

The later decisions have all tended in one direction and have resulted in establishing the rule for which the irrigation company contends, and which the Circuit Court of Appeals applied. These decisions frankly deal with the prior situation as we have described it, reaffirm the principles announced in the early cases of *Stowell v. Johnson* and *Sullivan v. Northern Spy Mining Co.*, point out the dicta and uncertainty in the opinions delivered in several cases, hold that the common-law rule is not applicable to the conditions in Utah, and show that it never was definitely adopted or followed there. *Mountain Lake Mining Co. v. Midway Irrigation Co.*, 47 Utah, 346; *Bastian v. Nebeker*, 49 Utah, 390; *Peterson v. Eureka Hill Mining Co.*, 53 Utah, 70; *Stookey v. Green*, 53 Utah, 311; *Rasmussen v. Moroni Irrigation Co.*, 56 Utah, 140; *Peterson v. Lund*, 57 Utah, 162; *Horne v. Utah Oil Refining Co.*, 59 Utah, 279.

We conclude, therefore, that the decree of the Circuit Court of Appeals was right.

*Decree affirmed.*

MR. JUSTICE SUTHERLAND did not take part in the consideration or decision of this case.

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STATE OF OKLAHOMA *v.* STATE OF TEXAS.

UNITED STATES, INTERVENER.

IN EQUITY.

No. 18, Original. Argued April 25, 26, 27, 1922.—Decided January 15, 1923.

1. The boundary line between the States of Texas and Oklahoma along the Red River, as determined by the Treaty of 1819 between the United States and Spain, is along the southerly bank of the stream. P. 625.
2. There is a material difference between taking the bank of a river as a boundary and taking the river itself. P. 626.

3. The bank intended by the treaty, is the water-washed and relatively permanent elevation or acclivity at the outer line of the river bed, which separates the bed from the adjacent upland, whether valley or hill, and serves to confine the waters within the bed and preserve the course of the river. P. 631.
4. The boundary intended is on and along this bank at the average or mean level attained by the waters in the periods when they reach and wash the bank without overflowing it. P. 632.
5. The bed includes all of the area which is kept practically bare of vegetation by the wash of the waters of the river from year to year in their onward course, although parts of it are left dry for years at a time; but excludes lateral valleys having the characteristics of relatively fast land and usually covered by upland vegetation, although temporarily overflowed in exceptional instances when the river is at flood. P. 632.
6. The provisions of the Treaty of 1819, *supra*, that "the use of the waters, and the navigation of the Sabine to the sea, and of the said Rivers Roxo [Red] and Arkansas, throughout the extent of said boundary, on their respective banks, shall be common to the respective inhabitants of both nations", doubtless reserve and secure right of access to the water at all stages for enjoyment of the permitted use (the part of Red River now in question, however, is not navigable,) but they afford no reason for regarding the boundary as below the bank or within the river bed. P. 632.
7. Applying the treaty to the physical situation here revealed by the evidence, the Court finds that the boundary should be located along the southerly of the two water-worn banks designated as the "cut banks," which separate almost uniformly the sand bed of the river from land in its valley, on either side, overflowed at times, but having the physical characteristics of upland and which has heretofore been dealt with as such by the United States and Texas, respectively. P. 633.
8. The doctrine of erosion, accretion and avulsion applies to boundary rivers, including the Red River, which changes rapidly and materially in flood. P. 636. *Nebraska v. Iowa*, 143 U. S. 359.
9. The party asserting that the course has changed by avulsion since the treaty became effective, in 1821, has the burden of proving it. P. 638.
10. Evidence of avulsive change, *held*, insufficient in some instances and sufficient in others. P. 638.

IN this suit the court first decided that the boundary between Oklahoma and Texas is along the south bank of Red River (256 U. S. 70), and made an interlocutory decree for the taking of evidence and for a further hearing to determine what constitutes the south bank and the proper location of the boundary line along it (256 U. S. 608).<sup>1</sup> These matters are now disposed of by the present opinion.<sup>1</sup>

*Mr. W. W. Dyar*, Special Assistant to the Attorney General, with whom *Mr. Solicitor General Beck*, *Mr. Assistant Attorney General Riter*, and *Mr. John A. Fain*, Special Assistant to the Attorney General, were on the brief, for the United States.

On the face of *Indiana v. Kentucky*, 136 U. S. 479, and *Arkansas v. Tennessee*, 246 U. S. 158, there would seem to be a distinction between the case in which the boundary follows a bank and the case in which it follows the main channel of navigation. If *Indiana v. Kentucky* controls the former class of cases, then any changes in the location of the bank of Red River since the date of the treaty would not affect the position of the boundary line.

Red River, through a large part of its course, has, in a broad sense, two sets of banks in many places, namely, flood plain banks and bluff banks; and the first question to be solved is which of these banks on the south side is to be taken as the boundary line. The real question is, Where is the fixed, permanent, stable south bank of Red River, contemplated as a permanent boundary, marking for all time the sovereignty and jurisdiction of sovereign States?

The bank of a river is that elevation of land which contains its waters at the highest flow. The rule seems to be settled that when a conveyance is made of land to a

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<sup>1</sup> For the other decisions and orders reported in this case, see: 256 U. S. 602 et seq; 257 U. S. 609, 611, 616; 258 U. S. 574, 606; 259 U. S. 565.

stream, on a stream, or by a stream, the grantee takes to low water mark of the stream, including the flats between the bank and the low water mark, but a different rule is found if the grant is to a bank, or on the bank, or to a monument on the bank. In such case, the grantee is limited to the high water mark of the river on the bank in question. *Thomas v. Hatch*, 3 Sumner, 170; *Howard v. Ingersoll*, 13 How. 381; *Alabama v. Georgia*, 23 How. 505; *People v. Board of Supervisors*, 125 Ill. 9; Gould on Waters, 3d ed., 105; *State v. Longfellow*, 169 Mo. 109; *Sun Dial Ranch v. May Land Co.*, 61 Oreg. 205; 17 Amer. State Papers, 91; *Paine Lumber Co. v. United States*, 55 Fed. 854; *Minor's Heirs v. New Orleans*, 115 La. 301; *Gibbs v. Williams*, 25 Kans. 214; *Stone v. Augusta*, 46 Me. 127; *Hatch v. Dwight*, 17 Mass. 289; *Ventura Land Co. v. Meiners*, 136 Cal. 284; *Anaheim Union Water Co. v. Fuller*, 150 Cal. 327; *Morgan v. Livingston*, 6 Martin (La.), 229.

The rule is even stronger and applies with greater force when the bank defined is a boundary line between States or Nations. *Kingman v. Sparrow*, 12 Barb. 201.

The water flowing in Red River a large part of the year is bordered upon each side in many places by broad, low-lying flood plains which Oklahoma and the United States contend lie within the true fast-land banks and in the larger sense comprise a part of the river itself. If that contention is upheld, it is apparent that during considerable portions of each year some parts of the Texas land along the boundary will not be in contact with the waters of Red River.

The treaty does not in terms or by its natural import secure to the inhabitants of Texas any rights running with the lands bordering upon the stream. The right secured was simply a personal right, extending to all the inhabitants of the Spanish possessions, to use and navigate the waters along and coterminous with the common

boundary. Those owning or occupying lands fronting upon Red River were not by the treaty given any higher or better rights than those living in other parts of the Spanish possessions. It is clear that inhabitants of the interior of the Spanish possessions had no right either under the treaty or by the municipal laws of that country to reach the Red River for the purpose of utilizing or navigating its waters by passing over the lands of private owners lying between them and the river. To enjoy these rights they must, of course, reach the river by the public highways. And, to those owning lands along the northern boundary, if the bank on their part of the line was so situated as to separate them during a part of the year from contact with the water, they would have had to reach it for purposes of use and navigation by the public highways or by such ways or easements as might exist or be arranged across the intervening flat lands or flood plains. The contention of Texas in this behalf seems to be fully and completely met by *Marine Ry. & Coal Co. v. United States*, 257 U. S. 47.

It seems clear, however, that neither Texas nor her inhabitants have at this date any rights whatever under this provision of the treaty. It is true that the boundary line as there fixed, together with the provision as to the use and navigation of the waters, was incorporated in the Treaty of 1828 with Mexico, and later, in 1838, with the Republic of Texas. But Texas came into the Union voluntarily, with her boundaries fixed in accordance with the Treaty of 1819; and when she was admitted any rights secured by the treaty, not running with the land and of a purely personal character, such as those here involved, were immediately abrogated. By the act of entering the Union the State and her inhabitants submitted themselves to the laws and Constitution of the United States, and the personal rights of access to and use of the waters were thereafter controlled and regu-

lated thereby, and ceased entirely to depend upon the treaty.

The question as to what constitutes the south bank of Red River must now be determined, therefore, by the rules and precedents applicable to the ascertainment of the banks of rivers in general, with such modifications as the peculiar conditions, character and regimen of Red River and its banks necessarily impose. The treaty, however, and the negotiations leading up to it may no doubt be invoked for the purpose of ascertaining the intentions of the contracting parties, because the line selected by them has been perpetuated to the present day.

It will be remembered that Mr. Adams steadily insisted that the boundary should be along the farther banks of the three rivers because that was a definite, fixed and stable line which (as he supposed) could be easily ascertained, while, as he said, it would take a hundred years to find where the middle of the three rivers was and to whom the numerous islands therein would belong.

As to the upper river—from the 100th meridian to Cache Creek and the Big Wichita, 135 miles, including the receivership lands—we rest our ultimate claim on four propositions, viz.,

(1) At times of high flood the waters of Red River flow in a practically continuous sheet from bluff to bluff. The bluffs themselves are the fast land banks—the elevations of land which confine the waters at their highest flow.

(2) The flood plains are utterly unstable, both in detail and as a whole. The river in its swings from side to side of the valley trough, rapidly cuts them away, predominantly and normally along their upper and outer edges, and builds them out predominantly and normally at their lower ends. They thus migrate downstream in procession; the river comes back for a time to the bluff banks at practically every point in a comparatively short period measured in years. In each of these periods the river works over practically all the materials between the bluffs.

(3) The flood plains build up and extend themselves, not by slow additions to existing shore lands, but by the formation of sand-bar islands separated from the shores and from each other by threads of the braided channel system. As the islands build up, the channels ultimately become clogged and are abandoned by a series of avulsions. Many of the channels long remain as high water channels often occupied during the higher ordinary floods.

(4) The great body of the Big Bend flood plain, as it exists today, has been formed since 1821; and all of it, except possibly certain short narrow strips manifestly older than the rest, became definitely attached to the Texas bluff since the date of the treaty. What is true of the Big Bend in this regard is true generally of the others, because all are the result of the same processes.

Proof that the high flood waters cover the bottom of the valley trough clear to the bluffs, with the exceptions indicated, rests almost wholly upon testimony of living witnesses whose recollections go back to various periods from about 1860 onward. Their evidence, while more or less contradictory in details, is clear and definite, in general, to the effect that the waters reached from bluff to bluff in the floods of 1866, 1876, 1891, 1908, 1915, and covered the flood plains to a somewhat lesser extent in 1897, 1921 and at other times. While these high floods are of comparatively rare occurrence, yet their sweeping down the valley in a broad, continuous, and uninterrupted sheet of water from bluff to bluff indicates that the bluffs themselves are the true fast land,—the containing banks of the river in flood stages.

The proofs that the flood plains migrate or disappear and the river comes to the bluffs at substantially all points in the course of about a century comprise: (a) The testimony of living witnesses; (b) the showing of the maps; (c) the scientific and engineering testimony.

It is utterly impossible to say where the cut banks—the flood plains banks—were at the date of the treaty any-

where along the upper river. If those banks as they exist today are taken as the boundary, it is certain that the boundary everywhere will be far distant from its location in 1821.

It is equally certain that where now the cut bank is at or north of mid-valley, in 40, 60, 100 years from now it will be at or near the south bluff; and where now it is at the foot of the bluff it will then, in many places, be at or beyond mid-valley. So that, if the boundary, once declared, is to follow subsequent changes in the cut banks, it will be a constantly shifting boundary. If, on the other hand, it is forever to remain where the court now ascertains the cut bank to be, the boundary will in a few years be at or beyond the middle of the river itself; and where the boundary now follows the bluff, there will then lie in front of it new-made flood plain lands from a quarter to a mile and a quarter wide. Such a state of affairs would certainly be a remarkable outcome of the efforts of the treaty-makers to select a stable boundary line.

But we are confident that no such result is inherent in the situation. In a most real and substantial sense, the bluff banks are the banks of this river. Its high floods are contained by them and all between is covered by flowing water. But for the sand dune dykes built solely by the winds, the river would pour across the flood plains in numerous channels at every moderate flood. In the course of a century, even the low water channels and the sand bed itself come back to the bluffs all along the line, and the river works over all the materials between. Those materials are a part of the river. They are under its control. The atoms of which they are composed are being carried toward the sea, and they themselves, while preserving a continuous existence, are pushed along by the river. We believe that both movements are so rapid, so characteristic of this river, as to differentiate it from the normal rivers of previous boundary litigation.

Ordinarily, we think of a river chiefly as a body of water flowing in a channel; but in physiography the accepted definition is that a river is a mass of waste, comprising water mostly, but also the earth, the sand, the leaves—whatever may be going along with the water. In the Red River the water waste and the silt go swiftly on together; the river bed sand, stirred up by the floods, goes only less swiftly, and stops between floods; the flood plains do too, much less swiftly but just as inevitably. The differences are merely of degree.

As we see it, the only embarrassment the Court will meet in recognizing and giving effect to the real and essential facts of this situation, lies in the old definitions placing the bank at that declivity usually marked by the line of vegetation. But that definition is not inflexible. Like all other definitions and rules it adjusts itself to varying conditions. It was not applied by Judge Story in the old case of *Thomas v. Hatch, supra*. The Supreme Court of California had no great difficulty in recognizing the existence of two sets of banks in the *Ventura Case, supra*, and we believe this Court will not be less ready to modify the usual definitions and rules so as to meet adequately the new and unique facts of this situation. And in any event, in the typical case of the Big Bend, the bank, even by the old criteria, was along the foot of the bluff a century ago (except, possibly, as to a small strip), and the lands now in front of it have been built up and joined to the mainland by processes of avulsion.

[Counsel also discussed somewhat, the conditions in the middle and lower sections of the river.]

*Mr. Thomas W. Gregory* and *Mr. W. A. Keeling*, Attorney General of the State of Texas, with whom *Mr. Wallace Hawkins*, *Mr. Bruce W. Bryant*, *Mr. G. Carroll Todd*, *Mr. R. H. Ward* and *Mr. C. M. Cureton* were on the brief, for defendant.

The Treaty of 1819 fixed the boundary line along the south bank of Red River at low water mark,—the edge of the water at that usual and ordinary stage in which it was found during most of the year.

The diplomatic correspondence leading up to the treaty, Art. 3 of the treaty, and the decree in the *Greer County Case*, 162 U. S. 1, establish that the river and the north bank belonged to the United States, and the south bank to Spain; hence, irrespective of the provision of the treaty that the inhabitants of Spain should have the use of the waters of the river on its south bank, *Handly's Lessee v. Anthony*, 5 Wheat. 374, is decisive of the question involved, since that case settled in favor of defendant the rule of law and construction involved, especially in view of the fact that the decision was rendered March 4, 1820, just prior to the ratification of the treaty by the King of Spain on October 24, 1820, and by the United States on February 19, 1821, and its proclamation by the President of the United States on February 22, 1821.

The bank of a stream is the land between ordinary high and ordinary low water marks. *Child v. Star*, 4 Hill, 375, 376; *Freeman v. Bellegarde*, 108 Cal. 187; *Peoria v. Central National Bank*, 224 Ill. 43; *State v. Muncie Pulp Co.*, 119 Tenn. 72.

A call in a grant for the bank of the stream conveys land to the low water mark. Jones, Real Prop. in Conveyancing, § 488; *Daniels v. Cheshire R. R. Co.*, 20 N. H. 85; *Halsey v. McCormick*, 13 N. Y. 297, 298; *Freeman v. Bellegarde*, 108 Cal. 188, 189; *Lamb v. Ricketts*, 11 Ohio St. 311; *Yates v. Van De Bogert*, 56 N. Y. 531; *Pelton v. Strycker*, 28 Pa. Dist. 179; *Murphy v. Copeland*, 58 Iowa, 410, 411.

Throughout substantially the entire boundary involved, Red River has a normal and ordinary low water stage where it is to be found flowing in one channel, during from nine to eleven months of the year.

The rights reserved, by Art. 3 of the treaty, to the inhabitants of Spain to the use of the waters and navigation of Red River throughout the extent of the boundary, on its south bank, are inconsistent with the claim of the United States and Oklahoma that the boundary line along the south side of Red River is at high water mark, as was decided by this Court in *Maryland v. West Virginia*, 217 U. S. 580.

In *Marine Ry. & Coal Co. v. United States*, 257 U. S. 47, Mr. Justice Holmes, in saying that the compact between Virginia and Maryland in 1785 need not be considered in the case before him, recognized that the compact did not purport to establish a boundary line.

The treaty makers treated the river as navigable, and it must be so considered in determining their intention. In 1819 the river was navigable by the then instrumentalities of commerce. Throughout one-half of the boundary the river has always been navigable, even by steamboats.

While the eastern half of the river along the boundary involved has been the portion principally used in navigation, the waters of the river along the entire boundary have been, and still are, of inestimable value to the inhabitants of Texas for stock watering, fishing, domestic and other purposes; this has been peculiarly true along the western half of the boundary, where the river was for many years the only source of water during long periods of the year, and where, until the development of wells within the last thirty years, it furnished practically the only water supply.

The fixing of the boundary at the foot of the Texas bluffs would include in Oklahoma more than half a million acres of land south of the river having on it churches, cemeteries, schoolhouses, voting boxes and farms, much of it having been in cultivation for almost a hundred years.

The fixing of the boundary at the cut bank would include in Oklahoma far more than fifty thousand acres of

land between the line so fixed and the ordinary stage of the water, much of it being in cultivation and pasture, much of it covered with timber, and at least a portion containing deposits of oil.

By prescription, resting on the practical construction and application of the Treaty of 1819 by Governments and States concerned and their inhabitants, the boundary line along the south bank of Red River has been fixed as far north as the edge of the water at its usual and ordinary stage. There has been a consistent and exclusive occupation of, and claim of ownership by Texas or under Texas titles, to the land on the south side of the river up to low water mark, and a failure on the part of any person claiming under an Oklahoma or United States title to occupy or claim any of said land until oil was discovered in the vicinity of the river in 1918.

There was a joint construction of the treaty by the United States and the Republic of Texas in marking the boundary along the Sabine at the edge of the water at its ordinary stage.

In dealing with lands in the Indian Territory, Congress, the President of the United States, the Secretary of the Interior, the Commissioner of Indian Affairs, the Geological Survey of the United States, and judicial officers of United States courts in Texas, by almost innumerable acts, proclamations, rulings and maps considered or described these lands as running to Red River, or running down, or up or along Red River, or down the middle of Red River, and in no instances do any of these indicate a claim to, or assertion of jurisdiction by the United States over, land on the south bank of the river, but the contrary.

By their pleadings, complainant and defendant agree that Texas is now asserting and exercising, and has for a long time asserted and exercised, civil, criminal and political jurisdiction north of the south bank of Red River.

The Republic of Mexico, in its grants of lands on Red River, called for the south margin of the stream.

The early historical works and maps of Texas show the boundary at, or on the north side of Red River, and none show that it stopped short of the river on the south side.

From 1836, the first year of the Republic of Texas, Texas has by its legislative enactments claimed to the middle of Red River (and hence certainly to the edge of the water) in laying off its land districts and counties.

Ferries across Red River were licensed and taxed by Texas as far back as 1859, and toll-bridges authorized and regulated since 1890.

Texas has collected taxes on the land in controversy, but the officers of Oklahoma have not attempted to do so.

During the last ninety-two years Mexico and Texas have issued grants to most of the land in controversy.

The courts of Texas have consistently held for more than forty years that the State has jurisdiction to the middle of Red River, and hence to low water mark on the south side, and have exercised that jurisdiction.

*Indiana v. Kentucky*, 136 U. S. 479; *Virginia v. Tennessee*, 148 U. S. 503; *Louisiana v. Mississippi*, 202 U. S. 1; *Maryland v. West Virginia*, 217 U. S. 577.

The general habits and characteristics of Red River are shown by witnesses and public documents. The testimony establishes without contradiction that there is a constant flow in Red River as high up as the mouth of Cache Creek, which empties into Red River some thirty miles east of the receivership area; and beyond question that Red River has a normal and practically constant flow to a point considerably west of the receivership area.

Along the most western fifty or seventy-five miles of the boundary involved the river flows from six to nine months of the average year. The sand plain of the river, which is covered only in times of rises, varies in width so greatly that the same rise will differ materially in height at

different points. The ordinary rises at some points where the sand plain is wide rarely exceed five or six feet, while, at points where this plain is narrower, the rise may be as high as twenty feet. The usual time for rises is in May and June, and any substantial rises at other times are unusual; these May and June rises are usually known as "Spring rises," and many witnesses testified that Spring corn and other crops can be and are planted and harvested below high water mark after the period referred to has passed.

At many places Red River flows where it did as far back as old inhabitants can remember. With the exception of the crossings, where the river leaves the curve which is playing out on one side and crosses the sand plain to the beginning of the curve on the opposite side, its habit is to hug the bends and remain in substantially the same position with the exception of more or less erosion and accretion.

It is admitted by practically all witnesses that the changes in Red River from Denison, Texas, east, are by the usual processes of erosion and accretion with certain well-defined exceptions of avulsion where the river has cut across the necks of oxbow bends. It is also substantially agreed that, along what is termed the middle portion of the boundary in question, the processes of erosion and accretion are almost entirely responsible for the changes which have taken place, and that along the most eastern two-thirds of the boundary involved, according to the scientific witnesses of United States and Oklahoma, the river is, in the main, a normal stream. It is contended, however, by the United States and Oklahoma that along the most western one-third of the boundary involved the river is not normal in its processes; that the changes occurring along this most westerly one-third are much more rapid than those occurring further east; that this rapidity of change is caused by the decreased water

flow, the increased amount of sand carried by the stream, the wider sand plain in which the river flows, the steeper gradient of the river, and the unusual and violent floods.

The rule of law, defining the result of erosion and accretion on the one hand and avulsion on the other, rests upon the ability to identify the land affected. If the river suddenly changes its course leaving a tract of land as it was before with an identity established, the ownership can be traced and remains as before. If, on the other hand, the land affected cannot be identified, but has been built up by particles, the ownership of which cannot be identified, the land affected becomes the property of the person against whose land it is formed. Neither the rapidity of the process nor the size of the area affected is the determining factor. *Nebraska v. Iowa*, 143 U. S. 359; *Jeffries v. East Omaha Land Co.*, 134 U. S. 178; *Missouri v. Nebraska*, 196 U. S. 36; *Arkansas v. Tennessee*, 246 U. S. 173, 175; *McCormack v. Miller*, 239 Mo. 469; *Yutterman v. Grier*, 112 Ark. 366.

The facts in *Nebraska v. Iowa, supra*, in regard to the Missouri River, were almost identical with those claimed by the United States and Oklahoma to exist on the western one-third of the boundary in question, and the results growing from those conditions bring the land affected within the law applicable to erosion and accretion, as decided in that and other cases cited, and not to that applicable to avulsion.

Erosion and accretion is the usual process, avulsion is unusual and extraordinary, and, in the absence of definite testimony to the contrary, it must be presumed that changes occurred by the former process. 1 Farnham on Waters, 321; *Nebraska v. Iowa*, 143 U. S. 366.

Following the rule of rivers, avulsion on Red River is rare, and occurs almost exclusively on the eastern one-third of the boundary involved. It is the habit of Red River to make its changes by erosion and accretion.

If the so-called island building process takes place at all, it is in rare instances and is not the habit of the river. There is hardly a case of a real island in Red River.

The sand dunes vary in stability. There is no uniform regularity about their lines or formations, and they are frequently destroyed or changed by winds or high water.

The changes which occur in Red River, exclusive of the few instances of avulsion, are between river bends on opposite sides, between the point where the river leaves the outer rim of the curve on one side and goes across to the beginning of the curve on the opposite side.

The situation in the Big Bend (including the oil area) is typical of the processes of the river, and the changes in that territory since the making of the Treaty of 1819 have been slight and have arisen from erosion and accretion.

Among the issues tendered by the United States and Oklahoma in this case are, that the valley lands of Red River, at least from Denison westward, are in the main less than 100 years of age; that substantially all the valleys from approximately where the Big Wichita River enters Red River westward to the 100th meridian are of less age; they declare that the Big Bend Valley, in which is located an oil field, is positively less than 100 years of age.

Another issue offered by them is that all the valleys of Red River from about the mouth of the Wichita westward, and particularly the Big Bend Valley, and most of the valleys from the mouth of the Wichita to Denison, were not formed by accretion, in accordance with the usual law of moving waters; but that they were formed by a new theory of valley building, to wit: The Island Theory of Valley Building, which they rely upon in this case.

They also say that the main channel of Red River ran against the Texas bluffs in the Big Bend area 100 years ago.

On the other hand, the State of Texas contends that all the great Red River valleys are more than 100 years of age; that the channel of Red River did not run against the Texas bluffs 100 years ago; but, on the contrary, that it was running against the concave walls on the Oklahoma side, where it has been running for a period of time which cannot be computed in years, in accordance with the natural laws governing rivers. And further, it contends that the great valleys of Red River were built by the ordinary and normal process of accretion, in accordance with the universal obedience of moving waters to natural laws.

The United States and Oklahoma attempt to prove their case by scientific testimony; the State of Texas meets the issue with the testimony of living witnesses, who have known the river in various sections for more than fifty years, and, in turn, by scientific testimony flatly contradicting the conclusion reached by the government scientists.

The United States and Oklahoma and their scientists claim that Red River, particularly in the oil field section, does not obey the usual and natural laws of rivers in locating and maintaining their channels and building their valleys; while, on the other hand, the State of Texas and its scientists claim that Red River does obey all the usual and natural laws of moving waters and rivers.

*Mr. Joseph W. Bailey*, with whom *Mr. Orville Bullington*, *Mr. C. B. Felder*, *Mr. Leslie Humphrey* and *Mr. A. H. Carrigan* were on the brief, for Mrs. Lillis Morgan et al., Texas patented land owners, interveners.

*Mr. S. P. Freeling* for complainant.

*Mr. C. L. Bass* filed a brief on behalf of the Bass Petroleum Company, intervener.

*Mr. K. C. Barkley* filed a brief on behalf of the General Oil Company and the National Oil & Refining Company, interveners.

MR. JUSTICE VAN DEVANTER delivered the opinion of the Court.

A principal object of this suit, originally brought in this Court, is to settle a controversy over that part of the boundary between the States of Texas and Oklahoma which follows the course of the Red River from the 100th degree of west longitude to the easterly limit of Oklahoma. This boundary is part of an old one between the territory of the United States and the Spanish possessions to the southwest which was agreed on and defined in the third article of the Treaty of 1819. 8 Stat. 252. As to the line in question that definition is still controlling; it has been reaffirmed on several occasions, but never changed. The controversy arises chiefly out of diverging views of what the definition means and how it is to be applied. The full treaty provision reads as follows:

“Article 3. The boundary line between the two countries, west of the Mississippi, shall begin on the Gulph of Mexico, at the mouth of the river Sabine, in the sea, continuing north, along the western bank of that river, to the 32d degree of latitude; thence, by a line due north, to the degree of latitude where it strikes the Rio Roxo of Natchitoches, or Red River; then following the course of the Rio Roxo westward, to the degree of longitude 100 west from London and 23 from Washington; then, crossing the said Red River, and running thence, by a line due north, to the river Arkansas; thence, following the course of the southern bank of the Arkansas, to its source, in latitude 42 north; and thence, by that parallel of latitude, to the South Sea. The whole being as laid down in Melish’s map of the United States, published at Philadelphia, improved to the first of January, 1818. But, if the source of the Arkansas river shall be found to fall north or south of latitude 42, then the line shall run from the said source due south or north, as the case may be, till it meets the

said parallel of latitude 42, and thence, along the said parallel, to the South Sea: All the islands in the Sabine, and the said Red and Arkansas rivers, throughout the course thus described, to belong to the United States; but the use of the waters, and the navigation of the Sabine to the sea, and of the said rivers Roxo and Arkansas, throughout the extent of the said boundary, on their respective banks, shall be common to the respective inhabitants of both nations.

“The two high contracting parties agree to cede and renounce all their rights, claims, and pretensions, to the territories described by the said line; that is to say: the United States hereby cede to his Catholic Majesty, and renounce forever, all their rights, claims, and pretensions, to the territories lying west and south of the above-described line; and, in like manner, his Catholic Majesty cedes to the said United States, all his rights, claims, and pretensions, to any territories east and north of the said line; and for himself, his heirs, and successors, renounces all claim to the said territories forever.”

In the early stages of the suit the chief point of difference between the parties was that Oklahoma and the United States were claiming the south bank of the river as the boundary, while Texas was contending for the thread or middle of the stream. That difference was disposed of in an opinion delivered April 11, 1921, wherein this Court recognized that in the earlier case of *United States v. Texas*, 162 U. S. 1, it had been adjudged that the boundary, as fixed by the treaty, is along the south bank. 256 U. S. 70. The purport of that opinion was embodied in an interlocutory decree of June 1, 1921, which also made provision for taking additional evidence and for a further hearing to determine what constitutes the south bank, where along that bank the boundary is, and the proper mode of locating it on the ground,—these being matters on which the parties were unable to agree. 256

U. S. 608. Additional evidence filling several printed volumes was afterwards taken, and the further hearing was had near the close of the last term.

On the questions of what constitutes the south bank, and where along the same the boundary is, the parties are still far apart. Oklahoma and the United States contend that the bank and boundary are at the foot of a range of hills or bluffs which fringes the south side of the valley through which the river runs, while Texas insists that they are "at low water mark" on that side of the river,—meaning, as is said in the brief, "the edge of the water at that usual and ordinary stage in which it is found during most of the year." This is now the principal issue and to it the evidence and arguments are largely directed. Its solution involves a consideration of what was intended by the treaty provision and of the physical situation to which the provision is to be applied.

The treaty provision names three rivers,—the Sabine, the Red and the Arkansas. It expressly locates the boundary along the "western bank" of the Sabine and the "southern bank" of the Arkansas, and describes the intermediate section as leaving the Sabine at a designated point and running due north until it "strikes" the Red, then "following the course" of the Red westward to the 100th Meridian, then "crossing" the Red and running due north to the Arkansas. Thus, while the boundary is in exact words fixed along a designated bank of the Sabine and the Arkansas, it is not expressly so fixed as respects the Red. This difference in terms, if not otherwise overcome, might well be taken as signifying a difference in purpose. But that it has no such signification is otherwise made plain. We say this, first, because the direction for "crossing" the Red at the 100th Meridian on a line running north strongly implies that the preceding course is somewhere on the southerly side of the river; secondly, because the declaration that "the use of the waters, and

the navigation of the Sabine to the sea, and of the said rivers Roxo [Red] and Arkansas, throughout the extent of the said boundary, on their respective banks," shall be common to the respective inhabitants of both nations, distinctly shows that a bank boundary is intended along the Red just as along the Sabine and the Arkansas; and, thirdly, because available historical data relating to the negotiations which culminated in the treaty show indubitably that those who framed and signed it on behalf of the United States and Spain intended to establish, and understood they were establishing, a bank boundary along all three rivers. 4 American State Papers, Foreign Relations, pp. 621-622; 4 Memoirs of John Quincy Adams, pp. 255-256, 260-261, 266-270; *United States v. Texas*, 162 U. S. 1, 27. The words "throughout the extent of the said boundary, on their respective banks," are the last by which the treaty provision denotes the relation of the boundary to the rivers, and, as those words are otherwise supported, they point with controlling force to what was in the minds of the high contracting parties. It follows from these considerations that the meaning of the treaty provision is just what it would be if the Red River section of the boundary were expressly described as along the south bank.

We therefore are concerned with an instance in which the bank of a river, and not the river itself, has been made the boundary between two nations,—now between two States of the Union.

In many jurisdictions it is settled that there is a material difference between taking the bank of a river as a boundary and taking the river itself; and this rule has been recognized and applied by this Court from an early time in the adjudication of controversies over state boundaries.

During the Revolutionary period Virginia ceded to the United States all her "territory north west of the river

Ohio." Afterwards Kentucky and Indiana were admitted into the Union as States, with the southerly or initial line of that cession as the boundary between them. A controversy over that boundary was brought before this Court in *Handly's Lessee v. Anthony*, 5 Wheat. 374. The question presented was whether the boundary was along low water mark or at the line reached by the river when at medium height. In an opinion delivered by Chief Justice Marshall the Court held the boundary was along low water mark, but was careful to say: "In pursuing this inquiry, we must recollect, that it is not the bank of the river, but the river itself, at which the cession of Virginia commences." Mr. Justice Story participated in the decision of that case and concurred in the opinion. Subsequently, when holding the Circuit Court for the District of Maine, he had occasion to interpret two conveyances of land adjacent to a stream in that State. One tract was described as bounded by the stream from one point to another, and the other as bounded by the bank of the stream from one point to another. The learned Justice was of opinion that the two bounding lines were essentially unlike, and he held as to the first tract that the conveyance included the flats below the bank at least to low water mark, and as to the second that the conveyance limited the grant to the bank and excluded the flats below. *Thomas v. Hatch*, 3 Sumner, 170.

A controversy over the boundary between Georgia and Alabama was before this Court in *Howard v. Ingersoll*, 13 How. 381. The boundary had been defined in a cession by Georgia to the United States as beginning on the western bank of the Chattahoochee River where it crosses a stated line and running thence up the river "along the western bank thereof" to the great bend. (See 1 American State Papers, Public Lands, pp. 113-114.) The nature of the controversy was such that it called for an interpretation and application of the words just quoted.

At the *locus* there was an abrupt and high bank on the western, or Alabama, side which was washed by the river in periods of ordinary high water. In periods of low water, which comprised two-thirds of the year, a sloping strip of from thirty to sixty yards of dry land lay between the abrupt bank and the water. The flowing stream was about two hundred yards wide in periods of ordinary high water and about thirty yards in periods of low water. At that point the water never reached the top of the abrupt bank, but at other points, where the bank was lower, the water in exceptional times of flood overflowed the bank and temporarily submerged adjacent lands. The case was tried in an Alabama court, which ruled that the boundary was at the line of ordinary low water. That ruling was sustained by the Supreme Court of the State, 17 Ala. 780, and the case was brought here on writ of error. Another case involving the same questions, and brought here from the Circuit Court for the District of Georgia, was heard at the same time, but a description of the first suffices for present purposes. This Court, upon much consideration, held that the boundary was not at the line of ordinary low water, but along the water-washed bank or elevation which bounds the river bed and confines the water within definite outer limits, save in the exceptional instances when it is so far at flood that it overflows its restraining banks and spreads over adjacent lands. The ruling and the grounds on which it was put are indicated in the following excerpts from the opinion:

(P. 415.) "When the commissioners used the words bank and river, they did so in the popular sense of both. When banks of rivers were spoken of, those boundaries were meant which contain their waters at their highest flow, and in that condition they make what is called the bed of the river. They knew that rivers have banks, shores, water, and a bed, and that the outer line on the bed of a river, on either side of it, may be distinguished

upon every stage of its water, high or low; at its highest or lowest current. It neither takes in overflowed land beyond the bank, nor includes swamps or low grounds liable to be overflowed, but reclaimable for meadows or agriculture, or which, being too low for reclamation, though not always covered with water, may be used for cattle to range upon, as natural or uninclosed pasture. But it may include spots lower than the bluff or bank, whether there is or is not a growth upon them, not forming a part of that land which, whether low or high, we know to be upland or fast lowland, if such spots are within the bed of the river. Such a line may be found upon every river, from its source to its mouth. It requires no scientific exploration to find or mark it out. The eye traces it in going either up or down a river, in any stage of water. With such an understanding of what a river is, as a whole, from its parts, there is no difficulty in fixing the boundary-line in question."

(P. 417.) "The call is for the bank, the fast land which confines the water of the river in its channel or bed in its whole width, that is to be the line. The bank or the slope from the bluff or perpendicular of the bank may not be reached by the water for two thirds of the year, still the water line impressed upon the bank above the slope is the line required by the commissioners, and the shore of the river, though left dry for any time, and but occasionally covered by water in any stage of it to the bank, was retained by Georgia as the river up to that line. Wherever it may be found, it is a part of the State of Georgia, and not a part of Alabama. Both bank and bed are to be ascertained by inspection, and the line is where the action of the water has permanently marked itself upon the soil."

(P. 418.) "Our interpretation . . . is that the western line of Georgia . . . is a line to run up the

river on and along its western bank, and that the jurisdiction of Georgia in the soil extends over to the line which is washed by the water, wherever it covers the bed of the river within its banks. The permanent fast land bank is referred to as governing the line."

The members of the Court all agreed that the call "along the western bank" distinguished the case from that of *Handly's Lessee v. Anthony* and that the Alabama court had erred in treating the ordinary low water as the boundary intended; but three members, while concurring in the judgment of reversal to that extent, differed from the Court's reasoning and conclusion in other respects.

That was a private litigation and seven years later the same questions—this time covering the full length of the boundary—were presented to this Court by the two States. *Alabama v. Georgia*, 23 How. 505. Alabama claimed the "usual or common low-water mark" as the boundary and Georgia contended for "the western bank at high-water mark, using high-water mark in the sense of the highest line of the river's bed; or, in other words, the highest line of that bed, where the passage of water is sufficiently frequent to be marked by a difference in soil and vegetable growth." Alabama asserted and Georgia admitted that the banks of the river, though abrupt and high at some places, were low and relatively flat at others and that at the latter, when the river was high, the water overflowed the outer limits of its bed and spread over adjacent lands,—at some places as much as a half mile. The controversy thus presented was disposed of in an opinion having the approval of the entire Court. The Court said:

(P. 511) "In making such construction, it is necessary to keep in mind that there was by the contract of cession a mutual relinquishment of claims by the contracting parties, the United States ceding to Georgia all its right,

title, &c., to the territory lying east of that line, and Georgia ceding to the United States all its right and title to the territory west of it."

(P. 514) "With these authorities and the pleadings of this suit in view, all of us reject the low-water mark claimed by Alabama as the line that was intended by the contract of cession between the United States and Georgia. And all of us concur in this conclusion, that by the contract of cession, Georgia ceded to the United States all of her lands west of a line beginning on the western bank of the Chattahoochee river where the same crosses the boundary line between the United States and Spain, running up the said Chattahoochee river and along the western bank thereof.

"We also agree and decide that this language implies that there is ownership of soil and jurisdiction in Georgia in the bed of the river Chattahoochee, and that the bed of the river is that portion of its soil *which is alternately covered and left bare, as there may be an increase or diminution in the supply of water, and which is adequate to contain it at its average and mean stage during the entire year, without reference to the extraordinary freshets of the winter or spring, or the extreme droughts of the summer or autumn.*

"The western line of the cession on the Chattahoochee river must be traced on the water-line of the acclivity of the western bank, and along that bank where that is defined; and in such places on the river where the western bank is not defined, it must be continued up the river on the line of its bed, as that is made by the average and mean stage of the water, as that is expressed in the conclusion of the preceding paragraph of this opinion."

Upon the authority of these cases, and upon principle as well, we hold that the bank intended by the treaty provision is the water-washed and relatively permanent elevation or acclivity at the outer line of the river bed which

separates the bed from the adjacent upland, whether valley or hill, and serves to confine the waters within the bed and to preserve the course of the river, and that the boundary intended is on and along the bank at the average or mean level attained by the waters in the periods when they reach and wash the bank without overflowing it. When we speak of the bed we include all of the area which is kept practically bare of vegetation by the wash of the waters of the river from year to year in their onward course, although parts of it are left dry for months at a time; and we exclude the lateral valleys which have the characteristics of relatively fast land and usually are covered by upland grasses and vegetation, although temporarily overflowed in exceptional instances when the river is at flood.

The conclusion that the boundary intended is on and along the bank and not at low water mark or any other point within the river bed has full confirmation in available historical data respecting the negotiations which attended the framing and signing of the treaty. 4 American State Papers, Foreign Relations, pp. 621-622; 4 Memoirs of John Quincy Adams, pp. 255-256, 260-261, 266-270.

Texas places some reliance on the concluding words of the treaty provision, "but the use of the waters, and the navigation of the Sabine to the sea, and of the said rivers Roxo [Red] and Arkansas, throughout the extent of the said boundary, on their respective banks, shall be common to the respective inhabitants of both nations." As already observed, these words show that the boundary intended is "on" the bank. No doubt they reserve and secure a right of access to the water, at all stages, adequate to the enjoyment of the permitted use; but they afford no basis for regarding the boundary as below the bank or within the river bed. *Dunlap v. Stetson*, 4 Mason, 349, 366. This part of the treaty provision is quite unlike the old compact considered in *Maryland v. West Virginia*, 217

U. S. 577, which gave to the citizens of Virginia full property in the *shore* of the Potomac, and so carried the jurisdiction and title to the water's edge. See *Handly's Lessee v. Anthony*, 5 Wheat. 374, 385. In an earlier opinion disposing of other phases of this suit it was determined that the section of the Red River adjacent to this boundary is not navigable. 258 U. S. 574.

Texas refers to the proceedings in 1840 and 1841 whereby the United States and the Republic of Texas jointly traced and marked so much of the treaty boundary as lies along the western bank of the Sabine, and claims that what was done makes for a view different from that here expressed. We do not so understand the proceedings. General Hunt, who represented the Republic of Texas in that undertaking, took the position that portions of the river bed often immersed could be treated as the bank and that low-water mark should be regarded as the boundary. Mr. Overton, who represented the United States, dissented and said: "The term bank does not imply, I conceive, a line of the character proposed by you, but it rather means that natural barrier which confines the waters, and compels them to flow within a well-defined channel, although the surface of the river may fluctuate in elevation between its banks at various seasons of the year. The same conception of the meaning of this term precludes on my part the idea that it would be just to claim the western margin of any inundations caused by the river overflowing its banks, because in such cases the usual well-defined barrier is temporarily surmounted." Mr. Overton's view prevailed and, as nearly as can be told now, the work proceeded on the view that the boundary was along the mean water line on what he defined as the bank. H. R. Ex. Doc. 51.

With what was intended by the treaty provision in mind, we turn to the physical situation to which the provision is to be applied.

This section of the Red River flows eastward in a serpentine course through a valley bordered on either side by a range of bluffs or hills. The distance along the river is 539 miles and on a direct line 321 miles. The valley widens irregularly from about two miles on the west to fifteen or more on the east. The bed over which the water flows is composed of light, loose sand and is of varying breadth, the maximum being one and one-fourth miles and the average one-third of a mile. On either side are stretches of valley land which vary in both width and length by reason of the winding of the river and the irregularities in the face of the bluffs. This land is fairly covered with grasses and other upland growth and often is studded with trees. Many of the trees are old and among them are elm, pecan and other kinds of hard wood. A slight depression or a succession of depressions usually lies along the foot of the bluffs. The river or a channel may have been there in years that are gone, but, if so, no one knows when. Almost uniformly the valley land is separated from the sand bed of the river by a clearly defined water-worn bank, designated by witnesses and counsel as a cut bank. This bank ranges in height from two to ten or more feet, the height generally increasing from west to east and the lower parts usually being where the bed is wide. On the valley side of the bank is vegetation and on the river side bare sand. The cut banks effectively confine the water to the sand bed, save in exceptional instances when the river is at flood and overflows adjacent lands for a few days. There is some overflowing almost every year and in one year out of twelve or fifteen the overflow reaches back to the bluffs in many places.

When the water is in substantial volume it flows over the whole of the sand bed and washes both banks, but when the volume is relatively low much of the bed is dry. The latter is the prevailing condition,—and this because the source and upper reaches of the river are within a

region where the rainfall is light, seasonal only and quickly carried into the stream. Along the western part of the boundary the bed is entirely dry in long stretches for weeks at a time; and when the water is flowing, but low, it is found in shallow channels which divide and shift about over the bed. Witnesses accustomed to crossing there speak of finding the flowing channel near one side of the bed in the morning and in the middle or near the other side in the evening. Only in pronounced bends are the channels relatively stable. Along the eastern part of the boundary the volume of water always is substantial, but there again it is inclined to divide into separate channels and to cross and recross the bed frequently. Along both parts when the water is low, as is the rule, the channels in which it moves have low marginal elevations, but these are composed of mere sand, have no permanency and yield readily to the action of the water and the winds. Material changes in them are habitual, not exceptional.

This survey of the physical situation demonstrates that the banks of the river are neither the ranges of bluffs which mark the exterior limits of the valley, nor the low shifting elevations within the sand bed. And that this is the natural and reasonable view of the situation is illustrated by a long course of public and private action.

The valley land always has been dealt with as upland. The United States surveyed and disposed of that on the north side under its public land and Indian laws, and Texas surveyed and disposed of that on the south side under her land laws. Both treated the cut banks as the river banks and carried their surveys to those banks, but not beyond. Patents were issued for practically all the land. Individuals freely sought and dealt with it as upland. Much of that on the south side was disposed of by Texas fifty years ago, some of it seventy. Thousands of acres on that side were improved, occupied and cultivated under these disposals, and a larger acreage was occupied

and used under them for pastures. Through the long period covered by this course of action there never was any suggestion that this valley land was part of the river bed, nor that the shifting elevations of sand within the sand bed were the river's banks, nor that the land on the south side belonged to the United States. Not until some land on the south side and part of the river bed were discovered to be valuable for oil was this unbroken course of action and opinion drawn in question. However much the oil discovery may affect values, it has no bearing on the questions of boundary and title.

Our conclusion is that the cut bank along the southerly side of the sand bed constitutes the south bank of the river and that the boundary is on and along that bank at the mean level of the water when it washes the bank without overflowing it.

The boundary as it was in 1821, when the treaty became effective, is the boundary of today, subject to the right application of the doctrines of erosion and accretion and of avulsion to any intervening changes. Of those doctrines this Court recently said:

"It is settled beyond the possibility of dispute that where running streams are the boundaries between States, the same rule applies as between private proprietors, namely, that when the bed and channel are changed by the natural and gradual processes known as erosion and accretion, the boundary follows the varying course of the stream; while if the stream from any cause, natural or artificial, suddenly leaves its old bed and forms a new one, by the process known as an avulsion, the resulting change of channel works no change of boundary, which remains in the middle of the old channel." *Arkansas v. Tennessee*, 246 U. S. 158, 173.

Oklahoma and the United States question the applicability of the doctrine of erosion and accretion to this river, particularly the part in western Oklahoma,—and

this because of the rapid and material changes effected during rises in the river. But we think the habit of this river is so like that of the Missouri in this regard that the ruling relating to the latter in *Nebraska v. Iowa*, 143 U. S. 359, 368, is controlling. It was there said, p. 368, *et seq.*:

“The Missouri River is a winding stream, coursing through a valley of varying width, the substratum of whose soil, a deposit of distant centuries, is largely of quicksand. . . . The large volume of water pouring down at the time of these rises, with the rapidity of its current, has great and rapid action upon the loose soil of its banks. Whenever it impinges with direct attack upon the bank at a bend of the stream, and that bank is of the loose sand obtaining in the valley of the Missouri, it is not strange that the abrasion and washing away is rapid and great. Frequently, where above the loose substratum of sand there is a deposit of comparatively solid soil, the washing out of the underlying sand causes an instantaneous fall of quite a length and breadth of the superstratum of soil into the river; so that it may, in one sense of the term, be said that the diminution of the banks is not gradual and imperceptible, but sudden and visible. . . . No engineering skill is sufficient to say where the earth in the bank washed away and disintegrating into the river finds its rest and abiding place. The falling bank has passed into the floating mass of earth and water, and the particles of earth may rest one or fifty miles below, and upon either shore. There is, no matter how rapid the process of subtraction or addition, no detachment of earth from the one side and deposit of the same upon the other. The only thing which distinguishes this river from other streams, in the matter of accretion, is in the rapidity of the change caused by the velocity of the current; and this in itself, in the very nature of things, works no change in the principle underlying the rule of law in respect thereto.

“Our conclusions are that, notwithstanding the rapidity of the changes in the course of the channel, and the

washing from the one side and on to the other, the law of accretion controls on the Missouri River, as elsewhere; and that not only in respect to the rights of individual land owners, but also in respect to the boundary lines between States."

Common experience suggests that there probably have been changes in this stretch of the Red River since 1821, but they cannot be merely conjectured. The party asserting material changes should carry the burden of proving them, whether they be recent or old. Some changes are shown here and conceded. Others are asserted on one side and denied on the other.

A controverted one is ascribed to the so-called Big Bend Area, which is within the oil field. That area is now on the south side of the river and connected with the bluffs on that side. Oklahoma and the United States assert that in 1821 a channel of the river ran between it and the bluffs and that the river has since abandoned that channel. Texas denies this and insists that the situation in 1821 was practically as now. Stimulated by the large values involved, the parties have exhausted the avenues of research and speculation in presenting testimony thought to bear on this question. The testimony, particularly of the experts, is conflicting. It is so voluminous that it does not admit of extended statement or discussion here. We can only refer to important features and give our conclusions.

There are no surveys or records depicting the situation in 1821; nor are there any human witnesses who knew this part of the river then. But there are inanimate witnesses, such as old trees, which tell a good deal. At that place the river makes a pronounced but gradual bend to the north and back to the south. The area in question is on the inner side of the bend. It is larger now than sixty years ago, but how much is uncertain. The enlargement is the result of intervening accretions. The

habit of the river is to erode the outer bank of a bend and to accrete to the opposite bank. Three surveys executed by Texas in 1856 and covering less than the whole area disclosed the presence at that time of over 1700 acres. On the outer part are physical evidences of the formation being comparatively recent. On the inner part are like evidences of the formation being old, among them being the presence of living trees more than a century old. One of the trees, a pecan, attained an age of 170 years. A part of the area was cultivated and the remainder used for pasturage as early as 1877. At that time there were more trees than now. Many were taken by early settlers for firewood, fencing posts and building logs, some logs being over three feet through. To overcome the inference arising from the presence of the old trees, which were well scattered, testimony was presented to show that in 1821 these trees were all on islands, which afterwards were consolidated amongst themselves and with the land on the south side. We think this testimony is essentially speculative and not a proper basis for judgment. In this area, as elsewhere in the valley, a succession of depressions is found at the foot of the bluffs, and some testimony was produced to show that in 1821 the river, or a part of it, flowed there. It may be that the river was there long ago, but the testimony that it was there in 1821 is far from convincing. Texas has been exercising jurisdiction over the area and asserting proprietorship of the soil for more than half a century and has surveyed and disposed of it all, the earliest disposals being in 1856. Some of the later surveys seem to conflict with those first made, but all name the river bank as a boundary. In those of 1856, and possibly others, it was the controlling call. See *Schnackenberg v. State*, 229 S. W. 934; *Cordell Petroleum Co. v. Michna*, 276 Fed. 483. The jurisdiction and title of Texas stood unchallenged until shortly before this suit. Our conclusion is

that the claim that the river, or any part of it, ran south of this area in 1821 is not sustained. So the boundary follows the cut bank around the northerly limit of the area.

Burke Bet Island and Goat Island, both near the Big Bend Area, are claimed by Texas on the theory that in 1821 they were part of the land on the south side. We think the evidence, all considered, falls short of establishing the claim and tends rather to show that neither island was ever part of the permanent fast land on that side. The claim is accordingly rejected.

What now appears to be an island opposite mile post 575 and near the line between Hardeman and Wilbarger Counties, in Texas, is claimed by that State to have been part of the land on the south side up to 1902 and then severed from it by avulsive action in time of flood. The evidence sustains the claim. So the boundary follows the north bank of the island.

There are instances in which the river since 1821 has in time of flood left its former channel and cut a new one through a neck of land thereby causing land theretofore on one side of the river to be on the other. Such avulsive action does not carry the boundary with it, but leaves it where it was before. There is no controversy about these cut-offs and the evidence indicates that they readily can be recognized.

The matter of running, locating and marking the boundary upon the ground in accordance with the principles stated herein will be referred to three commissioners to be appointed by the Court, their action to be subject to its approval.

The parties may submit within thirty days a form of decree to carry these conclusions into effect.

MR. JUSTICE McREYNOLDS, dissenting.

The parties to the compact of 1819 (ratified 1821) distinctly avowed the purpose "to settle and terminate all

their differences and pretensions, by a Treaty, which shall designate, with precision, the limits of their respective bordering territories in North America." And when all of its provisions are given proper weight, I think, that instrument fixes the international boundary with reasonable precision at low water mark on the south side of the Red River—not at the margin of the "cut bank."

"It is a general principle of construction with respect to treaties that they shall be liberally construed, so as to carry out the apparent intention of the parties to secure equality and reciprocity between them. As they are contracts between independent nations, in their construction words are to be taken in their ordinary meaning, as understood in the public law of nations, and not in any artificial or special sense impressed upon them by local law, unless such restricted sense is clearly intended. And it has been held by this court that where a treaty admits of two constructions, one restrictive of rights that may be claimed under it and the other favorable to them, the latter is to be preferred." *Geofroy v. Riggs*, 133 U. S. 258, 271.

Under *United States v. Texas*, 162 U. S. 1, and *Oklahoma v. Texas*, 256 U. S. 70, we must interpolate "southern bank" into the description of the contested boundary and treat this as though it read, "then following the course of the [southern bank of the] Rio Roxo westward, to the degree of longitude 100 west from London," etc. Thus amended, we should now interpret the compact with a view to effectuate the intention of the parties.

A bank is the rising ground, or area, bordering a stream. To describe a boundary merely as following the course of the river bank gives it no definite location. Something more must be known before it can be laid down on the ground, e. g., that it runs with the low, ordinary or high water mark. To ascertain this something more, when the application of a treaty is involved, the purpose and all provisions of the compact, the character of the country and any other facts indicative of intention, may be considered.

The Treaty of 1819 declares—"The use of the waters, and the navigation of the Sabine to the sea, and of the said rivers Roxo and Arkansas, throughout the extent of the said boundary, on their respective banks,<sup>1</sup> shall be common to the respective inhabitants of both nations." Parts of these rivers are navigable. For hundreds of miles the Red River passes over a sandy waste between irregular "cut banks," sometimes a mile apart (one-third mile on the average), and the waters are mainly useful for domestic purposes, for live stock and for irrigation. During most of the year the stream is only a few yards wide and flows along shallow channels, commonly at some distance from the southern "cut bank." Manifestly, if the boundary is on the margin of that bank the Spanish inhabitants were generally cut off from the stream and could not use the waters without crossing or occupying territory of the United States. By its express terms the treaty reserved to those people the right to use and navigate the waters and I cannot think that by mere implication it imposed a very serious barrier thereto.

Again, if the boundary runs with the southern "cut bank" of the Red River, of what effect are the words, "all the islands in the Sabine, and the said Red and Arkansas rivers, throughout the course thus described, to belong to the United States"? That boundary being admitted, all islands would necessarily lie within the United States and their reservation was unnecessary. But if low water marks the boundary, then the reservation becomes important. Without it grave disputes might arise as to the true line where islands lie south of the main stream. See *Georgia v. South Carolina*, 257 U. S. 516.

With the boundary fixed at low water mark, the Spanish inhabitants obtained free access to the stream at

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<sup>1</sup> The boundary follows only a portion of each river—the upper reaches of the Arkansas, the middle part of the Red and the lower section of the Sabine. No rights were given to Spanish subjects in respect of the waters of these rivers except along the boundary.

all seasons and could use its waters as their welfare required; the reservation of the islands to the United States is important; the parties obtained full reciprocal rights; and the unfortunate consequences incident to ownership by the United States of a long narrow barren strip between a foreign country and the stream are avoided.

“Even when a state retains its dominion over a river which constitutes the boundary between itself and another state, it would be extremely inconvenient, to extend its dominion over the land on the other side, which was left bare by the receding of the water. And this inconvenience is not less, where the rising and falling is annual, than where it is diurnal. Wherever the river is a boundary between states, it is the main, the permanent river, which constitutes that boundary; and the mind will find itself embarrassed with insurmountable difficulty, in attempting to draw any other line than the low-water mark.” Chief Justice Marshall in *Handly's Lessee v. Anthony* (1820), 5 Wheat. 374, 380, 381. Note that this cause was decided before ratification of the treaty in 1821.

The point for decision in *Howard v. Ingersoll* (1851), 13 How. 381, 397, 411, 412, 413, concerned the boundary between Georgia and Alabama, along the Chattahoochee River. “Its determination [p. 397] depends upon what were the limits of Georgia and her ownership of the whole country within them, when that State, in compliance with the obligation imposed upon it by the revolutionary war, conveyed to the United States her unsettled territory; and upon the terms used to define the boundaries of that cession.” The pertinent article of the cession is copied below.<sup>1</sup> The Court also said, pp. 411, 412—

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<sup>1</sup> “The State of Georgia cedes to the United States all the right, title, and claim, which the said State has to the jurisdiction and soil of all the lands situated within the boundaries of the United States, south of the State of Tennessee, and west of a line beginning on the

"We further learn, that the adjustment with South Carolina, left in Georgia the Chattahoochee River from its source to the 31st degree of north latitude, as Georgia had claimed her limits to be, since the king's patent to Sir James Wright, in 1764.

"In other words, that the Chattahoochee, from its source to that point, was at all times after that patent within Georgia with the right of soil and jurisdiction when its unsettled territory was ceded to the United States. This fact being so, it gives us a key from the laws of nations to aid us in the interpretation of its cession as to the boundary between Georgia and Alabama, which must prevail, as it would in all other cases, where there may be a transfer by one nation of a part of its territory to another, with a river for its boundary, without an express stipulation for the relinquishment of the rights of soil and jurisdiction over the bed of such river.

"The rule *jure gentium*, to which we refer, is not now for the first time under the consideration of this court. We are relieved, then, from its discussion, by citations from Vattel and other writers upon the laws of nations, to show what it is; but it will be found in the 22d chapter of Vattel. Among the writers after him it is not controverted by any one of them. Besides, it is according to what had been anciently the practice of nations, substantiated by an adherence to it down to our own times. In *Handly's Lessee v. Anthony*, 5 Wheat. 379, this court said,

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western bank of the Chattahoochee River, where the same crosses the boundary-line between the United States and Spain, running thence up the said River Chattahoochee and along the western bank thereof, to the great bend thereof, next above the place where a certain creek or river called Uchee, (being the first considerable stream on the western side above the Cussetas and Coweta towns,) empties into the said Chattahoochee River; thence in a direct line to Nicajack, on the Tennessee River; thence crossing the said last-mentioned river, and thence running up the said Tennessee River, and along the western bank thereof to the southern boundary-line of the State of Tennessee."

by its organ, Chief Justice Marshall, ' when a great river is the boundary between two nations or States, if the original property is in neither, and there be no convention about it, each holds to the middle of the stream. But when, as in this case, one State is the original proprietor, and grants territory on the one side only, it retains the river within its domain, and the newly-created State extends to the river only. The river, however, is its boundary.

" Georgia was certainly the original proprietor of the River Chattahoochee to 31 degrees north, when her territory west of it was ceded to the United States, and that cession must be understood to have been made under the rule, unless by terms in her grant to the United States it was taken out of it, with the view to give to the new State which was to be formed out of the cession, a co-equality of soil and jurisdiction in the river which was to separate them."

And applying what it deemed the applicable rule, the Court held (p. 418): The boundary in question is " a line to run up the [Chattahoochee] river on and along its western bank, and that the jurisdiction of Georgia in the soil extends over to the line which is washed by the water, wherever it covers the bed of the river within its banks. The permanent fast land bank is referred to as governing the line. From the lower edge of that bank, the bed of the river commences, and Georgia retained the bed of the river from the lower edge of the bank on the west side. And where the bank is fairly marked by the water, that water level will show at all places where the line is."

The well established rule, approved and attempted to be applied in *Howard v. Ingersoll*, has no application to the present controversy where independent nations undertook to settle a long standing boundary dispute. Moreover, the treaty contains important and, I think, con-

trolling provisions not found in the Georgia grant. Although much relied on, that case does not decide the point here presented—it arose out of wholly different circumstances and the opinion rests upon a rule of interpretation declared to be generally inapplicable to compacts of settlement between independent nations.

In *Handly's Lessee v. Anthony* (1820), *supra*, the Court ruled that under the grant by Virginia of all her right to the territory "situate, lying and being to the northwest of the river Ohio," the boundary was at low water on the north side. The considerations which led to that conclusion, I think, are sufficient to require a like result here. Moreover, the Treaty of 1819 contains provisions not found in the cession of the Northwest Territory which point to the low water mark of the Red River.

That the Spanish government wittingly assented to a boundary by which a narrow strip of foreign territory was interposed between its citizens and waters essential to their welfare seems highly improbable. The convenience of the population must have been in contemplation. Nor do I find adequate reason for thinking that the United States desired this strip of barren land—then without value to their citizens—with the consequent obligations and serious difficulties. In 1819 troublesome problems incident to marking the boundary between this country and Canada were pending. Considering them, it is easy to understand why the United States desired to fix the boundary at the low water mark of Red River, reserving the islands to themselves. But, obviously, ownership of the barren strip south of that line would entail unfortunate consequences to them and interfere with the orderly development of Spanish territory. Surely, neither government expected such a result.

"'In case of doubt,' says Vattel, 'every country, lying upon a river, is presumed to have no other limits but the river itself; because nothing is more natural, than to take

a river for a boundary, when a state is established on its borders; and wherever there is a doubt, that is always to be presumed which is most natural and most probable.' ” *Handly’s Lessee v. Anthony, supra*, 379, 380.

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BANKERS TRUST COMPANY ET AL., EXECUTORS OF McMULLEN, v. BLODGETT, TAX COMMISSIONER OF THE STATE OF CONNECTICUT.

ERROR TO THE SUPERIOR COURT OF THE STATE OF CONNECTICUT.

No. 169. Argued January 3, 1923.—Decided January 22, 1923.

1. A state law which, in order to reach property which has escaped taxation, taxes the estates of decedents for a period anterior to date of death, but allows proportionate deductions where a personal representative shows that taxes were paid, or property was not owned, by his decedent within the period, does not deprive the creditors and distributees of the estates of their property without due process of law. P. 650. Gen. Stats. Conn. 1918, § 1190, sustained.
  2. The delinquency of a decedent in not paying taxes may be penalized under the state taxing power by inflicting upon his estate a penalty measured by the discretion of the legislature. P. 651.
  3. The constitutional prohibition of *ex post facto* laws is inapplicable to a retroactive tax penalty. P. 652.
- 96 Conn. 361, affirmed.

ERROR to a judgment of the Superior Court of Connecticut, entered upon direction of the Supreme Court of Errors, in a proceeding to review a tax assessment.

*Mr. William H. Comley* for plaintiffs in error.

*Mr. Frank E. Healy*, Attorney General of the State of Connecticut, *Mr. William E. Egan* and *Mr. Carlos S. Holcomb* appeared for defendant in error.