and by co-efficient of 70% to reduce pan record to open water surface.

*Guernsey Reservoir.*

Compute same as above except use pan evaporation at Whalen Dam.

*River Carriage Losses.*

River carriage losses will be computed upon basis of area of river water surface as determined by aerial surveys made in 1939 and previous years and upon average monthly evaporation at Pathfinder Reservoir for the period 1921 to 1939, inclusive, using a co-efficient of 70% to reduce pan records to open water surface.

Daily evaporation losses in second-feet for various sections of the river are shown in the following table:

TABLE

<i>River Section</i>	<i>Area Acres</i>	<i>Daily Loss—Second Feet</i>				
		<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>
Alcova to Wendover.....	8,360	53	76	87	76	56
Guernsey Res. to Whalen..	560	4	5	6	5	4
Whalen to State Line.....	2,430	16	22	25	22	16

Above table is based upon mean evaporation at Pathfinder as follows: May .561 ft.; June .767 ft.; July .910 ft.; Aug. .799 ft.; Sept. .568 ft. Co-efficient of 70% to reduce pan record to open water surface.

Above table does not contain computed loss for section of river from Pathfinder Dam to head of Alcova Reservoir (area 170 acres) because this area is less than submerged area of original river bed in Alcova Reservoir, and is, therefore, considered as off-set.

Likewise the area between Seminoe Dam and head of Pathfinder Reservoir is less than area of original river bed through Pathfinder Reservoir—considered as off-set. Evaporation losses will be divided between natural flow and storage water flowing in any section of river channel upon a proportional basis. This proportion will ordinarily be determined at the upper end of the section except under conditions of intervening accruals or diversions that materially change the ratio of storage to natural flow at the lower end of the section. In such event the average proportion for the section will be determined by using the mean ratio for the two ends of the section.

In the determination of transportation losses for the various sections of the stream, such time intervals for the passage of water from point to point shall be used as may be agreed upon by Nebraska, Wyoming and the United States, or in the absence of such agreement, as may be decided upon from day to day by the manager of the government reservoirs, with such adjustments to be made by said manager from time to time as may be necessary to make as accurate a segregation as is possible.

VI. This decree is intended to and does deal with and apportion only the natural flow of the North Platte River. Storage water shall not be affected by this decree and the owners of rights therein shall be permitted to distribute the same in accordance with any lawful contracts which they may have entered into or may in the future enter into, without interference because of this decree.

VII. Such additional gauging stations and measuring devices at or near the Wyoming-Nebraska state line, if any, as may be necessary for making any apportionment herein decreed, shall be constructed and maintained at the joint and equal expense of Wyoming and Nebraska to the extent that the costs thereof are not paid by others.

VIII. The State of Wyoming, its officers, attorneys, agents and employees be and they are hereby severally

enjoined from diverting or permitting the diversion of water from the North Platte River or its tributaries at or above Alcova Reservoir in lieu of or in exchange for return flow water from the Kendrick Project reaching the North Platte River below Alcova Reservoir.

IX. The State of Wyoming and the State of Colorado be and they hereby are each required to prepare and maintain complete and accurate records of the total area of land irrigated and the storage and exportation of the water of the North Platte River and its tributaries within those portions of their respective jurisdictions covered by the provisions of paragraphs I and II hereof, and such records shall be available for inspection at all reasonable times; provided, however, that such records shall not be required in reference to the water uses permitted by paragraph X hereof.

X. This decree shall not affect or restrict the use or diversion of water from the North Platte River and its tributaries in Colorado or Wyoming for ordinary and usual domestic, municipal and stock watering purposes and consumption.

XI. For the purposes of this decree:

(a) "Season" or "seasonal" refers to the irrigation season, May 1 to September 30, inclusive;

(b) The term "storage water" as applied to releases from reservoirs owned and operated by the United States is defined as any water which is released from reservoirs for use on lands under canals having storage contracts in addition to the water which is discharged through those reservoirs to meet natural flow uses permitted by this decree;

(c) "Natural flow water" shall be taken as referring to all water in the stream except storage water;

(d) Return flows of Kendrick Project shall be deemed to be "natural flow water" when they have reached the North Platte River, and subject to the same diversion and use as any other natural flow in the stream.

XII. This decree shall not affect:

(a) The relative rights of water users within any one of the States who are parties to this suit except as may be otherwise specifically provided herein;

(b) Such claims as the United States has to storage water under Wyoming law; nor will the decree in any way interfere with the ownership and operation by the United States of the various federal storage and power plants, works and facilities.

(c) The use or disposition of any additional supply or supplies of water which in the future may be imported into the basin of the North Platte River from the watershed of an entirely separate stream, and which presently do not enter said basin, or the return flow from any such supply or supplies.

(d) The apportionment heretofore made by this Court between the States of Wyoming and Colorado of the waters of the Laramie River, a tributary of the North Platte River;

(e) The apportionment made by the compact between the States of Nebraska and Colorado, apportioning the water of the South Platte River.

XIII. Any of the parties may apply at the foot of this decree for its amendment or for further relief. The Court retains jurisdiction of this suit for the purpose of any order, direction, or modification of the decree, or any supplementary decree, that may at any time be deemed proper in relation to the subject matter in controversy. Matters with reference to which further relief may hereafter be sought shall include, but shall not be limited to, the following:

(a) The question of the applicability and effect of the Act of August 9, 1937, 50 Stat. 564, 595-596, upon the rights of Colorado and its water users when and if water hereafter is available for storage and use in connection with the Kendrick Project in Wyoming.

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(b) The question of the effect upon the rights of upstream areas of the construction or threatened construction in downstream areas of any projects not now existing or recognized in this decree;

(c) The question of the effect of the construction or threatened construction of storage capacity not now existing on tributaries entering the North Platte River between Pathfinder Reservoir and Guernsey Reservoir;

(d) The question of the right to divert at or above the headgate of the Casper Canal any water in lieu of, or in exchange for, any water developed by artificial drainage to the river of sump areas on the Kendrick Project;

(e) Any question relating to the joint operation of Pathfinder, Guernsey, Seminole and Alcova Reservoirs whenever changed conditions make such joint operation possible;

(f) Any change in conditions making modification of the decree or the granting of further relief necessary or appropriate.

XIV. The costs in this cause shall be apportioned and paid as follows: the State of Colorado one-fifth; the State of Wyoming two-fifths; and the State of Nebraska two-fifths. Payment of the fees and expenses of the Special Master has been provided by a previous order of this Court.

XV. The clerk of this Court shall transmit to the chief magistrates of the States of Colorado, Wyoming, and Nebraska, copies of this decree duly authenticated under the seal of this Court.