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IN THE  
**Supreme Court of the United States**

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No. 31, Original

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OCTOBER TERM, 1967

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STATE OF UTAH, PLAINTIFF

v.

UNITED STATES OF AMERICA, DEFENDANT

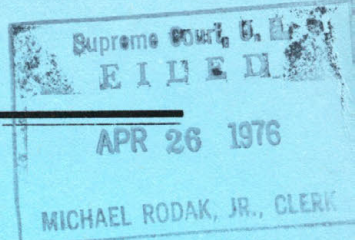
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REPORT OF SPECIAL MASTER

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CHARLES FAHY,  
*Senior Circuit Judge,  
Special Master.*

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*To the Chief Justice and Associate Justices of the Supreme Court of the United States:*

**INTRODUCTION**

The Court approaches now perhaps the final stage of this suit of the State of Utah against the United States, filed as within the original jurisdiction of the Court and as authorized by Act of Congress of June 3, 1966, 80 Stat. 192.<sup>1</sup> Its purpose has been to obtain the Court's decision as to previous ownership, as between the State

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<sup>1</sup> Amended in a manner immaterial to the merits of the present phase of the case. 80 Stat. 349.

and Nation, of properties which, pursuant to Section 2 of the Act of June 3, the Secretary of the Interior, acting for the United States, had conveyed to the State by quitclaim deed of June 15, 1967. The quitclaim deed described the properties as follows:

all its right, title, and interest [of the United States] in lands, together with brines and minerals in solution in the brines or heretofore or hereafter precipitated or extracted therefrom, lying below the record meander lines of the Great Salt Lake in the State of Utah, whether such lands now are or in the future may become uncovered by the recession of the waters of said lake,

with these exceptions: any lands within the Bear River Migratory Bird Refuge and the Weber Basin Federal Reclamation Project; any lands within the Hill Air Force Range; and with reservation of the mineral rights in any properties adjudged federal at the time of the conveyance.<sup>2</sup> Exhibit P-25A.

As a condition to the conveyance and in consideration of it Utah was required by Section 4 of the Act of June 3 to:

(a) . . . convey to the United States by quitclaim deed all of its rights, title, and interest in lands upland from the meander line, which lands the State may claim against the United States by reason of said lands having been, or hereafter becoming, sub-

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<sup>2</sup> (a) The exceptions of the Bear River Migratory Bird Refuge and the Weber Basin Federal Reclamation Project have been constant throughout. Exception from the United States quitclaim deed of lands within the Hill Air Force Range is discussed at note 38 *infra*.

(b) When "land," "lands," "properties," "territories," or "bed of the Lake" appear in the text of this Report to describe the interests involved, those expressions are used to include the brines and minerals in solution in the brines or precipitated or extracted therefrom.

merged by the waters of Great Salt Lake, and (b) pay to the Secretary of the Interior the fair market value, as determined by the Secretary, of the lands (including any minerals) conveyed to [the State]

by the quitclaim deed of the United States. Thus, as between the Nation and the State, thenceforth upon compliance by the State with the conditions referred to the meander line of the Lake was to be the boundary except for the mineral rights in any properties adjudged federal. The State has complied with the first of the two conditions. Exhibit P-25B. Whether the quitclaim deed of the United States to the State embraced any interest not then owned by the State, and for which it must compensate the United States, is to be decided in this suit filed for that purpose under Section 5(b) of the Act of June 3.

The United States had acquired title to the whole area in 1848 by virtue of the Treaty of Guadalupe Hidalgo. 9 Stat. 922. The State claims, however, under the equal-footing doctrine, that it acquired title at statehood to all interests described in the quitclaim deed from the United States. Under that doctrine a State acquires at statehood title to the beds of all navigable waters within the State.<sup>3</sup> The position of the State accordingly is that the now-completed meander line is the proper measure of what Utah received at statehood and that it therefore owes no compensation to the United States. That the Lake is navigable was decided favorably to the State following the recommendations of the late Judge J. Cullen Ganey, Special Master. *Utah v. United States*, 403 U.S. 9 (1971). The Court's ensuing decree of May 22,

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<sup>3</sup> *Martin v. Waddell*, 41 U.S. 367, 410, 416 (1842); *Pollard's Lessee v. Hagan*, 44 U.S. 212, 224, 228-229 (1845); *Barney v. Keokuk*, 94 U.S. 324, 338 (1876). See also *United States v. Utah*, 283 U.S. 64, 75 (1931), *Utah v. United States*, 403 U.S. 9, 10 (1971).



1972, quieted Utah's title as against the United States to the bed of the Lake lying beneath the water's edge on June 15, 1967, the date of the quitclaim deed. *Utah v. United States*, 406 U.S. 484 (1972). This decree accordingly relieved Utah of any obligation to compensate for that territory. As stated in the decree, the basic question then remaining to be decided was:

whether prior to June 15, 1967, the claimed doctrine of reliction applies and, if so, whether the doctrine of reliction vests in the United States, and thus divests the State of Utah, of any right, title, or interest to any or all of the exposed shorelands situated between the water's edge on June 15, 1967, and the meander line of the Great Salt Lake as duly surveyed prior to or in accordance with § 1 of the Act of June 3, 1966, 80 Stat. 192. . . .

406 U.S. at 484-485.

Judge Ganey having died, the present Special Master was appointed, *Utah v. United States*, 406 U.S. 940. Further proceedings were devoted to this issue of the possible application of the doctrine of reliction. Following the filing of the Special Master's Report in that regard the Court, as reflected in its Per Curiam opinion and decree of February 19, 1975, decided that, "[s]ubject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands," Utah also retained ownership as against the United States to:

any of the exposed shorelands situated between the edge of the waters of the Great Salt Lake on June 15, 1967, [the date of the quitclaim deed] and the bed of the Lake on January 4, 1896, when Utah became a State,

and to the related natural resources (as set forth in the earlier decree of May 22, 1972) with the exception of the Migratory Bird Refuge and the Reclamation Project already noted. *Utah v. United States*, 420 U.S. 304, 305.



The basis for the decision was that the claim of the United States as the riparian owner that it had acquired title to the described shorelands under the common law doctrine of reliction was not well founded.

Thus it became settled by the two decrees reported, respectively, at 406 U.S. 484 and 420 U.S. 304, that Utah was the owner as against the United States, with the exceptions noted, of all that the State had acquired under the equal-footing doctrine at statehood, January 4, 1896. In consequence the State owed no compensation therefor to the United States. In the meantime, however, the United States had raised a further question, whether the meander line of the Lake, the upland boundary of the quitclaim deed of the United States, embraced land which was upland of the bed of the Lake at statehood. This brings us to the present controversy, stated in paragraph 3 of the decree of February 19, 1975, as follows:

. . . whether any lands within the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with section 1 of the Act of June 3, 1866, 80 Stat. 192), and conveyed by quitclaim deed to the State of Utah, included any federally owned uplands above the bed of the Lake on the date of statehood (January 4, 1896) which the United States still owned prior to the conveyance to Utah. . . .

420 U.S. at 305-306.<sup>4</sup>

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<sup>4</sup> The United States has suggested, in paraphrasing paragraph 3 of the Court's decree of February 19, 1975, that the task before the Special Master is one of "suggesting a referent recreating as precisely as possible the bed of the Great Salt Lake as it existed 'on the date of statehood.'" But this formulation is not entirely correct. Paragraph 3 requires that the Special Master determine "whether any lands within the meander line . . . conveyed by quitclaim deed . . . included any federally owned uplands above the bed of the Lake on the date of statehood . . . which the United States still owned prior

The matter was referred to the Special Master for such proceedings as might be necessary in aid of the disposition of this question by the Court. Failing to reach a settlement the parties filed with the Special Master on June 2, 1975, a "Joint Pre-Hearing Statement On The Issue Of Establishing A Basis For Determining The Boundary Of The Bed Of The Great Salt Lake On January 4, 1896" [hereinafter *Joint Pre-Hearing Statement (1975)*]. The transmittal letter of the Attorney General of the State of Utah points to a difference between the parties as to just how the issue should be worded, explained in the excerpt from the letter set forth in the margin.<sup>5</sup> The Special Master relies upon the wording of paragraph 3 of the decree of February 19, 1975.

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to the conveyance . . ." If the United States did not own any non-excluded interest in lands within the meander line June 15, 1967, the date of the quitclaim deed, no referent would need to be selected to determine the statehood bed.

<sup>5</sup> . . . [T]here still remain some minor differences between the parties with respect to the exact language that should be used in the enclosed statement to characterize the Supreme Court's opinion of February 19, 1975. . . . [T]he State of Utah believes that the area in controversy consists of that part of the shorelands situated between the water level of the Lake at the date of statehood and the surveyed meander line. The United States prefers to use the language which appears in the present draft, which characterizes the controversy remaining as concerning a belt of land situated between the "bed of the Lake at statehood" and the surveyed meander line of the Lake. Utah has objected to this language for the reason that it seems to suggest that the bed of the Lake at statehood consisted only of the water-covered portion, whereas in fact Utah contends that the bed of the Lake included not only the water-covered portion but also the exposed shorelands located below the surveyed meander line. Utah does not, by the enclosed statement, stipulate that the "bed" of the Lake at statehood consisted only of the water-covered portion. However, the parties recognize that the Decree itself, and not any characterization set forth in the enclosed statement, speaks for what the Court did and did not decide.

A hearing was held by the Special Master at the United States Courthouse in the District of Columbia, July 28 and 29, 1975, at which oral testimony and a large number of exhibits were made of record. The transcript and exhibits, with a list of the latter, are filed with the Clerk of the Court, together with copies of the briefs of the parties thereafter filed with the Special Master.

#### THE POSITIONS OF THE PARTIES

The United States contends that the bed of the Lake at statehood should be held to be the area within a contour line drawn now at the agreed elevation of the water's edge at statehood, 4200.8 m.s.l.,<sup>6</sup> or, at most, a contour line reflecting the agreed elevation of the Lake at its highest point reached during the first year of statehood, excluding any extraordinary fluctuation, that is, 4201.8 m.s.l. With such a boundary the quitclaim deed would have embraced some 115,000 acres (not counting school sections) title to which remained in the United States at the time of the conveyance, as land between the meander line and a bed at statehood thus delineated.<sup>7</sup>

The State of Utah contends that the bed at statehood should be held to embrace all the area within the surveyed meander line of the Lake, and, therefore, that the quitclaim deed conveyed no property to which the United States then held title and for which compensation by the State is due.

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<sup>6</sup> Feet above mean sea level.

<sup>7</sup> Tr. 194-195, 210-211. Defendant's Exhibit I, p. 3. Of course a contour line at a lower elevation, e.g. one at 4200.8 m.s.l., would place greater acreage in federal hands for compensation purposes.

## ADDITIONAL BACKGROUND

The following brief review of certain findings in the Special Master's Report filed March 19, 1974, pp. 27 *et seq.*, will call to mind the unusual character of the Great Salt Lake.

The sources of this large body of water, situated entirely within the State of Utah, are tributary streams and direct precipitation. It has no outlet, so that its elevation depends primarily upon inflow, precipitation and evaporation. The water is salty, which affects the rate of evaporation, as of course does the climate. There are also some man-made interferences with the tributary inflow. The Lake is located in greater part<sup>8</sup> among shorelands so nearly level with the surface of the water that a slight change in the elevation of the surface, if a rise, causes the water to spread out over large areas of flats, and in like manner to recede if the elevation falls. The interaction of factors which cause a continuing change in the elevation of the Lake, combined with the unusual terrain, results in fluctuations of a receding or inundating character over the area of the Lake's location. Within each year, due to seasonal effects, there is a bell-curve cycle of fluctuation, but the fluctuations from year to year have no comparable cycle.

At the date of the quitclaim deed, June 15, 1967, the elevation of the surface of the Lake had fallen from 4200.8 m.s.l. at statehood (or 4201.8 m.s.l. in the statehood year) to 4194.9 m.s.l. Since statehood there had

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<sup>8</sup> Some mountainous shorelands have no significant effect upon the resolution of the question of the bed of the Lake at statehood. The answer depends upon the relationship of the waters of the Lake to the flat shorelands, because where the shorelands are steep, even a substantial change in surface elevation (stage) of the Lake will result in only modest lateral displacement of actual water's edge, or mean high water, or a properly constructed meander line.

been thus an overall recession of the water which had exposed an estimated 396,000 acres; but when the quitclaim deed was executed the Lake, with intermittent fluctuations, was in a rising movement which continued to the time of the hearing before the Special Master in February, 1973. At that time the Lake had about re-inundated the region to a stage (surface elevation) nearly identical to that which had constituted its bed<sup>9</sup> at statehood.

Plaintiff's Exhibits Nos. 45 and 46A, copies of which are reproduced following Appendix B to this Report, disclose the changes in the elevation of the surface of the Lake beginning in 1848. No. 45 is a graph of these changes during the period 1848 to 1975. No. 46A gives the Lake's high water level during each year from 1848 to statehood. The data set forth in these exhibits are undisputed as to their accuracy, and demonstrate the historical instability of the surface elevation (stage) of the Lake, which in turn has led to substantial changes in the area of land covered by its water.

#### SUMMARY OF RECOMMENDED DECISION AND OF ALTERNATIVE RECOMMENDED DECISION

The Special Master recommends that the Court hold that the quitclaim deed of the United States to the State of Utah of June 15, 1967, conveyed to Utah no federally owned uplands above the bed of the Great Salt Lake on the date of statehood (January 4, 1896) which the United States still owned prior to the convey-

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<sup>9</sup> In this Report "bed" is used to mean the lands commonly associated with the Lake, those naturally necessary to contain its predictable movements. When used in this sense, the "bed" will normally be mostly inundated but partially exposed, or dry. However, "bed" is used in the sentence of the text at this point in its more common or colloquial manner to mean only the area actually covered by the water.

ance, with the consequence that Utah owes no compensation to the United States under the Act of June 3, 1966, by reason of the quitclaim deed.

Should the Court not agree with the above recommended decision the Special Master recommends alternatively that the Court hold that said quitclaim deed conveyed to the State of Utah title to the lands situated between the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with Section 1 of the Act of June 3, 1966) and a contour line encompassing the Great Salt Lake at an elevation of 4204.45 m.s.l., reserving mineral rights therein, and with certain exceptions to be noted, from which it follows that the State of Utah is obligated to compensate the United States in accordance with the Act of June 3, 1966, for the properties thus conveyed.

STANDARDS OF GENERAL APPLICABILITY FOR DETERMINING THE BOUNDARY OF A NAVIGABLE BODY OF WATER ARE INAPPLICABLE TO THE GREAT SALT LAKE, REQUIRING THE ADOPTION BY THE COURT OF SOME OTHER MEANS OF DETERMINING THE BED AT STATEHOOD.

The parties have stipulated:

The boundary of a navigable body of water is represented on the public land surveys by a surveyed meander line. In surveying, a meander line represents an approximation of the ordinary high water mark. The legal measure of the boundary of a body of water is the high water line, which is located at the ordinary high water mark.

The high water mark ordinarily is indicated by a line of vegetation or a wave-action erosion line formed when the water level reaches its ordinary high cycle for the year. Neither a vegetation nor an erosion line can be identified on the shores of

the Great Salt Lake. The exceedingly high salt content of the Lake accounts for the absence of a vegetation line, and various other factors, such as the flat shorelands, account for the lack of erosion line.

As a result, the Court must devise another basis to determine the boundary of the bed of the Lake at any given time. *Joint Pre-Hearing Statement of Issues*, executed January 26, 1973, pp. 2-3 [hereinafter *Joint Pre-Hearing Statement (1973)*].

Again, the parties on May 30, 1975, agreed to, and on June 2, 1975, filed their *Joint Pre-Hearing Statement (1975)* stating in part:

Because of the unique physical characteristics of the Great Salt Lake, . . . there is neither a vegetation line nor a wave action line from which the bed (ordinary high water mark) of the Lake on the date that Utah became a State can be determined. It is therefore necessary to use some other referent to separate the state and federal lands. . . .

The position of the parties that the ordinary or mean high water mark is the measure of the bed of inland navigable waters has the sanction of judicial decisions. See, *Alabama v. Georgia*, 64 U.S. 505 (1859). There the Court described the proper measure of the bed of the Chattahoochee River as the soil "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." 64 U.S. at 515.

In *Oklahoma v. Texas*, 260 U.S. 606, 632 (1923), the Court stated,

When we speak of the bed [of the Red River] 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 . . .



The *Manual of Instructions for the Survey of the Public Lands of the United States* (1973), Defendant's Exhibit L,<sup>10</sup> § 3-116, p. 95, states the matter as follows:

Mean high-water elevation is found at the margin of the area occupied by the water for the greater portion of each average year. At this level a definite escarpment in the soil is generally traceable, at the top of which is the true position for the meander line.

The opinion of the Department of the Interior in *State of Utah*, 70 I.D. 27, 62 (1963) adopts the following position:

. . . customary methods of determining the high water mark, . . . are not capable of application to Great Salt Lake. The principle embodied in the manual's instructions is that the annual flux and reflux of a lake carves upon its shores guidelines to the location of the mean high water mark. This is based on the assumption that each year's cycle is repeated within the same range: that the low and high water levels for one year will be about the same as the low and high water levels for any other year, and that marks on the ground will result from, and reflect, the lake's constantly receding from, and returning to, the same levels. But this assumption, as we have seen, is not valid for Great Salt Lake.

Agreeing that the customary methods of determining the high water mark are not capable of application to Great Salt Lake, the United States and the State of Utah disagree as to how otherwise to recapture now the bed of the Lake at statehood. The respective positions of the parties are repeated in their *Joint Pre-Hearing Statement* (1975) as follows:

A. The State of Utah contends that the surveyed meander line should serve as the boundary of the Lake at statehood; and,

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<sup>10</sup> Hereinafter "*Manual*" or "manual".

B. The United States contends that the bed or ordinary high water mark of the Lake at statehood is limited to an area within a contour line drawn at the water's edge as of the date of statehood (4200.8 m.s.l.) or, at most, by a contour line drawn at the water's edge at the highest elevation reached by the Lake within a year of statehood (4201.8 m.s.l.).

#### CONSIDERATION OF THE POSITION OF THE UNITED STATES

Assuming theoretically that either of the contour lines proposed by the United States, one drawn at water's edge January 4, 1896, the other at highest water's edge during the ensuing year, would have measured the bed at statehood, the difficulties of using such lines accurately to reflect now the same bed 80 years ago would not be insubstantial. The evidence with respect to these difficulties and others relating to how the line would be drawn is summarized in Appendix A, and there, as well as subsequently in the body of the Report, is commented upon by the Special Master. Altogether aside from these difficulties, the Special Master is unable for independent reasons to recommend that the statehood bed be determined by reference to either of these contour lines proposed by the United States. One would reflect only the edge of the water—the inundated bed—the day of statehood, the other only the edge of the water—the inundated bed—at its highest point the ensuing year. This limitation upon the factors the United States would have the Court consider in determining the bed of this voluble Lake at statehood rests, as the Special Master believes, upon a mistaken interpretation of certain language of the Court in *Alabama v. Georgia, supra*, regarding what constitutes the bed of a navigable body of water. In considering there a dispute between the two States over their common boundary the Court interpreted the contract of cession which had been entered into be-

tween the United States and Georgia. This instrument indicated the eastern boundary of Alabama to be,

*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 river and along the western bank thereof.* (Italics in original)

64 U.S. at 511.

The Court first held this language to imply ownership of Georgia, the eastern State, in the bed of the river. The Court then described the bed as follows:

*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.* (Italics in original)

64 U.S. at 515.

The United States interprets the language "its average and mean stage during the entire year" to require the Court to limit the bed of the Great Salt Lake at most to the territories inundated by the maximum dimensions of its water during "the entire year" of statehood. The Special Master does not think the Court intended in *Alabama v. Georgia* that the mean or average stage of a river depends upon its position during any one year unless it be assumed, as cannot here be done, that such position coincides with the ordinary or mean high water position. That might be assumed with a body of water which has stabilized in the same position year after year, but that is not the situation with respect to the Great Salt Lake.

It is noted that in *Alabama v. Georgia* the Court sustained the contention of Georgia which had used "the high-water mark", as the report of the case states:

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.

64 U.S. at 509. Thus, in *Oklahoma v. Texas*, *supra*, involving the common boundary of those two States, after citing *Alabama v. Georgia*, the Court said:

When we speak of the bed [of the Red River] 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.  
 . . . (Emphasis added)

Such a line is not marked in a day or year in the case of a lake so expansively unstable as the Great Salt Lake, even if in some cases it might be done.

Also relevant is the further statement in *Texas v. Oklahoma*, where the Court gave the following meaning to "the bank" of the Red River:

. . . 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.

260 U.S. at 631-632.

In the view of the Special Master the elevation of the Lake January 4, 1896, the day of statehood, or its highest elevation during the ensuing year would be too narrow a basis for determining the statehood bed. It fails also

to include lands associated with the Lake which were not then inundated: the dry bed. Moreover, other reasons argue against so constricting the measure of the statehood bed. The late fall and early winter has marked the low point in the elevation of the Lake in its annual cycle of seasonal changes. Tr. 199. Thus a January 4th elevation would be a meager measure of the bed. And the record is barren of any evidence which indicates the Lake reached its mean or ordinary high water level the first year of statehood. The record indicates only its high water position that year. Pre-statehood history of the elevation of the Lake would need to be considered were the bed it had acquired at statehood to be determined now by a referent tied to its mean or ordinary high water mark at statehood. The Government's contour line position could perhaps be applied to a case in which a body of water has remained approximately within the same high water position year after year. As stated in the Interior Department opinion referred to above, this would be based on the:

assumption that each year's cycle is repeated within the same range: that the low and high water levels for one year will be about the same as the low and high water levels for any other year . . . ,

an assumption which the same opinion explicitly states "is not capable of application to Great Salt Lake." 70 I.D. 27, 62 (1963).

The Special Master finds and concludes that neither of the contour lines proposed by the United States would delineate the bed of the Lake at statehood.

The United States suggests no alternative to its proposed contour lines.

#### CONSIDERATION OF THE POSITION OF THE STATE OF UTAH

As has been noted, the State's position is that the surveyed meander line of the Lake should be held to define the bed of the Lake at statehood.

*The Nature of a Meander Line:* A meander line comes about when cadastral surveys are made of the public lands. Each survey begins at an initial point the coordinates of which are established by astronomical methods.<sup>11</sup> From the initial point the surveyor projects lines north and south and east and west. The east and west lines are parallel to latitudinal lines, the north and south to longitudinal lines corrected for convergence.<sup>12</sup> Township corners are placed every six miles along those lines, and the townships are subdivided into thirty-six sections, each a mile square.<sup>13</sup> When the surveyors come upon a body of water they run their lines right up to the mean high water line, and a meander corner (consisting of a monument marker) is set.<sup>14</sup> The *Manual* is the surveyors' guide in erecting these markers; thus:

A meander corner is established at every point where a standard, township, or section line intersects the bank of a navigable stream or other meanderable body of water.

*Manual* at § 3-117, p. 96. The surveyors are advised by the *Manual* to look for the ordinary or mean high water mark, and if they deviate from it or cannot find it to discuss their difficulties in the field notes they are required to keep.<sup>15</sup> The meander line follows the margin of the body of water along its general sinuosities, connecting meander corners and angle points (where the

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<sup>11</sup> *State of Utah v. United States*, No. 31, Original, Transcript of Oral Argument in The Supreme Court of the United States before Special Master Charles Fahy, Monday, July 28, 1975 [hereinafter Transcript or Tr.], statement of witness Glen B. Hatch, Tr. at 136.

<sup>12</sup> *Manual* at 55-57.

<sup>13</sup> Hatch, Tr. at 136; *Manual* at 62.

<sup>14</sup> Hatch, Tr. at 137.

<sup>15</sup> *Manual* at 96.

meander line itself changes direction) with a succession of straight line segments.<sup>16</sup> Given thus its straight and approximate nature the meander line does not purport to be an exact contour line all points of which must lie at the same elevation, nor does it represent the water's edge at any particular moment of time. Rather, it represents, "the margin of the area occupied by the water for the greater portion of each average year,"<sup>17</sup> excluding the freshets of winter or spring and the extreme droughts of summer.<sup>18</sup> According to the *Manual*:

The traverse of the margin of a permanent natural body of water is termed a meander line. All navigable bodies of water and other important rivers and lakes are segregated from the public lands at mean high-water elevation. In original surveys, meander lines are run for the purpose of ascertaining the quantity of land remaining after segregation of the water area.

*Manual* at § 3-115, p. 93.

A surveyed meander line serves several purposes. First, since the water's edge will fluctuate with the season, the weather and the passage of time, the edge of the water is an inadequate landmark for purposes of measuring. By contrast, a surveyed meander line is tied back to coordinates and physical features, with reference points in the horizontal plane.<sup>19</sup> Its location can always be determined. An additional advantage is that, since it is established in relation to the horizontal rather than the vertical (or elevation) plane, it is unaffected by the emergence or subsidence of the earth's crust. Further, even if water's edge were a constant, it would take its

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<sup>16</sup> *Id.*

<sup>17</sup> *Manual* at 95.

<sup>18</sup> *Alabama v. Georgia*, 64 U.S. 505, 515 (1859).

<sup>19</sup> Hatch, Tr. at 156.



shape from the contour of the adjacent land. The result would be that its sinuosities and curvatures would render it inappropriate for calculating the area of partial townships or sections fronting on the water. A meander line, however, constructed of straight-line segments, serves the purpose well.<sup>20</sup>

The proper surveying of a meander line depends upon both a proper concept of mean high water and the identification of the places which conform with that concept. As we have seen, "High-water mark is the line which the water impresses on the soil by covering it for sufficient periods to deprive it of vegetation."<sup>21</sup> When possible, the *Manual* thus advises a surveyor in constructing a meander line to rely upon the growth or absence of vegetation to indicate the extent and frequency of water inundation. According to the *Manual* it may be said that the mean high water is the margin of the area occupied by the water for the greater portion of each average year, as shown by the deprivation of vegetation.<sup>22</sup> The *Manual* offers an alternative physical indicator of mean high water when the topography permits, that is,

[A] definite escarpment in the soil is generally traceable, at the top line of which is the true position for the meander line.

*Manual* at § 3-116, p. 95.

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<sup>20</sup> When a straight line segment meander line is used to close the perimeter (for acreage measurement purposes) of a partial township or section, that terrain may be easily divided into an array of rectangles and triangles for the purpose of computing the quantity of land.

<sup>21</sup> *Manual* at 93, citing *Alabama v. Georgia, supra*.

<sup>22</sup> The sentence in text is a combination of the *Manual's* definition of mean high water with the physical indicator it urges the surveyor to employ. See notes 17 and 21 *supra*.

*The Meander Line of the Great Salt Lake, Its Origins, Nature and History in Relation to the Boundary of the Bed of the Lake at Statehood:* 1. As we have seen, this navigable inland Lake had no vegetation, soil or other mean high water "mark" to guide a surveyor searching for a mean or ordinary high water "position,"<sup>23</sup> *Joint Pre-Hearing Statement* (1975), p. 2; Tr. 30; and the *Manual* afforded him no special help in that situation. See Tr. 139, 153. Nevertheless, the basic object of such a search remained the mean or ordinary high water position, and as noted above, the surveyors were advised to discuss in their field notes any inability to apply or any departure from the instructions which included that standard. Each survey was run some time apart from the others, the first in 1855, the last in 1928,<sup>24</sup> except for the closing survey pursuant to Section 1 of the Act of June 3, 1966, which completed the surrounding of the Lake with a meander line in 1966.<sup>25</sup> And when each

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<sup>23</sup> While the great majority of sources discussing beds of bodies of water speak in terms of ordinary or mean high water "mark", the parties have here stipulated, *Joint Pre-Hearing Statement* (1975) at p. 2, that no such mark exists or did exist at relevant times in the recorded history of the Great Salt Lake. Therefore, this Report also uses the phrase "ordinary or mean high water 'position'" to indicate the perimeter or extent of the bed at any time, even though no visible physical "mark" was scribed there.

<sup>24</sup> The Lake perimeter segments were surveyed in 1855, three in 1856, 1885, two in 1886, 1887, 1899, 1906, 1912, three in 1913, 1928, and a closing survey was made in 1966. Reservation boundaries below the old meander line were established for the Bear River Migratory Bird Refuge in 1932, and for the Weber Basin Federal Reclamation Project (also called Willard Bay) in 1957. Exhibit P-29.

<sup>25</sup> The Submerged Lands Act of 1953, 43 U.S.C. § 1301(a). (1) (1970), confirmed in the States the beds of navigable waters up to the ordinary high water mark. Each segment of the meander line when surveyed represented the mean high water position. While together the segments do not repre-

survey save those of 1899, 1901<sup>26</sup> and 1928, was made, the elevation of the Lake was higher than on the day of statehood. This appears by a comparison of the data in Defendant's Exhibit B with the agreed statehood elevation of 4200.8 m.s.l. and seems to give support to the Government's position that the Great Salt Lake meander line encompasses more territory than would a single meander line constructed at mean high water on the date of statehood. However, this is not certain by any means. Two distinct factors must be considered: (a) the elevation of the Lake at the time of survey, and (b) the distance of the meander line from water's edge. There is evidence that at times the surveyors placed their meander line close to visible water's edge at the time of survey, leaving little dry bed inside the line. This would be proper practice if, at the time of survey, the Lake stood close to its mean high water position. A statehood meander line, however, constructed when the water was well below mean high water, would have to be put a considerable distance from water's edge on the flat shorelands, leaving considerable dry bed to account for mean high water. The position of such a statehood line might approximate the average elevation of meander line segments constructed in relation to a higher water's edge but allowing for considerably less dry bed.

There was testimony on behalf of Utah at the hearing that the field notes of the surveyors reveal no evidence that the mean high water position was not followed, Tr. 33, and that in most cases the notes indicated the surveyors were trying to follow it. *Id.* On behalf of the

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sent a uniform mean high water position the meander line as closed is not for that reason precluded in the circumstances of this case from consideration as the preferred approximation of the bed at statehood.

<sup>26</sup> The 1901 survey was of an island in the Lake not here in controversy.

United States it was testified that at least in some instances it appeared that the water's edge guided the surveyors in approximating mean high water and in locating the meander corners and the meander line. Tr. 165 *et seq.*<sup>27</sup> The state witness also agreed that portions of the meander line as platted do not in all places follow the sinuosities of a body of water, as does the meander line as a whole. He illustrated this by showing a straight line boundary of a township in the northern portion of the Lake's perimeter, platted as the meander line. Tr. 64-66.

The witness for the United States, while agreeing that a meander line should follow the general sinuosity of the water, emphasized, Tr. at 170,

The meander line is never the boundary. That is spelled out in many places in the manual.

In this connection the Government witness, in response to inquiry by the Special Master, also testified that the purpose of a meander line is,

So that we can define the land areas at the time of survey. It also gives us a closure of that section. . . . but mainly it is to define the land area so we can apply an acreage value to it.

Tr. at 175. Pointing out that the water fluctuates, but not the meander line, he continued,

[A]s far as surveyors are concerned, and as far as our manual states several places, [the meander line] is not a particular boundary. The water is a boundary line.

Tr. at 176.

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<sup>27</sup> In his opening statement at the hearing, counsel for the United States had advanced the position that the water's edge at statehood, or an approximation thereof, should govern what the State obtained by virtue of the equal-footing principle, to determine what the State should pay. Tr. 14-15.

These explanations of the meander line mean to the Special Master only that the meander line is not a boundary or measure of the water's edge, and, therefore, not a call of title which depends upon the water's edge as a boundary. As stated in *Railroad Co. v. Schurmeir*, 74 U.S. 272, 286-287 (1868):<sup>28</sup>

Meander-lines are run in surveying fractional portions of the public lands bordering on navigable rivers, not as boundaries of the tract, but for the purpose of defining the sinuosities of the banks of the stream, and as the means of ascertaining the quantity of the land in the fraction subject to sale, which is to be paid for by the purchaser.

In preparing the official plat from the field-notes, the meander-line is represented as the border-line of the stream, and shows, to a demonstration, that the water-course, and not the meander-line, as actually run on the land, is the boundary.

Since the sinuosities of mean high water are followed only generally by the meander line it is not even an exact boundary of title that follows mean high water. Further, "When by action of water the bed of the body of water changes, high-water mark changes, and the ownership [and boundary] of adjoining land progresses with it." *Manual* at § 3-115, p. 94; *Lane v. United States*, 374 F. 290 (1921).<sup>29</sup> Thus a boundary which ambulates as mean high water changes, as when the doctrine of reliction applies, may change its position in relation to the mean-

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<sup>28</sup> Quoted (with minor errors) in the *Manual* at § 3-118, p. 96.

<sup>29</sup> Although *Lane* is squarely cited for authority by the *Manual*, *loc. cit.*, its text does not speak to a change of mean high water. While fully consistent with the statement of principle announced in the *Manual*, *Lane* might be read more narrowly to hold only that where small areas are excluded from the tract closed by the meander line, they are nonetheless conveyed by the patent transferring that tract.

der line, which unless relocated by a new survey always remains in place.

Notwithstanding the foregoing, when the meander line is surveyed it does represent the approximate mean high water position, hence the border line of the stream, or here the line segregating the Lake from the uplands. *Schurmeir, supra*. When, under the equal-footing doctrine, title to the bed of the Great Salt Lake vested in the State January 4, 1896, the bed was not confined to the momentary water's edge (inundated bed). As the parties have stipulated, and this Report earlier quotes,

In surveying, a meander line represents an approximation of the ordinary high water mark. The legal measure of the boundary of a body of water is the high water line, which is located at the ordinary high water mark.

*Joint Pre-Hearing Statement (1973)*, p. 2.

2. Since the usual mean high water mark of a vegetation or wave-action line is non-existent around this Lake,<sup>30</sup> and was so at the time of each survey, we consider the history of the now-closed meander line, as it might bear upon the proper measure of the bed at statehood.<sup>31</sup>

The several surveys of this meander line represented approximately the ordinary or mean high water position of the Lake at the times they were made, following generally though not exactly the sinuosities of mean high water. While it may not demonstrate the ordinary or mean high water position as accurately as would a vegetation or wave-action line, this meander line is the best

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<sup>30</sup> *Joint Pre-Hearing Statement (1973)*, p. 2.

<sup>31</sup> "[T]he Court must devise another basis [than a vegetation or wave-action line] to determine the boundary of the bed of the Lake at any given time." *Joint Pre-Hearing Statement (1973)*, p. 3.

(and only direct) evidence we have of the approximate ordinary or mean high water position of the Lake when each survey was made.<sup>32</sup> The United States in its final brief filed December 24, 1975 (Supplemental Memorandum), recognizes this:

The United States has never contended that the segments of the meander line do not accurately reflect the mean high water level of the Lake existing at the various times those segments were surveyed.

Br. at p. 17.<sup>33</sup>

Moreover, in the Act of June 3, 1966, Congress considered the meander line to reflect the mean high water level when three (and by extension all) meander line segments were surveyed. In Section 1, the Act provides for closing the line by "following as accurately as possible the mean high water mark of the Great Salt Lake *used in fixing the meander line on either side of the unsurveyed area*". (Emphasis added.) The sides of the unsurveyed areas were the ends of only the 1886, 1912 and 1928 surveys, but there is no reason to suppose Congress was distinguishing those surveys from the others

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<sup>32</sup> Indirect evidence of the mean high water position at statehood is given by analysis of the high water position data for the years preceding statehood. When such data are averaged for a period of ten years, selected by the Special Master as a reasonable measure of time in which to discern the bed of so voluble a body of water, the indirect evidence generally confirms the direct (meander line placement) evidence. See *infra*, pp. 61-63.

<sup>33</sup> The Supplemental Memorandum immediately continues as follows:

The relevant fact is instead that no survey of the Great Salt Lake was undertaken at the time of Utah's admission to the Union, and thus no meander line has ever been drawn purporting to reflect the mean high water level of the Lake at statehood.



in this use of the mean high water mark as the proper location of the meander line.

The Special Master accordingly finds that the pre-statehood segments of the meander line each represented at least approximately a portion of the bed of the Lake at the time surveyed.

3. Prior to statehood eight segments were surveyed, and since statehood the meander line has been extended by seven surveys and the closing survey of 1966.<sup>34</sup> Exhibit P-29. As approximately representing the mean high water position when made, each of these post-statehood surveys also represented a part of the bed of the Lake when made. Joined with the pre-statehood meander line and closed by the lines of 1966, the post-statehood surveys encompass the whole periphery of the Lake and constitute the dividing line between Lake and uplands as shown on the township plats of official surveys made by the United States. No effort was made when statehood arrived to adjust the pre-statehood segments to account for any accumulated changes in the bed, nor were the post-statehood segments located on the plats with reference to the statehood water position then of record. Instead, the plats above referred to, showing the meander line before statehood, were continued in use as the dividing line between lands associated with the Lake and the uplands, the pre-statehood surveys being joined with those subsequent to statehood. The latter, moreover, appear to have been made in normal course as additions to the existing meander line, these new segments joining the old. Neither pre-statehood nor post-statehood segments appear to have been repositioned by resurvey or remeandering in the years following statehood.

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<sup>34</sup> For the dates of these perimeter surveys, and of the two federal reservation boundaries incorporated into the boundary proposed by the State, see note 24 *supra*.

4. The land records of the five Utah counties bordering the Lake are based on United States survey plats of the Lake-front townships, with the meander line shown as the dividing line between lands associated with the Lake and the upland sections or fractional sections.<sup>35</sup> The county records are also kept in the form of plats or maps, on which the townships, sections, and fractional parts thereof are further divided into lots with the boundaries and names of owners marked. County recorders are required to keep such ownership status maps and plats by Chapter 43, Laws of Utah 1899, as amended, codified as § 17-21-21 UTAH CODE ANN. 1953, as amended. When deeds, wills, and other instruments transferring title are recorded, the county maps are revised to reflect the new information. Unlike survey plats, the information on the county maps changes frequently, and new maps are constantly being drawn. Normally, as new county land record maps and plats are made the superseded documents are discarded. Sample maps for each of the five counties fronting on the Great Salt Lake are in evidence. Tr. 38-43. Exhibit P-32, Box Elder County; P-33, Weber County; P-34, Davis County; P-35, Salt Lake County; P-36, Tooele County. These county maps introduced at the hearing are undated. Tr. 41. After diligent search, Utah was unable to determine when the meander line first was platted upon these county records. Apparently, however, Lake frontage plats were first made and the meander line placed upon them shortly after the federal authorities approved the relevant Utah township surveys. See, Letter from the Attorney General of the State of Utah, Vernon B.

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<sup>35</sup> When reference is made as here to the meander line as the dividing line, or boundary, between lands associated with the Lake and uplands one is aware of course that the equal-footing doctrine speaks of the bed of navigable waters, and not of a dividing or boundary line. See also floor speech of Representative David S. King, *infra* note 48.

Romney, to the Special Master, August 8, 1975. Although there is no record evidence that such has ever occurred, if there were to be a remeandering of specific areas of Lake perimeter, the county plats would presumably be revised to show the position of the new meander line.

5. When need arose after statehood to delineate a boundary of the State's holdings in transferring title in the area of the Lake, the meander line was used for that purpose. The first such transaction occurred in 1910, fourteen years after statehood. It involved an application for a mineral lease by an oil and asphalt company. The State Board of Land Commissioners, now the State Land Board, sought the opinion of the Attorney General of the State. The Attorney General ruled, "that the lands below high water mark in this lake are the property of the State by reason of its inherent sovereignty", citing *Shively v. Bowlby*, 152 U.S. 1 (1894), but that the right to dispose of the lands was in the Legislature, rather than in the Board. Exhibit P-37, pp. 2-3. Upon the Governor's request for legislation to permit the leasing of "lands below the high water mark" of the Lake, the Legislature authorized the Board to lease all lands within the State lying below the water's edge on any lake or stream "to the bed of which the State is entitled . . .". Chapter 48, Laws of Utah, 1911, as amended, codified as § 65-1-14 UTAH CODE ANN. 1953, as amended. Pursuant to this authority there was undisputed testimony at the hearing before the Special Master that in 1911 leases "were issued with the surveyed meander line as the boundary between the upland and the lake area". Tr. 66-67.<sup>36</sup>

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<sup>36</sup> In the Rules and Regulations of the State Land Board Governing the Issuance of Mineral Leases, revised to include amendments May 12, 1959, as amended through June 19, 1973, Rule 24(e) adopted in 1965 reads in part:

. . . The term "State land within, under or around the Great Salt Lake" as used in Rules 24 and 25 shall in-

The state witness was asked,

From your review of the records and information in the Land Board Office, are you aware of any time or any leases where the Land Board has used something other than the surveyed meander line for purposes of its administrative jurisdiction in the leasing program?

The witness answered, "No." Tr. 47. He explained Exhibits P-39 and P-39A, which show by map and photographs several areas of interest to the State Department of Wildlife Resources and the Division of Parks and Recreation, and also tracts for which leases for the extraction of mineral salts have been issued, including some tracts in which there has been commercial development. Tr. 48-49. These include the plant of the Great Salt Lake Minerals and Chemical Corporation, to which the State had issued a lease in 1963, Tr. 51, and the operation of the Hardy Salt Company, whose evaporating ponds "are partially above the meander line on Hardy's private lands, and partially below the meander line on lands leased to Hardy Salt Company by the State of Utah." Tr. 52. Hardy's lease dates from 1954. Tr. 69. The location of an operation of the National Lead Company is also pointed out. Tr. 53-54. The National Lead lease dates from 1961. Tr. 69. The witness testified that the numerous photographs used in his testimony are fair and accurate representations of the lands he designates on the related map used in explaining his testimony. Tr. 54. These companies have obtained the right to use these locations below the surveyed meander line from the State Land Board, "[t]hrough leases and royalty agreements." Tr. 54-55.

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clude all State lands lying within the exterior boundary lines (extended to close) of the meander line around said lake as surveyed by the United States . . .

Rule 24 was a regulation governing mineral leases by the State. Exhibit P-38; Tr. 45-47, 69.

6. The witness then addressed several transactions between the Nation and State involving areas lakeward of the surveyed meander line:

In 1937, the United States Department of Agriculture and the Fish and Game Commission of the State entered into an agreement to establish what became known as the Ogden Bay Waterfowl Management Area. Exhibits P-39, P-39A. In this connection the Department of Agriculture leased from the State "a large tract of land" described generally in the agreement. *Id.* at 39. Testimony at the hearing before the Special Master was that this State land abutted but lay below the meander line. Tr. 219. See Exhibit P-39, area shown in light blue, marked B-8 through B-11.

In 1939, the Utah Department of Fish and Game, and the Secretary of the Interior, entered into an agreement under which the Secretary, upon approving certain surveys and plans for the above mentioned Ogden Bay area submitted by the state agency, certified to the Secretary of the Treasury a payment of \$3,000.00 to Utah in connection with the development there of a project for migratory wild-fowl. Exhibit P-43, pp. 45-46.

In 1940, the Secretary of the Interior approved the application of the State for a Civilian Conservation Corps Camp for the Ogden Bay area upon the representations by the Utah Department of Fish and Game that the State "has title to and control of the lands on which work will be performed". Exhibit P-43, pp. 49-50.

In the area of the Weber Basin Federal Reclamation Project, the United States, in 1957, purchased from Utah for \$20,264.25 lands immediately below and adjacent to the meander line for the Willard (sometimes called Willard Bay) Reservoir. Tr. 55; Exhibit P-40, p. 1. The original grantee in the arrangement between Nation and State was the Weber Basin Water Conservancy District, which conveyed the land to the United States.

Exhibit P-43, Tab C, pp. 31-32; *see also*, Tr. 55-56. In mitigation of waterfowl damages occasioned by construction of the Reservoir, the United States chose to financially assist the State Department of Fish and Game in developing the nearby Willard Waterfowl Management Area.<sup>37</sup> The Memorandum of Agreement between the United States (acting through the Bureau of Reclamation of the Interior Department pursuant to the Act of June 17, 1902, 32 Stat. 388, as amended), and Utah (acting through its Department of Fish and Game), states a purpose to be to prevent damage to fish and wild life and improve conditions for game by the construction of a "waterfowl management area". Exhibit P-43, Tab C, pp. 31-37.

The Memorandum states:

The Willard Reservoir will inundate 10,700 acres of Willard Bay, 8,422.92 acres of which were unsurveyed State-owned lands lying between the meander line and Great Salt Lake which were originally assigned to the Utah State Department of Fish and Game for wildlife purposes.

*Id.* at 31 The State-owned lands referred to abutted the meander line.

In 1957 the Secretary of Interior approved the use of \$86,500.00 in federal funds for the Locomotive Springs Refuge project, pursuant to the Wild Life Restoration Act, 50 Stat. 917, as amended (the Pittman-Robertson Act) and the Fish Restoration and Management Projects Act, 64 Stat. 430, as amended (the Dingell-Johnson Act). Exhibit P-43, Tab B, pp. 24-29. The preliminary project statement shows that 11,000 acres of "State property" (immediately below and adjacent to the surveyed meander

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<sup>37</sup> Since named the Harold S. Crane Waterfowl Management Area. See Tr. 96-97, Exhibits P-42D and P-39.

line) were accordingly to be utilized for the project. Exhibit P-43, Tab B, p. 2.

Several additional and comparable formal evidences of recognition, in 1940, 1941, 1955 and 1956, of State ownership of the lands below the surveyed meander line could be noted. See Exhibit P-43, Tabs D, E, and F. The force of all this cumulated evidence is not diminished by the creation, in 1940, of the Hill Air Force Range on the western shore of the Lake by the federal authorities, even though one call of the reservation's boundary was "the shore of Great Salt Lake". There was no meander line segment then traversing the Range.<sup>38</sup>

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<sup>38</sup> Exception from the United States quitclaim deed of the lands within the Hill Air Force Range was made in recognition of Executive Order 8579, promulgated by President Franklin D. Roosevelt on October 29, 1940, reserving those territories for use as an "aerial bombing and gunnery range". Initially, there was disagreement at the hearing before the Special Master whether any lands within the Hill Air Force Range are in dispute in this litigation. Tr. 21-24. Utah expressed the view that it owns those portions of the Range below the meander line as part of its statehood equal-footing claim, and knows of no independent Government title thereto. Tr. 22-23. The position of the United States is not clearly articulated, but the entire area lakeward from the southern closing segment of the meander line traversing the Range was excepted from the Government's quitclaim deed. Exhibit P-25A, p. 1, proviso 4. Since the only portions of the Range inside the meander line are excepted from the quitclaim deed (which gives water's edge as the eastern boundary), they are not the subject of compensation, and the Special Master determines that they are not properly in issue before him. The Act of June 3, 1966, § 5(b), says in pertinent part that the State "may maintain an action in the Supreme Court of the United States to secure a judicial determination of the right, title and interest of the United States *in the lands conveyed to the State of Utah pursuant to Section 2 of this Act.*" (Emphasis added). As constituted by President Roosevelt, the Range was bounded on the east by the shore of Great Salt Lake stretching between two meander corners. That un-



In addition, there were purchases represented by deeds executed subsequent to the quitclaim deed, for which reason they are of less significance. These post-1967 transactions, however, follow the pattern of the past. One was in connection with the construction of Interstate Highway 80, Exhibit P-41, Tr. 56-57, and involved lands adjacent to and below the meander line in the southernmost portion of the Lake, which the federal authorities recognized as State-owned, and for the use of which the Nation paid the State.

7. There is also case law in the Supreme Court of Utah holding that the lakeward boundary of the land of a private patentee of the federal government was the 1856 meander line segment, and that it gained no right or title below (inside) that line by operation of the doctrine of reliction. *Utah State Road Commission v. Hardy Salt Company*, 26 Utah 2d 143, 486 P.2d 391 (1971); see also *Robinson v. Thomas*, 75 Utah 446, 286 P. 625 (1930).

*The History of the Act of June 3, 1966, Particularly as it Bears upon the Relation of the Meander Line and the Doctrine of Reliction to the Bed of the Lake at Statehood:* This outline of the Act of June 3, 1966, may well begin with the decision of the Department of the Interior reported as *State of Utah*, 70 I.D. 27, February 18, 1963, affirming a decision of the Director of the Bureau of Land Management of May 31, 1961, applying the doctrine of reliction to the Great Salt Lake.

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surveyed shoreland formed the southerly gap in the meander line, and was not closed until 1966 under § 1 of the Act of June 3. Creation and use of the Range by the federal authorities therefore does not constitute any significant break in the continuity of Utah's exercise of dominion and sovereignty below the meander line because there simply was no meander line in existence along the Range's lake frontage until after implementation of the Act of June 3.

The decision of the Director had modified the opinion of the Area Administrator approving the expressed intention of the Bureau of Land Management to survey as federal lands territories within the 1855-1856 segments of the meander line and bordering the Lake, and to establish their boundary "along a contour representing the height of the lake on January 4, 1896, . . .", 70 I.D. at 31. The Department stated that the plan of survey was based:

. . . upon the premise that the land now lying between the meander line established by surveys in 1855 and 1856 [thus not mentioning other pre-statehood surveys] and the high-water mark at the time of statehood in 1896 is Federal land since it was exposed dry land adjoining public domain and not part of the lake bed in 1896 when Utah became a State. The plan assumed further that lands below the high-water mark at the time of statehood belong to the State as part of the bed of the lake. Thus, the limits of the survey were to be determined by the high-water mark at the time of statehood.

70 I.D. at 28-29. The reference was not expressed in terms of the ordinary or mean high water mark.

The Director of the Utah State Land Board had objected to, and Utah appealed, the Area Administrator's decision, believing that the "water line as it existed at high water in 1895 would include all the land which was lake bed on January 4, 1896, and would be a more realistic line to survey."<sup>39</sup> Here too, the reference is not

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<sup>39</sup> Letter from Frank J. Allen, Director of the Utah State Land Board, to the Bureau of Land Management, December 16, 1959, cited in 70 I.D. at 31-32. Mr. Allen had been notified of the intention of federal authorities to survey inside the meander line nine days earlier, December 7, 1959. The federal survey proposal arose after a request from the Bureau of Reclamation and the Fish and Wildlife Service of the U.S.

to the ordinary or mean high water mark. Agreeing with the Director of the Bureau of Land Management, the Interior Department opinion states that during the 40 years subsequent to the meander line surveys of 1855 and 1856 the water had receded, leaving at statehood an expanse of dry land between those meander line segments and the statehood water's edge; and, also, that other expanses of land were uncovered between the "mean high water mark" at statehood and 1963, "exposing an undetermined quantity of land which presumably constituted part of the lake bed at statehood. . . ." 70 I.D. at 28. The Director was affirmed by the Department in his holding that the survey as federal lands of all these territories was proper. While the State contended that accretion and reliction were not applicable, the Interior Department nevertheless held:

that the United States is entitled to alluvion formed by accretion and reliction to the uplands owned by the Federal Government.

70 I.D. at 29, 30. This legal basis,<sup>40</sup> which assumed prior State ownership, was the predicate for the claim of the United States during the ensuing legislative history of the Act of June 3.<sup>41</sup>

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Department of the Interior that certain public lands within the meander line be withdrawn from possible patent and reserved for wildlife refuges. That proposal was made in 1955.

<sup>40</sup> The Interior Department opinion is not inconsistent with that legal basis when it states that because there are no reliable physical guides the only feasible way to segregate uplands from lands associated with the Lake is to meander the Lake along the water's edge at the date of survey. 70 I.D. at 64.

<sup>41</sup> Assertion of federal title to lands exposed by the recession of the waters in the pre-statehood period is in the nature of a claim that the early meander line segments do not reflect

The Utah delegation in Congress introduced legislation to override the Department's position and to confirm the State's title. Thus, on February 6, 1962,<sup>42</sup> Senator Wallace F. Bennett (for himself and Senator Frank G. Moss) introduced S. 2810, 87th Cong., 2d Sess. (1962), "to confirm in the State of Utah title to all lands lying below the high water line of Great Salt Lake in such State." It was referred to the Committee on Interior and Insular Affairs, of which Senator Henry M. Jackson of Washington was chairman. 108 CONG. REC. 1751 (1962). Congressman Sherman P. Lloyd of Utah introduced a similar bill in the House on February 7, 1963,<sup>43</sup> one year later, H.R. 3535, 88th Cong., 1st Sess. (1963), describing its purpose to be:

to confirm in the State of Utah title to all lands lying below the high waterline of Great Salt Lake as of the effective date of the admission of that State into the Union. The lake is deemed navigable and confirmation of title to the lake bed in Utah is, therefore, legally proper and traditional. Relictions and accretions since the date of statehood have raised questions as to present title to surrounding and neighboring lands . . .

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changes in the bed from 1855-1896. Such a claim of course does not involve any issue of title. As soon as the doctrines of accretion and reliction are invoked, however, the passing of title is at issue, and this could only occur in the post-statehood period when the State of Utah existed to lose title back to the United States. Thus, to hold that territories are federal by reliction is to assume that they were once Utah's under the equal-footing doctrine. It is of significance, therefore, that in the development of the legislative history all lands within the surveyed meander line are deemed relicted lands.

<sup>42</sup> The decision of the Director, Bureau of Land Management, rendered May 31, 1961, was then still under consideration on appeal by the State of Utah.

<sup>43</sup> 109 CONG. REC. 2007 (1963).

109 CONG. REC. 1956 (1963). Here again the reference is to the high water line, which is a technical error unless intended as the "ordinary or mean high water line". That bill was referred to the House Committee on Interior and Insular Affairs, under the chairmanship of Representative Wayne N. Aspinall of Colorado.<sup>44</sup> A companion bill, H.R. 3489, 88th Cong., 1st Sess. (1963), was introduced on the same day by Representative Laurence J. Burton (also of Utah), and similarly referred to Mr. Aspinall's committee. *Id.* at 2006.

On February 18, 1963, the date of the Interior decision, Senator Bennett (again for himself and Senator Moss) introduced S. 819, 88th Cong., 1st Sess. (1963), "to confirm in the State of Utah title to all lands lying below the high water line of Great Salt Lake, . . ." It was referred to the Senate Committee on Interior and Insular Affairs. 109 CONG. REC. 2390 (1963). On October 10, 1963, the Utah Senators introduced S. 2230, 88th Cong., 1st Sess. (1963), "to confirm in the State of Utah title to lands lying below the meander line of the Great Salt Lake . . ." <sup>45</sup> *Id.* at 19153. That same day Mr. Lloyd stated in the House, in extension of his remarks in the *Congressional Record*, *Id.* at 19303, "[T]oday I am introducing a bill designed to confirm in the State of Utah title to the bed of the Great Salt Lake and adjoining lands contained within the surveyed meander line.", adding in part:

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<sup>44</sup> *Id.*

<sup>45</sup> Here the legislative reference is to the "meander line", seeming to equate it with "the high water line". The hearings show that there had been a "bobble" or confusion between the Washington offices of the Utah representatives and the State Land Board concerning the measure of the bed claimed by the State. Testimony of Senator Bennett, Exhibit P-20, pp. 15-16.

As you are aware, whenever a State enters the Union it acquires title to the beds of all navigable lakes and rivers within its borders. This fulfills the constitutional requirement of equality among the States. It is customary that a meander line be surveyed designating the natural limits of the lake and defining measurable boundaries of adjoining uplands. These boundaries, once surveyed and determined, are often subject to slight changes through fluctuation of water levels or shifting courses. Laws must then be formulated and applied which determine title to lands which often are gradually uncovered by an imperceptible recession of navigable waters.

Historically, opinion has widely differed as to which law governs title to lands exposed by reliction. . . .

. . . .

The simple fact is that the structure and evolution of the common law and its constitutional corollaries are not designed to cope with the particular problems posed by the Great Salt Lake. To apply them in this instance would work a gross injustice.

On that same day, October 10, 1963, both Mr. Lloyd and Mr. Burton, respectively, introduced H.R. 8776 and H.R. 8777, 88th Cong., 1st Sess. (1963), to confirm in the State of Utah title to lands lying below the meander line of the Great Salt Lake. *Id.* at 19323.

On January 6, 1965, Senator Moss introduced S. 265, 89th Cong., 1st Sess. (1965), which became, as later amended, the Act of June 3, 1966, originally styled "to confirm in the State of Utah title to lands lying below the meander line of the Great Salt Lake in such State." This bill was also referred to Senator Jackson's Committee on Interior and Insular Affairs. 111 CONG. REC. 171 (1965).

The Senate bills became the subject of hearings. In the printed volume of those of the Senate Public Lands Subcommittee appears a letter from the Honorable John A. Carver, Assistant Secretary of the Interior, to Senator Jackson, September 11, 1964, commenting on S. 2230, 88th Cong., 1st Sess. (1963). Exhibit P-20, p. 10. Having now come to recognize the need of a permanent future boundary between Nation and State for this unique Lake, the Department nevertheless adhered to the position that by reason of reliction the United States as the riparian owner had a vested right to previous accretions and relictions. (The print of the Senate Hearing, Exhibit P-20, is entitled "Salt Lake Meander Line.") During the same hearings a letter to Senator Jackson from Acting Secretary of the Interior Kenneth Holum, under date of March 12, 1965, objected to "confirming" title in Utah, as S. 265 originally provided. Exhibit P-20, pp. 4-6. The Department proposed an amendment to recognize that,

the Federal Government is entitled to survey as public land of the United States all lands which were formerly part of the bed of the Great Salt Lake and which by the process of reliction or accretion now front public lands of the United States. *State of Utah*, 70 I.D. 27 (1963). Consequently, where the uplands bordering upon the existing meander lines of the Great Salt Lake are owned by the United States, all lands situated between the meander lines and the high water mark of the lake at its level on the date when such land is surveyed would also be owned by the United States.

*Id.* at 5. Here the Department also adopted the meander line as the beginning point for measuring reliction.

At the same hearing Senator Moss stated Utah's claim to be "to the lake bed as defined by the meander line" under the equal-footing doctrine, *Id.* at 16, and the position of the Interior Department to be that the United

States as the owner of land around the Lake at statehood had "acquired a vested right to further accretions and relictions since." *Id.* He pointed out that the bill follows the water line of 1855-56, first because a partial survey of the lake was made then, and, second,

because it represents a norm in the lake's level between the time of settlement in 1847 and statehood in 1896. . . .

The lake level at the time of statehood was at a 30-year low and therefore was not truly representative.

*Id.* at 17.

Extensive hearings were also held by the House Committee on Interior and Insular Affairs into H.R. 1791 introduced by Congressman David S. King of Utah, and H.R. 6267, 89th Cong., 1st Sess. (1965), companion bills to S. 265, then before the Committee. The print of those hearings is entitled "Great Salt Lake Relicteds Lands." Exhibit P-22.

From the hearing stage the legislation in the 89th Congress moved on to Committee reports, floor debate, a Conference report and more floor discussions. The pattern of positions developed previously continued: the claim of the United States was based on reliction, with the meander line deemed the boundary if reliction did not apply.

On February 17, 1966, the Senate Committee reported on S. 265, S. REP. No. 1006, 89th Cong., 2d Sess. (1966), headed "Great Salt Lake Relicteds Lands." The Report states:

The "meander line" is a public lands survey line run in 1855-56 delineating the greater part of the shoreline as it then was. It is considered a norm in the lake's level between settlement of the area in 1847 and the date Utah was admitted to the



Union in 1896. Since the survey, the lake has again fluctuated greatly, its present waterline being much below the meander line. However, the waters are again rising.

. . . .

The position of the Federal Government with respect to its claim to title is set forth in some detail in the reports of the Departments of Justice and Interior, which are included herein. The bases for the claims of the State of Utah were presented vigorously at the hearings by the Senators from Utah, the Governor of the State, and by the assistant attorney general of Utah.

Briefly, the Federal Government's claim is based on the common law principle of reliction. That is, since the Government owns the uplands, the lands added by the recession of the waters of the land became its property as the upland owner.

The State's position is that when Utah became a State in 1896 ownership of the beds of all inland navigable waters within its boundaries became the property of the State. Since the shoreline of Great Salt Lake as it was on January 4, 1896—the date of statehood—is now impossible to determine, the meander line run by the Federal Government in 1855-56 appears to offer both the equitable and practical division.

S. REP. NO. 1006, 89th Cong., 2d Sess., 2-3 (1966) (to accompany S. 265).<sup>46</sup>

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<sup>46</sup> As with other legislative materials previously and subsequently discussed, reference to the other pre-statehood meander line segments of 1885, 1886 (two that year) and 1887 is omitted. The legislative history references may be read to use the 1855-56 dates as shorthand for the entire meander line, see note 48, *infra*, or as a distinct measure of the bed segregated at the elevations used in placing the 1855-56 surveys which were, respectively, 4204.7 m.s.l. and 4204.4 m.s.l.

The Report contains a letter from then-Deputy Attorney General Ramsey Clark of June 18, 1965, to Senator Jackson, stating the position of the United States. The Deputy Attorney General refers to and paraphrases the decision of the Interior Department, *State of Utah, supra*:

[T]he United States, wherever it is a littoral or riparian owner of public domain, has a vested right to the accretions and relictions attaching thereto.

*Id.* at 16. He expressed no "real doubt" as to the title to the "relicted lands." He accordingly opposed confirming title thereto in Utah, as the unamended S. 265 would have done. He asserted no basis for a claim of the United States other than reliction. *Id.* at 17. After floor debate, S. 265 passed the Senate on March 4, 1966. 112 CONG. REC. 5009 (1966).

On the House side, the Committee on March 15, 1966, reported on H.R. 1791 as amended.<sup>47</sup> H.R. REP. NO. 1327, 89th Cong., 2d Sess. (1966). The Report states the principal purposes of the proposed legislation as it had developed through compromise of the Utah proposal for "confirming" its title to provision of a permanent future boundary and a settlement by litigation, if necessary, of past interests:

(1) to provide for the transfer to the State of Utah of whatever interests (except those arising out of oil and gas deposits) the United States may have in the lands lying below the surveyed meander line of the Great Salt Lake and above the present water

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Exhibit P-46A. That stage was referred to as the "norm" for the Lake.

<sup>47</sup> The Committee deemed H.R. 6267, introduced by Mr. Burton, to be a companion bill to the one reported, and noted the pendency before the House of engrossed bill S. 265 which by then had passed the Senate, H.R. REP. NO. 1327, 89th Cong., 2d Sess., 3 (1966).

level of the lake which have been uncovered by recession of the waters of the lake and (2) to provide a means for determining what, if any, those interests are and what amount should be paid by the State to the United States for them.

*Id.* at 3.

The dispute was stated to have stemmed basically from differing positions on the applicability to the Lake of the common law doctrine of reliction: "As noted above, the contention of the Federal Government is based upon the common law principle of reliction . . . ." *Id.* at 5. The State's position, on the other hand, is "that the surveyed meander line, which was commenced in 1855 and attempted to follow the mean high water line of the lake, is the line of demarcation . . . ." This Report also contains a letter of Deputy Attorney General Clark like that to Senator Jackson previously noted, and one from Acting Secretary of the Interior Holum. In both, the position of the United States is based solely on reliction. *Id.* at 7-14.

On April 4, 1966, Chairman Aspinall moved on the floor of the House to suspend the rules and pass H.R. 1791. In the ensuing debate he stressed that, "The controversy arises out of the differing legal positions of the State and Federal Government on the applicability to Great Salt Lake of the common law doctrine of reliction." 112 Cong. Rec. 7505 (1956). Congressman Burton called attention to Government purchases of Utah-claimed lands, and Congressman John P. Saylor of Pennsylvania supported him, specifically noting that on "a number of occasions," the United States bought "areas on the sea-side of the meander line, and paid the State of Utah the appropriate value for those lands." *Id.* at 7506-7508. The most lucid and compelling argument with respect to the role and function of the meander line was made by Congressman David S. King of Utah, set forth

in the margin.<sup>48</sup> Mr. King's analysis included a sum-

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<sup>48</sup> Excerpt from remarks of Mr. King, 112 CONG. REC. 7506-7507 (1966):

The general rule of law is that States own—and not just control—all of the lands lying under navigable streams and lakes at the time of statehood. This principle was clearly enunciated by the Supreme Court in the case of *United States v. Utah*, 283 U.S. 64, in 1931, and has never been altered since then. According to this principle, the margin—or meander line—of the said navigable body of water delineates the outer extremity of State ownership. If the body of water is contiguous to Federal property, then the meander line constitutes the dividing line between the State and the said Federal property.

The “meander line” is legally equivalent to the “mean high water mark.” The mean high water mark is the highest water mark—during the course of ordinary, that is, daily and seasonal, fluctuations—reached by that water during a mean year, that is, a year when the average water level is midway between the highest known flood level and the lowest known drought level. This mean high water mark can ordinarily be determined by using as evidence the vegetation line, caused by the action of the water.

It should be pointed out that most lakes have reasonable surface-level stability, as well as area stability. The normal outflow from the lake acts as a regulator, making it impossible for the surface-level fluctuations to exceed certain restricted limits. The relative steepness of the banks limit the extent of the area fluctuations.

The mean high water mark can therefore be quite easily determined as far as most lakes are concerned.

But the Great Salt Lake is quite different, and for that reason, requires special treatment. In the first place, the marginal ground adjacent to the water's edge is quite repugnant to the growth of normal vegetation. In the second place, the fluctuations of the lake surface are so completely erratic as to defy the application of any normal rules based on a more or less predictability of the fluctuation pattern. In the third place, the surface level

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of the lake has been consistently receding during recent history.

Over the past 115 years the lake has dropped over 10 feet, exposing something in the neighborhood of 650,000 acres of land. The recessions have not been uniform or continuous. During at least six distinct historic periods the lake level has risen instead of dropped. From cycle to cycle, from year to year, and even from month to month, or from day to day, the level of the lake may change. The overall trend is apparently down, but frequently this trend has been interrupted by temporary upward trends. It is a fact that even a strong wind blowing continuously in one direction can move back the waters, thus exposing many hundreds, or thousands, of acres.

The difficulties which this situation creates are thus apparent. First, it is impossible to determine where the meander line is, by reference to the mean high water mark reached in the course of ordinary fluctuations. The lake has no ordinary fluctuations. The early surveyors going onto the lake's shore in 1850 were incapable of determining any mean high water mark. From what they could determine, the waters of the lake had been receding for many years, leaving little evidence of where they had been at any one particular period of time.

Second, even if a meander line were established by some arbitrary fixing of a mean high water mark, the line would become obsolete as soon as the waters further receded or advanced.

Because of these difficulties, the first surveyors established what they felt to be a reasonable mean high water mark in 1855. Admittedly it was arbitrary, because of the extreme difficulties above pointed out. It became generally accepted, however, as the official meander line, later dividing State ownership from Federal ownership.

This meander line was approved by the Surveyor General and was platted on the official records of the county recorders in the counties located contiguous to the lake. The Federal Government platted lots adjacent to the meander line of irregular shapes and odd acreages, and patented many of these lots to private individuals or organizations. Essentially, all maps prepared by the

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United States and the State of Utah have shown the Great Salt Lake to include the area contained within the aforesaid 1855 meander line.

Three points should be made with regard to the above meander line: First, it was established over a long period of time, but the year 1855 is used for convenience of designation. Second, the survey which established this line was never completed. There is a substantial area on the west of the lake that has never been surveyed. Third, when Utah became a state in 1896, the 1855 meander line was accepted by the Federal Government, as well as the State of Utah, as the line of demarcation between State and Federal territory. This was justified on the ground that although the 1855 meander line was somewhat higher than the 1896 meander line, the level of the lake in 1896 was cyclically low, and the 1855 meander line seemed to more nearly represent the mean high water mark for the year 1896.

It followed that from 1896 until 1961, it was assumed by all parties, Federal, State, and private, that the State of Utah owned all the lake land within the 1855 meander line.

This is demonstrated by the fact that the State of Utah has gone ahead and leased and sold some of these lands to private individuals. The State department of fish and game has spent substantial sums of money in developing a number of extensive waterfowl management areas on these exposed lands.

Moreover, the Federal Government has demonstrated its belief that these lands were State-owned by purchasing some of them from the State of Utah—in the Bear River Migratory Bird Refuge area—and by providing moneys for the purchase of other shorelands based on the same belief, and also by providing funds for reimbursement to the State for development of waterfowl areas on the understanding and acknowledgement that such developments were on State-owned land.

If matters had remained as they were, the bill now before the House would have been unnecessary. But serious disagreement came about because of a ruling of the Department of the Interior, dated May 31, 1961, and affirmed by the Secretary on February 18, 1963, that the

mary history of the Great Salt Lake meander line, its relationship to mean high water and to historical practice and boundary recognition by the two sovereigns and private parties. Mr. King posed the solution in terms of the meander-line-unless-reduced by reliction, granted that Utah might therefore have to pay compensation, but argued persuasively that reliction ought not be held to apply and the historical as well as future boundary therefore should be the meander line. *Id.* While Mr. King's discussion and the Special Master's analysis of the problem differ in a few details<sup>49</sup> they are very similar, and Mr. King's conclusion is altogether consistent with the Special Master's recommended decision. Further, while this floor discussion shows that the House was informed that the meander line was not a scientific referent for the bed, the House was no doubt impressed with the strength of Mr. King's support of the meander line as the former as well as the future boundary of the bed.

Minutes thereafter, the House passed H.R. 1791, 112 CONG. REC. 7508 (1966). Mr. Aspinall then asked unanimous consent for immediate consideration of engrossed bill S. 265. There being no objection, the Senate

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Federal Government would claim title to all of the exposed lands, and that a new survey should be made, using the mean high water mark of the lake in its present low level as the new meander line.

The ruling was based on the common law doctrine of reliction which had been recently applied by the Federal circuit court of appeals in the case of *United States v. State of Washington*, 294 F.2d 830 (1961), certiorari denied, 369 U.S. 817. In my opinion, this doctrine has no application to the Great Salt Lake whatsoever.

<sup>49</sup> The Special Master would not make the "midway" reference in defining the mean high water mark, nor does the testimony at the hearing indicate that the 1855 meander line segment was not related to the then mean high water position, or was "arbitrary."

bill was read and Chairman Aspinall then offered his amendment to strike all after the enacting clause, and insert in lieu thereof the provisions of H.R. 1791 as just passed. That amendment was agreed to, S. 265, as so amended was passed, and both a motion to reconsider the vote on S. 265 and House bill 1791 itself were laid on the table. *Id.* at 7509-7510.

On April 7, 1966, the House of Representatives' message regarding these amendments to S. 265 was put before the Senate. Senator Mike Mansfield of Montana moved that the Senate disagree to the House amendments and request a conference thereon. That motion was adopted and conferees on the part of the Senate were appointed. *Id.* at 7972-7973. The House refused to recede from its amendments and conferees were appointed on April 18, 1966. *Id.* at 8185.

Finally came the Conference Report of May 18, 1966, accompanying S. 265, as amended, providing, "for conveyance to the State of Utah of the interests of the United States in relicted lands surrounding Great Salt Lake below the established meander line," with the noted exceptions. H.R. REP. NO. 1540, 89th Cong., 2d Sess., 4 (1966) (conference report to accompany S. 265). Senator Moss referred to the assumption of both Nation and State that "these lands belonged to" the State, and the United States "had even bought a portion of the lands to use for a wildlife refuge. In 1961 the Department of the Interior did an about-face and in a solicitor's opinion decided that these were Federal lands under the common law doctrine of accretion and reliction adjacent to navigable waters." 112 CONG. REC. 11047 (1966). Chairman Jackson also referred to the Federal claim as "based on the time-honored common law theory of reliction". *Id.* at 11048. A section-by-section analysis of the conferees' draft was made part of the record of the Senate debate on the Conference Report. 112 CONG. REC. 11049



(1966). The Senate agreed to the Conference Report on May 19, 1966. *Id.*

On the floor of the House Mr. Aspinall stated, for the conferees,

at issue is the ownership of many thousands of acres of so-called relicted lands surrounding the present waters of the lake. . . . Until 1961 the question of ownership had not been raised by the Federal Government and it was assumed title was in the State.

*Id.* at 11080. The conferees' statement, pointing out, as above, that the controversy involved "the interests of the United States in relicted lands surrounding Great Salt Lake below the established meander line . . . ." was made part of the record of the House debate on the Conference Report. *Id.* at 11079. The House agreed to the Conference Report on the same day as the Senate, May 19, 1966. *Id.* at 11081. On June 3, 1966, President Lyndon B. Johnson signed the Act into law.

Thus, as the legislative history took its course, the Act of June 3 emerged as (a) the means by which the surveyed meander line was to become the permanent surface boundary between Nation and State in the area of the Great Salt Lake and (b) the means by which, with the exceptions noted in the quitclaim deed, a determination could be made of the issue whether the United States, by operation of the doctrine of reliction, had obtained title to any of the land below the surveyed meander line for which compensation was due by the State, an issue which has since been determined adversely to the United States in the present litigation. *Utah v. United States*, 420 U.S. 304 (1975). With respect to the historical boundary no other purpose was indicated.

## THE RECOMMENDED DECISION

We undertake now to appraise the position of the State in light of the situation which has been outlined.

1. While the position of the United States is considered unacceptable, that of the State has its own problems. Nevertheless, the meander line is believed to be the most reasonable answer to the questions posed. In its entirety this line is related historically to the boundary of the bed before, at and after statehood. As has been noted each segment (except for the closing lines) approximated when surveyed a mean or ordinary high water position, and no change in this approximation of the boundary between Lake and uplands was sought by the United States due to the advent of statehood: it was continued as such on the official plats. See the plats contained in Exhibit P-30A, plat number 43 of which is reproduced following Appendix B to this Report, as illustrative.

2. The physical, as distinguished from the historical, relation of the meander line to the statehood bed depends upon its relation to the ordinary or mean high water position of the Lake at statehood, which position cannot now be determined with accuracy. It can only at best be approximated. In approximating it we examine first the high water elevations for a reasonable pre-statehood period, deemed to be ten years.<sup>50</sup> The unstable and vol-

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<sup>50</sup> A post-statehood period of recession is not considered for this purpose, for state ownership at statehood was not diminished thereafter by reliction, *State of Utah v. United States*, 420 U.S. 304, and see note 56 *infra*, or otherwise, except for the conveyances to the United States which have been noted. Were there mean high water data available for the pre-statehood period, such scientific data would be more helpful, but in its absence the Special Master relies upon averaging the annual high water data which shows the farthest advance of the water each year.

uble nature of the Lake throughout its modern recorded history supports the reasonableness of a ten-year period immediately preceding statehood, which is one fifth of the total pre-statehood period of annually recorded high water elevations. Each of those elevations exceeded the elevation at statehood, and their average was 4204.45 m.s.l.<sup>51</sup> From this average it follows that the ordinary or mean high water position—the bed—at statehood, at least approached more closely the position of most segments of the surveyed meander line than it did the elevation of the Lake the first year of statehood, 4201.8 m.s.l., relied upon by the United States.

Utah, in advancing the meander line as the historical boundary,<sup>52</sup> compared the acreage contained within it with the acreage embraced by a contour line representing an average high water position for the full forty-eight year pre-statehood history of the Lake, set at 4205.79. Brief of the State of Utah, October 1, 1975, at 71-72. The data which the United States used to estimate the acreage between the surveyed meander line and a statehood contour line at 4201.8 m.s.l. showed an area of about 130,119 acres, including the school sections. See Defendant's Exhibit I; Tr. 194-195. Using this figure, and adding to it an estimate from Exhibit P-5 of the acreage within a contour line at the 4201.8 elevation, the State concluded that the meander line encloses approximately 1,283,119 acres. Exhibit P-5 is reproduced as an exhibit

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<sup>51</sup> The brief of the State of Utah states that this ten-year average is 4204.95 m.s.l., referring the reader to Exhibit P-45A, which is not in the record. The number in text is derived from high water data for the preceding ten years given in Exhibit P-46A.

<sup>52</sup> The State makes no claim to historical ownership of any acreage in excess of that which lies within the meander line, having throughout rested its case upon that line as the external boundary of its historical claim.

following Appendix B. Returning to the table in Exhibit P-5, Utah found that nearly the same acreage, 1,283,000, is embraced within a contour elevation at 4204.6 m.s.l. The Attorney General of Utah goes further, asserting that this shows, "of course, that the 'average' elevation of the various segments of the surveyed meander line would be 4204.6 feet above mean sea level. . ." While the United States questions the accuracy of the data used by Utah to arrive at the average elevation of the meander line, it does not press the same objection against the related acreage computation. It is useful for purposes of comparison to note that the 4204.45 m.s.l. contour line produced by taking a ten-year average of high water data, and constituting the Special Master's Alternative Recommended Decision, *infra*, would embrace roughly 1,276,000 acres. (This figure is obtained by averaging acreage figures from Exhibit P-5 for the 4204.4 and 4204.5 elevations.) It is also noted that the meander line very closely approximates the acreage contained by the ten-year contour line, embracing only 7,119 acres more. There may of course be some margin of error in the computational method used, but such disparity in acreage as may exist, when averaged across the lengthy perimeter of the Lake, would constitute a very small difference in boundary placement.

3. As we have seen, the State exercised undisturbed sovereignty within the meander line after statehood, with many instances of affirmative recognition of its right so to do by Departments of the Government of the United States acting pursuant to lawful authority with respect to the matters leading to such recognition.

4. We have seen also the long-continued recognition of the surveyed meander line as the boundary of the public lands on the official plats of the townships bordering the Lake. Likewise, those plats have been the basis, after

statehood, for the counties embracing those townships to compose maps for recording changes in real estate title.

5. The meander line has not simply been used as a temporary position of segments of the Lake's boundary but, as the segments were joined it has been maintained as a dividing line between Lake and the uplands, representing a position to which the water had once extended, and might be expected to do so again. The significance of this is not reduced even though the meander line segments represent some differing elevations of mean high water, because the segments were never repositioned or otherwise adjusted so as to produce a line based upon a single measure of mean high water.

6. It seems clear that with knowledge on the part of Congress that the state title was due to the equal-footing doctrine, the surveyed meander line was considered by Congress to be the boundary between Nation and State unless the claim of the United States based on the application of the doctrine of reliction was valid, which the Court has since held not to be the case. This was the situation notwithstanding that the position of the State at early stages of the legislative history defined the historical boundary otherwise than by express reference to the meander line. And the position taken in 1959-1960 by the decision of the Area Administrator within the Bureau of Land Management, or at any other time or place, that the bed at statehood might not extend to the meander line does not in the view of the Special Master justify doubt that in Congress the meander line represented the extent of state ownership except as the doctrine of reliction might otherwise require. That doctrine alone developed before Congress as the basis of the claim of the United States.<sup>53</sup> It was not until 1971, five years

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<sup>53</sup> Reliction was also the legal basis asserted for the claim of the United States by the Director of the Bureau of Land Management in modifying the decision of the Area Adminis-

after enactment of the Act of June 3 and after this suit had been pending since the October Term, 1967, that counsel for the United States advanced the position that should reliction not be found to apply, the United States desired to challenge the accuracy of the surveyed meander line as the statehood boundary.<sup>54</sup>

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trator, and by the Department of the Interior in affirming the decision of the Director, whether or not the statehood bed was referred to in terms of the meander line or high water position, or otherwise.

<sup>54</sup> The Special Master notes in this connection Exhibit P-66, which contains the *Memorandum For the United States on Report Of Special Master and Exceptions Thereto By Morton International* (1969). That document was filed in opposition to the request of Morton for leave to intervene in the present lawsuit, which intervention was in fact denied. However, Morton had raised the possibility of a distinct claim based upon differences between meander line and the 1896 high water line. The United States responded negatively, after the Solicitor General asserted that it was within his authority in controlling this litigation to stipulate that the meander line and statehood bed do coincide. The Morton hypothesis was termed "far-fetched":

Morton has sought to introduce a complicating factor by suggesting that the Court may ultimately find that the meander line on which the Stipulation is based does not accurately represent the edge of the lake on the date of statehood and may hold that Utah is entitled only to the present exposed lands below the 1896 high water line. The result, it is said, would be to partition both the *Basart* lands and the remaining uncovered lands claimed by the United States between the two sovereigns. We do not appreciate the difficulty.

At the outset, it must be said that Morton's hypothesis is far-fetched. Moreover, whatever limitations there may be on the powers of the Solicitor General to "relinquish Federal rights in lands," there can be little doubt that he would not be overstepping his authority to conduct litigation for the government in this Court (see 5 U.S.C. 309; 28 C.F.R. 0.20) if he were to join in a stipulation ac-

Nevertheless, the question thus raised is properly before the Court. The decree of February 19, 1975, presents it. *Utah v. United States, supra*, 420 U.S. at 305-306.<sup>55</sup> And estoppel is not invoked by the State, nor is

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cepting the meander line indicated on maps of the area as representing the bank of the Great Salt Lake in 1896.

Even assuming, however, that the true 1896 line becomes relevant and is judicially established at some distance below the meander line, no insuperable problem is presented. Indeed, the fair import of the Stipulation entered into between Utah and the United States is simply that, for purposes of this case and the State's obligation to make payment, the lands claimed by the United States under the *Basart* doctrine shall be treated as though they were in the identical posture of the other exposed lands claimed by the United States.

Exhibit P-66 (*Memorandum, op. cit.*) at 17-18.

<sup>55</sup> It is interesting, however, that the opinion of Mr. Justice Douglas on the navigability phase of this case, viewed this dispute over shorelands as contingent upon relicition alone:

Utah's claim to the lands is premised on the navigability of the lake at the date of statehood, *viz.*, January 4, 1896. If indeed the lake were navigable at that time, the claim of Utah would override any claim of the United States, with the possible exception of a claim based on the doctrine of relicition, not now before us.

*Utah v. United States*, 403 U.S. 9, 10 (1971).

It is likewise interesting that in framing its May 22, 1972, decree following the navigability decision, the Court indicated in paragraph 3 that the meander line might be the upland starting point of the possible application of the doctrine of relicition, that is, the bed of the Lake at statehood:

3. The basic question yet to be determined in this case is whether prior to June 15, 1967, the claimed doctrine of relicition applies and, if so, whether the doctrine of relicition vests in the United States, and thus divests the State of Utah, of any right, title or interest to any or all of the exposed shorelands situated between the water's edge on June 15, 1967, and the meander line of the Great

it suggested by the Special Master. The positions of the parties are considered on their merits.

7. There arises then the problem of the legal weight to be accorded the historical factors which, considered with the scientific, point to a decision that the meander line be held to be the boundary acquired at statehood. Since the Court is not confronted in the boundary controversy with a situation in which the ordinary or mean high water position and thus the bed at statehood can clearly or accurately be found by reference to con-

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Salt Lake as duly surveyed prior to or in accordance with § 1 of the Act of June 3, 1966, 80 Stat. 192 (Pertinent part)

406 U.S. at 484-485. In order for the doctrine of reliction to transfer title up to the meander line, Utah's previous ownership up to that line would be assumed. However, paragraph 4 of the decree (which was imported almost intact as paragraph 3 of the decree of February 19, 1975, and guides the instant phase of this case) put the boundary question in contention.

Both parties sought to have the reliction issue severed from the boundary question, with only the former being reached in the first Report of the present Special Master:

It is now important to note that, in accordance with the desire of both the United States and Utah, the basic question now considered is limited to whether the doctrine of reliction divested Utah of title to that part of the bed of the Lake at statehood which on June 15, 1967, the date of the quitclaim deed, had become exposed by recession of the waters of the Lake, comprising some 325,000 acres. *Infra*, p. 24. The title to any upland between the bed of the Lake at statehood and the meander line is not now considered, the positions of the parties in that regard being reserved pending the answer to the above question.

First Report at p. 4. Hence, the Supreme Court had before it a recommended decision framed in terms of the statehood bed only, and the relationship between that bed and the meander line, if required to be decided, was reserved for this boundary phase of the case.



clusive scientific data, the Special Master believes that historical data may validly aid in the solution. A protracted contour line, or even a careful field survey of a contour line, cannot with assurance reflect now what would have been embraced 80 years ago by a contour line at the same elevation above mean sea level. Moreover, a contour line at an elevation of the Lake at statehood, day or year, as suggested by the United States, would be an erroneous one by which even to attempt to locate the mean or ordinary high water position at statehood. The contour line arrived at by averaging the high water elevations for the 10 years immediately preceding statehood, 4204.45 m.s.l., would afford a more reasonable approximation of the sought position of the statehood bed than 4201.8 m.s.l. proposed by the United States.<sup>56</sup> It happens, as well, to more closely approximate the meander line. However, if surveyed now it would be subject to the same inaccuracies as representing the statehood bed as would any contour line, such as one surveyed now at 4201.8 m.s.l. See, again, Appendix A.

In the inconclusive situation presented, the Court would seem justified, under its own decisions, though these are not advanced as dispositive of the case, in according convincing weight to the history of the meander line as the boundary before, at and since statehood, its recognition as such, the conduct of State and Nation based on such

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<sup>56</sup> Any standard for reckoning the statehood bed of the Great Salt Lake, to be logically consistent, should be measured only by data knowable at the time that title to the bed vested in 1896. However, it is believed to be entirely proper, in examining the result produced, to compare it with the post-statehood data. Thus, the Special Master notes that the Lake has already once since statehood reached the elevation suggested by that formula. While the Lake stood at a lower elevation than the Government's proposed contour line for the preponderance of the time since statehood, it did linger at a higher elevation for an almost unbroken period of twenty years.

recognition in connection with important transactions between them, and the fact that this would be most consistent with the intent of Congress drawn from the legislative history of the Act of June 3.

In *Virginia v. Tennessee*, 148 U.S. 503, 522-523 (1893), it is said:

[A] boundary line between States or Provinces, as between private persons, which has been run out, located and marked upon the earth, and afterwards recognized and acquiesced in by the parties for a long course of years, is conclusive, even if it be ascertained that it varies somewhat from the courses given in the original grant; and the line so established takes effect, not as an alienation of territory, but as a definition of the true and ancient boundary. Lord Hardwicke, in *Penn. v. Lord Baltimore*, 1 Vesey Sen. 444, 448; *Boyd v. Graves*, 4 Wheat. 513; *Rhode Island v. Massachusetts*, 12 Pet. 657, 734; *United States v. Stone*, 2 Wall. 525, 537; *Kellogg v. Smith*, 7 Cush. 375, 382; *Chenery v. Waltham*, 8 Cush. 327; Hunt on Boundaries, (3d ed.) 306.

As said by this court in the recent case of the *State of Indiana v. Kentucky*, (136 U.S. 479, 510) "it is a principle of public law, universally recognized, that long acquiescence in the possession of territory, and in the exercise of dominion and sovereignty over it, is conclusive of the nation's title and rightful authority."

In *Michigan v. Wisconsin*, 270 U.S. 295, 308 (1926), while the facts are more compelling than in Utah's case, the following principles stated by the Court are significant:

That rights of the character here claimed may be acquired on the one hand and lost on the other by open, long-continued and uninterrupted possession of territory, is a doctrine not confined to individuals but applicable to sovereign nations as well, *Direct*

*United States Cable Co. v. Anglo-American Telegraph Co.*, [1877] L.R. 2 A.C. 394, 421; Wheaton, *International Law*, 5th Eng. ed. 268-269; 1 Moore, *International Law Digest*, 294 *et seq.*, and, *a fortiori*, to the quasi-sovereign states of the Union. The rule, long-settled and never doubted by this court, is that long acquiescence by one state in the possession of territory by another and in the exercise of sovereignty and dominion over it is conclusive of the latter's title and rightful authority. *Indiana v. Kentucky*, 136 U.S. 479, 509, *et seq.*; *Virginia v. Tennessee*, 148 U.S. 503, 522-524; *Louisiana v. Mississippi*, 202 U.S. 1, 53; *Maryland v. West Virginia*, 217 U.S. 1, 40-44; *Rhode Island v. Massachusetts*, 4 How. 591, 639; *Missouri v. Iowa*, 7 How. 660, 677; *New Mexico v. Colorado*, 267 U.S. 30, 40-41.

In *New Mexico v. Colorado*, 267 U.S. 30, 40 (1925), the Court stated:

In *Missouri v. Iowa*, 7 Howard 660, which involved the location of the boundary line between the two States running with "the Indian Boundary line," it was held that governments are bound by the practical line that has been established as their boundary, although not precisely a true one; . . .<sup>57</sup>

In that connection, see also *Oklahoma v. Texas*, *supra*.<sup>58</sup>

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<sup>57</sup> The Court adopted this position in *New Mexico v. Colorado*, 267 U.S. at 39-40, even in the face of survey errors that might readily be corrected by accurate independent resurveys leading to a "true" boundary position. Refusal to allow for correction of inaccuracies after a "practical line has been established," has great relevance to the instant case, where the Special Master find that an accurate determination now of statehood mean high water position cannot be made. If the history of the conduct of the parties is controlling even where resurvey could fully overcome clear errors in placing a boundary on the ground, even more would it seem to control where no scientifically accurate referent exists.

<sup>58</sup> The Supreme Court of Florida has gone so far as to suggest that the boundary characteristics of a surveyed meander

Special consideration is deemed appropriately accorded the place the meander line occupied in the congressional history of the Act of June 3. Congress was aware as noted above that the historical title of the State, based on the equal-footing doctrine, was limited to the statehood bed, and that the State's claim of title up to the meander line accordingly was a claim that the meander line should be accepted as the boundary of the statehood bed. It is also clear that at the congressional level the claim of the United States was rested solely upon the contention that under the doctrine of reliction the State had lost to the United States as riparian owner exposed land below the meander line. The implication follows that once it had been established that the Lake was navigable, then, if reliction were held not to apply the State had retained title to the land below the meander line and would owe no compensation to the United States by reason of the quitclaim deed. Acceptance now of the meander line as the historical boundary, in light of the Court's holding in the reliction phase of this litigation, accordingly would be the decision most consistent with the legislative history of the Act of June 3, as well as with the history of the meander line in the other respects that have been considered.

The Special Master does not denominate his proposed solution a "referent" for the statehood bed. He thinks "referent" connotes more confidence in accuracy than can be applied to the case. Were there a clearly established referent, or a clear solution on any other basis, it should prevail, but since in the view of the Special Master there is none, the combined factors supportive of the State's position lead him to recommend its approval by the Court.

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line depend upon intent at the time of survey. *Martin v. Busch*, 112 So. 274, 284 (1927).

## ALTERNATIVE RECOMMENDED DECISION

The Special Master believes that a theoretically more accurate approximation of the bed at statehood than the surveyed meander line would be a contour line based on the elevation of the average high water position for the period of ten years immediately prior to statehood. This contour line would be at 4204.45 m.s.l., which the Special Master concludes to be an approximation of the ordinary or mean high water position at statehood.<sup>59</sup>

Accordingly, should the Court not agree with his recommendation of approval of the State's position, his alternative recommendation would be such a contour line, established by field survey,<sup>60</sup> as the approximate measure of the statehood bed. His previously stated

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<sup>59</sup> It is of significance that a contour line at an elevation of 4204.45 m.s.l. would very nearly approach the water elevations on which the 1855-56 meander line segments were based. Those segments were viewed in the legislative history of the Act of June 3, 1966, as a "norm" in the Lake's fluctuations. As indicated in note 46 *supra*, high water for 1855 was 4204.7 and for 1856 was 4204.4. Thus, the alternative recommended decision closely parallels a completed meander line at the 1855-56 level (rather than at varying elevations as the actual meander line of the recommended decision is constructed).

<sup>60</sup> A field survey would be deemed necessary by the Special Master, rather than an office or protracted survey, because the latter would probably lead to significantly greater inaccuracies of placement. Some inaccuracies are recognized by the United States as a concomitant of a protracted survey, but not such as the United States believes could not be mutually adjusted by agreement between the parties. One of the recognized inaccuracies is that the Geological Survey claims no greater accuracy of contour line placement on its topographic maps than that 90% of those lines are placed correctly as to elevation to within one half contour interval (here 2½ feet). Such an error would be of particular significance owing to the flat nature of the shorelands of the Lake.

recommendation is preferred, however, because the 4204.45 m.s.l line, like the meander line, is also only an approximation, and its theoretical advantage is subject as a practical matter to the following objections: (1) The survey both in its concept and execution would be plagued by uncertainties in its ability accurately to represent now the location of the ordinary or mean high water position in 1896 (and the territories thereby embraced). See Appendix A to this Report for a discussion of those difficulties.<sup>61</sup> (2) It is not possible to state with confidence that its approximation would be significantly closer to the sought location of the bed at statehood than the surveyed meander line; and (3) The totality of the history of the meander line, including the overt recognition of it by State and United States as the boundary between them, and the history of the Act of June 3, warrant resolution of the uncertainties by holding that this line, now accepted by the parties as the permanent boundary in accordance with the terms of the

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<sup>61</sup> According to the House Report on the bill which evolved into the Act of June 3, 1966, the cost of surveying a contour line "to establish the water level as of 1896, the date of Statehood," was estimated to be \$798,000. "Costs relative to completing or closing the 1855 meander line were estimated at \$25,000." A third alternative, a survey at then water's edge (1966) was estimated to cost \$576,000, presumably being less costly than a statehood contour line because due to the drop in surface elevation the 1966 line would have been considerably shorter. H.R. REP. NO. 1327, 89th Cong., 2d Sess. 5 (1966). No doubt the cost of a survey of a longer contour line at the higher elevation of 4204.45 would be substantially greater at this time. For the reasons he has given, the Special Master has preferred the meander line as his recommendation and offers to the Court this 4204.45 foot contour line only alternatively. He does not consider the cost of survey and any administrative problems which might result from such a contour line as reasons for him not to submit the alternative recommendation.

Act of June 3, had acquired theretofore the status of the legal boundary, originating under the equal-footing doctrine, of the ownership interests of the two sovereigns in the vicinity of the Great Salt Lake.<sup>62</sup>

### SOME FURTHER THOUGHTS

The bed to which the State acquired title need not be confined to a neatly defined line in a situation where nature has left no vegetation or wave-action line. This huge lake—our largest other than the Great Lakes—is remarkably mobile in changing its elevation, with resulting exaggerated movements over the flat terrain. This argues for latitude in determining its bed. The bed would seem necessarily to include an area to which its waters, in light of their history, might expand beyond their position at any particular time, such as the beginning of statehood. And it is not apparent to the Special Master why the historical bed need be neatly laid out now free of any idiosyncrasies, in this effort to approximate now what it would have been if laid out in 1896. That not having been done by either nature or man, it would seem that custom, mutual acceptance and recog-

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<sup>62</sup> While the State of Utah does not advance the argument, a reading of the Court's February 19, 1975, decree such as is given in note 4, *supra*, would obviate the need to determine (even approximately) the statehood bed, if the boundary issue could be resolved solely with reference to the United States ownership of territories on the date of the quitclaim deed. It is entirely compatible with the discussion of the historical factors above to conclude that (the question of federal ownership on January 4, 1896 aside) the relations of the two sovereigns, the legislative history of the Act of June 3, and the federal platting and maintenance of the meander line all indicate that there were no "federally owned uplands above the bed of the Lake on the date of statehood [inside the meander line] . . . which the United States still owned prior to the conveyance." Hence, no compensation by the State would be due.

nition, congressional and executive conduct, as well as scientific data, are allowable aids to the solution of the present problem, which is, primarily, one of compensation. In combination those factors seem to the Special Master to point to the surveyed meander line as the most rational delineation of the statehood boundary now available. In so concluding he wishes to emphasize that the meander line is only an approximation and that due to the absence of a referent such as a mark left by the action of the water at ordinary or mean high water at statehood and the absence also of a survey of the situation then, there is no entirely satisfactory solution.

The United States and the State of Utah by the Act of June 3 have agreed on the closed meander line as the future boundary between Nation and State, and if the same line is fixed also as of the time of statehood or of the quitclaim deed no change in relations between Nation and State would result. The effects of course would be that the United States would receive no compensation from the State under the Act of June 3 or any mineral rights by reason of the contingent reservation of the quitclaim deed in that regard. While these effects are not insignificant their character and uncertain value should mitigate any sense of loss to the United States, for, if loss occurs, it would be due to the unavoidable lack of precision in locating now the statehood bed.

History presses for recognition, not content with disregard.

#### FINDINGS OF FACT <sup>63</sup>

1. The elevation of the water of the Great Salt Lake January 4, 1896, when Utah became a State, was 4200.8

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<sup>63</sup> The present Findings of Fact are limited to those which the Special Master believes are desirable to be set forth here



m.s.l., and its highest elevation the first year of statehood was 4201.8 m.s.l.

2. No vegetation line or wave-action line has come into existence to indicate a high water mark of the Great Salt Lake at statehood or at any other time.

3. Any contour line, such as the Government's proposed lines, at the elevation of the Lake the day of statehood, 4200.8 m.s.l., or at its highest point in the ensuing year of statehood, 4201.8 m.s.l., would not now contain accurately the same territories such a line would have contained in 1896, nor is it capable of being surveyed by protraction (office survey) without encountering the probability of serious placement inaccuracies, due to changes in the terrain which have taken place during the 80-year period since statehood and to inaccuracies in the topographic maps used for a protracted survey.

4. A meander line has been surveyed in segments at different times beginning in 1855, each segment approximating the mean high water position of the Lake at the time and place of survey.

5. The meander line surveys enumerated by date at note 24 of the Report were made when the elevation of the Lake was higher than at statehood, except the surveys of 1899, 1901 and 1928.

6. While a meander line is platted ordinarily in straight-line segments, some portions of the Great Salt Lake meander line consist of longer straight lines than its ordinarily the case, and which do not follow the curvature of the water. Thus, in several places the surveyor followed a township line as the boundary between

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as a synopsis of the basic factual situation, except that he does not consider Finding No. 6 to be basic, as to which reference is made to Conclusion of Law No. 8.

Lake and uplands, the reason for doing so not appearing in the record. At another straight-line area there is now a dike. The relationship between the building of the dike and the running of this meander segment is unclear. Straight lines are understandably incorporated into the present meander line due to the reservation boundaries of the Bear River Migratory Bird Refuge and the Weber Basin Federal Reclamation Project. Similarly, the 1966 closing lines were not entirely meandered along a curved water's edge, and are largely unbroken straight lines, one substantial portion of which follows the line of the Southern Pacific Railroad. This closing survey under the Act of June 3, 1966, is indicated on Exhibit P-29 by numeral 18. At one junction of two adjacent surveys made 57 years apart the same theoretical point on the earth is separated by seven-eighths of a mile.

7. On the official plats of the United States the meander line as surveyed before and after statehood has been consistently shown as the dividing line between lands associated with the Lake and uplands, newly surveyed segments having been joined to the older surveyed segments.

8. The county records of real estate transactions in the townships bordering the Lake have been kept on maps and plats based on the official plats showing the surveyed meander line referred to in Finding 7.

9. Since statehood the State has assumed and exercised sovereignty, recognized by the United States, over areas in different locations adjacent to and below the surveyed meander line. A number of transactions explained in the Report at pp. 28-33 demonstrate this; they include several transactions between the State and Departments and agencies of the United States responsible for the participation of the United States in the transactions with the State, in some instances involving the

payment of federal funds to the State for, or due to the use of, lands below and adjacent to the meander line.

10. As to the Hill Air Force Range, the eastern portion of which fronts on the Lake, there might have been arguable federal exercise of authority over territories on both sides of the closing segment of the meander line completed in 1966 in accordance with Section 1 of the Act of June 3. However, even had there been such exercise of federal authority it would not constitute a breach of State sovereignty below the line, as the line did not then exist for that portion of the Lake's perimeter. Because the Hill Air Force Range is excepted from the quitclaim deed, no dispute as to its title is before the Court or settled by the proposed decrees, and this Finding is included for reasons of completeness only, and there is no conclusion of law with respect thereto.

11. In 1955, 59 years after statehood, an intention was expressed within the Bureau of Land Management of the Department of the Interior that a partial survey should be made of the margin of the Lake. The proposal called for survey of a contour line representing the level of the Lake January 4, 1896, based on the premise that "lands now lying between the meander line established by surveys in 1855 and 1856 and the high water mark at the time of statehood in 1896 is Federal land since it was exposed dry land adjoining public domain and not a part of the Lake bed in 1896 when Utah became a State." *State of Utah*, 70 I.D. 27.<sup>64</sup>

12. The proposal referred to in Finding 11 led to objection and appeal by Utah of this suggestion of federal ownership, and to further administrative decisions in which it was claimed that the doctrine of reliction divested

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<sup>64</sup> The high water level in 1855 was 4204.7. In 1856 it was 4204.4. The level of the Lake at statehood was 4200.8. See notes 46 and 59 *supra*, and text at notes 59-62, and Finding of Fact No. 15.

Utah of title to all exposed land inside the meander line, followed by the introduction in Congress of bills to confirm the State title, which in turn led to enactment of the Act of June 3, 1966, and this suit filed in accordance with its provisions.

13. The legislative history of the Act of June 3, 1966, demonstrates that the meander line was considered by Congress as the boundary between Nation and State unless under the doctrine of reliction the State since statehood had lost to the Nation land lakeward of the meander line to which the State had acquired title under the equal-footing doctrine. None of the representations by the United States to the Congress, whether by correspondence of the Executive Department of record, or in hearings, nor the committee reports or floor discussions, urged any claim by the United States to the land in dispute except as the result of this claimed application and operation of the doctrine of reliction, which was said to have divested Utah of, and to have vested in the United States, title to the area claimed by the United States. The present boundary claim was first advanced in 1971 after this suit had been pending since the October Term, 1967.

14. It is not possible accurately now to locate the mean or ordinary high water position of the Lake January 4, 1896, or during the ensuing year, as distinguished from the position of the water's edge that one day and year. The mean or high water position of the Lake at statehood can at best only be approximated at this time.

15. The average high water elevation of the Lake for the 10 years immediately preceding statehood was 4204.45 m.s.l.

16. A contour line at an elevation of 4204.45 m.s.l. would embrace approximately 7,119 fewer acres than are embraced by the surveyed meander line.

## CONCLUSIONS OF LAW

1. Under the equal-footing doctrine the State of Utah acquired title to the bed of the Great Salt Lake at statehood, January 4, 1896. The United States as riparian owner had retained title to a large part of the area upland of the bed of the Lake, having acquired title to the whole area by virtue of the Treaty of Guadalupe Hidalgo.

2. The bed of an inland and navigable body of water ordinarily is designated by a vegetation or wave-action mark located at its ordinary or mean high water position. The Great Salt Lake is an inland and navigable body of water. *Utah v. United States*, 403 U.S. 9, 11.

3. No vegetation or wave-action mark being available to designate the ordinary or mean high water position of the Great Salt Lake at statehood—or at any other time—to ascertain now the bed then requires the Court to resort to some other means.

4. The elevation of the Lake the day of statehood, 4200.8 m.s.l., or at its highest point in the ensuing year of statehood, 4201.8 m.s.l., is not an appropriate means of ascertaining the bed at statehood, for neither of those elevations represents the ordinary or mean high water position at that time.

5. The bed of the Lake at statehood cannot now be determined accurately; at best it can only be approximated.

6. In the absence of a vegetation or wave-action line to designate the statehood bed, and in the absence also of any other definitive or accurate manner of ascertaining the ordinary or mean high water position—the bed—at statehood, it is appropriate to look to those factors discussed throughout this Report for aid in determining the area which should be designated now as the statehood bed.

7. Considering the factors referred to in Conclusion No. 6, the surveyed meander line of the Lake is the most reasonable basis for determining now the bed of the Lake at statehood, and as such should be found to constitute the boundary between the ownership of the United States and the State of Utah prior to and at the time of the quitclaim deed of June 15, 1967, with the consequence that no compensation is due the United States by the State of Utah by reason of that conveyance.

8. Departures of the Great Salt Lake meander line from a normally delineated meander line, enumerated in Finding of Fact No. 6, when considered with the reasons therefor where known, such as the straight line boundary of the Bear River Migratory Bird Refuge, and the uncertainty of the reasons for such departures where unknown, together with consideration of the relation of the departures to the whole of the perimeter of the Lake, are not sufficient to undermine, in the view of the Special Master, his recommended decision.

9. Due to the unusually unstable and voluble character of the Great Salt Lake, and the inability now accurately to determine the bed in 1896, the most appropriate theoretical method of approximating it would be by the survey of a contour line based upon an average of the highest elevations of the Lake for a reasonable period of years immediately preceding statehood; and considering the nature of the Lake and the data available annually since 1848, the 10 years immediately preceding statehood is a reasonable period for that purpose, but see Conclusion No. 12.

10. Should the Court not agree with Conclusion No. 7, then a contour line at an elevation of 4204.45 m.s.l., the average of the highest elevation of the Lake during each of the 10 years immediately preceding statehood, suggested by Conclusion No. 9, should be found to be the basis for determining the ordinary or mean high water

position—the bed—of the Lake at statehood, with the consequence that the State of Utah as a condition to and in consideration of the quitclaim deed of the United States of June 15, 1967, should compensate the United States, as provided in Section 4(b) of the Act of June 3, 1966, for the interests owned by the United States prior to June 15, 1967, determined as hereinabove in this paragraph provided, and conveyed to the State of Utah by the quitclaim deed of June 15, 1967.

11. The reservation of mineral rights by the quitclaim deed of the United States of June 15, 1967, preserves those rights in any federally owned lands conveyed to the State of Utah under Conclusion No. 10.

12. The recommendation of Conclusion No. 7 is preferred to the alternative suggested in Conclusion No. 10.

#### PROPOSED DECREE

IT IS ORDERED, ADJUDGED, AND DECREED THAT:

1. Taking into consideration Sections 1, 2, and 5 of the decree of this Court entered May 22, 1972, *Utah v. United States*, 406 U.S. 484, 485-486, Sections 1, 2, and 4 of the decree of this Court entered February 19, 1975, *Utah v. United States*, 420 U.S. 304, 305-306, and the further proceedings had herein pursuant to the decree of this Court entered February 19, 1975, *Utah v. United States*, 420 U.S. 304, and

2. Subject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands, the United States of America, its departments and agencies, are enjoined from asserting against the State of Utah any claim of right, title and interest:

(a) to any lands within the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with Section 1 of the Act of June 3, 1966, 80 Stat. 192),

with the exception of any lands within the Bear River Migratory Bird Refuge, the Weber Basin Federal Reclamation Project, and the Hill Air Force Range (as bounded by water's edge June 15, 1967), the title to which last-named parcel is not decided by this decree;

(b) to the natural resources and living organisms in or beneath the lands delineated in (a) above; and

(c) to the natural resources and living organisms either within the waters of the Great Salt Lake, or extracted therefrom, as delineated in (a) above.

3. The State of Utah is not required to pay the United States for the lands, including the minerals, delineated in paragraph 2 above of this decree.

4. The prayer of the United States in its answer to the State of Utah's Complaint that this Court "confirm, declare and establish that the United States is the owner of all right, title and interest in all of the lands described in Section 2 of the Act of June 3, 1966, 80 Stat. 192, as amended by the Act of August 23, 1966, 80 Stat. 349, and that the State of Utah is without any right, title or interest in such lands, save for the right to have these lands conveyed to it by the United States, and to pay for them, in accordance with the provisions of the Act of June 3, 1966, as amended," is denied.\*

*It is so ordered.*

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\* When "lands" appears in this decree to describe the interests involved, the word is used to include the brines and minerals in solution in the brines or precipitated or extracted therefrom.



## PROPOSED ALTERNATIVE DECREE

IT IS ORDERED, ADJUDGED, AND DECREED THAT:

1. Taking into consideration Sections 1, 2, and 5 of the decree of this Court entered May 22, 1972, *Utah v. United States*, 406 U.S. 484, 485-486, Sections 1, 2, and 4 of the decree of this Court entered February 19, 1975, *Utah v. United States*, 420 U.S. 304, 305-306, and the further proceedings had herein pursuant to the decree of this Court entered February 19, 1975, *Utah v. United States*, 420 U.S. 304,

2. Lands within the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with Section 1 of the Act of June 3, 1966, 80 Stat. 192) and quitclaimed by the United States of America to the State of Utah on June 15, 1967, included a conveyance of federally owned lands consisting of the lands within the said meander line upland of a contour line encompassing the Great Salt Lake to be surveyed at an elevation of 4204.45 m.s.l., except school sections within the area thus described, provided, however, that title to any part of the Hill Air Force Range which falls within the boundary of the federal lands thus described is not decided by this decree.

3. Subject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands, the United States, its departments and agencies, are enjoined from asserting against the State of Utah any claim of right, title and interest:

(a) to any lands within the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with Section 1 of the Act of June 3, 1966, 80 Stat. 192), with the exception of the Bear River Migratory Bird Refuge, the Weber Basin Federal Reclamation Project, and the Hill Air Force Range,

the title to which last-named parcel is not determined by this decree, provided, however, that in accordance with Section 4(b) of the Act of June 3, 1966, as amended by the Act of August 23, 1966, the State of Utah shall compensate the United States for the fair market value, not including the value of the mineral rights which the United States retains, of the federal lands described in paragraph 2 above of this decree and conveyed by the United States to the State of Utah;

(b) to the natural resources and living organisms in or beneath the lands delineated in (a) above except that the United States has retained mineral rights in all lands deemed federal by paragraph 2 above; and

(c) to the natural resources and living organisms either within the waters of the Great Salt Lake, or extracted therefrom, as delineated in (a) above of this decree.

4. The State of Utah is not required to pay the United States for the lands, including the retained minerals, delineated in paragraph 3 above of this decree except as provided therein.

5. The prayer of the United States of America in its answer to the State of Utah's Complaint that this Court "confirm, declare and establish that the United States is the owner of all right, title and interest in all of the lands described in Section 2 of the Act of June 3, 1966, 80 Stat. 192, as amended by the Act of August 23, 1966, 80 Stat. 349, and that the State of Utah is without any right, title or interest in such lands, save for the right to have these lands conveyed to it by the United States, and to pay for them, in accordance with the provisions of the Act of June 3, 1966, as amended," is denied, provided, however, that in accordance with the

Act of June 3, 1966, as amended, the State of Utah shall compensate the United States as provided in paragraph 3 of this decree.\*

*It is so ordered.*

Respectfully submitted,

CHARLES FAHY,  
*Senior Circuit Judge,*  
*Special Master.*

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\* When "lands" appears in this decree to describe the interests involved, the word is used to include the brines and minerals in solution in the brines or precipitated or extracted therefrom.

## APPENDIX A

Utah introduced evidence, testimonial and photographic, to the effect that any present attempt to recapture the January 4, 1896, bed by constructing now a contour line at the same elevation as water's edge then (or a higher elevation designed to include dry bed up to mean high water) would fail because geophysical forces in the Great Basin have altered the topography. Chief among these is seismic activity. Dr. Francis Christiansen testified that geologic forces had changed shoreland elevations since statehood. Tr. 234, 236, 252-253. At the north end of the Lake, the 1934 Hansel Valley earthquake produced the starkest example of changes, resulting in obvious surface cracks, slippage, and vertical displacement downward of the eastern relative to the western sides of the cracks. Dr. Christiansen indicated that in addition to that and many smaller earthquakes, such continuous processes as isostatic unloading and regional warping and tilting would prevent any 1976 contour elevation from containing the same lands as would have been embraced by an 1896 contour line at the same elevation.

Dr. Christiansen's attention was called to the 1965 congressional testimony of John Carver, Under Secretary of the Interior, in which he said:

Although the lake surface and hence the shoreline is level at any given time, the study of lake deposits reveal that older shorelines are no longer level. Those "differential changes" include (1) regional tilting, (2) warping due to isostatic unloading, and (3) local changes due to earthquakes on ground subsidence. All three changes are evident near the Great Salt Lake. Differential changes have been reported along the northern edge of the Great Salt Lake following an earthquake in Hansel Valley in 1934. There was a rather substantial quake. I recall it myself.

Changes between the land surveys of 1934 and those of 1850 amount to between 4 and 6 feet over an area of several square miles. About a foot of this is believed to have occurred rapidly at the 1934 earthquake; the remainder during the time between 1850 and the Hansel Valley earthquake of 1934. Our geologists believe that similar effects may be present at many other places on the lake shore where there are no old surveys to provide a means of recognizing them.

Exhibit P-20, p. 125. The witness agreed and during the same hearings, leading to the Act of June 3, 1966, Mr. Carver further indicated the weakness of using a current contour line to reflect statehood topography:

Our cadastral engineers tell us, however, that the recovery of any shoreline that existed before the Hansel Valley earthquake of 1934 could not be accomplished with any degree of accuracy. That is, that warping of the surface of the land in 1934 would make it difficult from a cadastral engineer standpoint to recover a line prior to 1934.

Exhibit P-20, p. 127. He noted that it had been the intention of the Bureau of Land Management in the late 1950's to survey the Lake at the statehood elevation: "So whatever may be their feeling now [1965] about the difficulties of recovering a line prior to 1934, at least in the 1950's they undertook and set about to fix a line which would constitute the line between the Federal and the State sovereignty, and took as their working hypothesis the 1896 date." *Id.* The United States has now reverted to this late 1950's position, drawing in question the testimony of Mr. Carver, the federal official testifying on the subject before Congress in connection with the Act of June 3.

The record shows that there has also been a generally eastward warping and tilting of the Lake Bonneville Basin (or Great Basin), since water-carried sediments

laid down as horizontal beds, and water's edge marks at uniform elevation on old rocky (and much higher) shores, are now displaced downward in the east and upward in the west. Thus, Utah argues that this regional tilt has itself resulted in lands below a given elevation on the west shore in 1896 rising to stand above it today. Similarly, lands on the eastern shore that would have been deemed upland when measured by an 1896 contour line would now be deemed bed when measured by a 1976 contour line at the same elevation.

Utah's other major position as to the insufficiency of a contour line as a means now of recapturing the 1896 bed is that siltation and sedimentation at the deltas of large tributary rivers and smaller streams emptying into the Lake have altered the elevation of shorelands. Tr. 220-227. The primary sources of Lake waters are direct precipitation and silt-carrying tributaries. Utah contends that the siltation process has resulted in shallower water (which may become marshlands not considered to be bed) and new dry land in many places. Sites that were below the contour line marking mean high water in 1896 might have been built up above that elevation in the eighty years since. Thus, such build-up could convert to dry upland today (above the contour line chosen to segregate statehood bed at mean high water) territories that were either part of the water-covered bed in 1896, or were then dry lands below mean high water associated with the waters of the Lake, or dry bed.

The United States considers that "although the elevation of some portions of the Great Basin have undergone substantial changes since statehood—due principally to seismic activity—changes in the bed of the Great Salt Lake since statehood have been localized and minor." Reply Brief for the United States, November 26, 1975, at 25. As evidence, the United States compares the 1849-1850 topographic map based upon the Stansbury survey

with current maps, noting "remarkable similarity." *Id.* at n.7, pp. 25-26. It is argued that since the stage (elevation) of the Lake was nearly identical at those two widely spaced dates, and since the margin of the Lake as shown on the maps "is very nearly the same," "no significant changes in the statehood bed have occurred since statehood." *Id.* This use of the word 'bed' is inopportune for the bed may ambulate over a period of time with the elevation of the Lake; the Government's position appears to be, rather, that water in the same terrain, at the same elevation, would not have this same configuration (size and shape of water's edge) unless the surrounding lands had not shifted in relation to each other in either the horizontal or vertical plane. So understood, the Government's position appears persuasive but only with respect to the absence of major changes.

As to more subtle shifts in configuration and elevation of surrounding lands, the United States argues that the record is insufficient to determine their precise extent. Thus, the position of the United States is that while the Utah view cannot be faulted in theory, no profound changes can be discerned, and the result of seismic and/or siltation activity is a blemish upon the contour line approach which may require negotiated adjustments, but not abandonment of the contour line solution. Utah rejoins that since differences of inches are equivalent to the flooding of hundreds or thousands of acres, profound change due to seismic activity need not be shown to invalidate the contour approach.

To buttress its position, the United States contends that seismically produced changes in height are minor by comparison to the ten foot difference in elevation between the highest and lowest segments of the meander line: ". . . there is no reason to believe that any portion of the bed of the Great Basin (and certainly not any portion of the bed of the Great Salt Lake) has undergone since

statehood a surface displacement of anywhere near that magnitude." Reply Brief at 27. These differences in meander line elevation are partly due to the different positions of mean high water when the surveys were made. Support for the meander line as the boundary of the bed at statehood will be found in reasons other than that it represents in all respects an accurate position of the ordinary or mean high water line at statehood. The contour lines proposed by the United States do not represent the mean or ordinary high water line at statehood, as pointed out in the body of the report. They are not deemed acceptable by the Special Master quite aside from the inaccuracies which might arise in transplanting them, as it were, to 1976 from 1896, as pointed out in this Appendix.

To whatever extent seismic activity and/or sedimentation and siltation render the contour line approach objectionable as a means of recapturing now the 1896 bed, they would not undermine the mean high water data contained in the meander line segments, because, as noted in the text at note 19, the meander line is tied into the horizontal plane with landmarks in that plane. Thus it remains unaffected by changes in surface elevation, and the location of all segments can be accurately redetermined. Further, it is worthy of note that neither party has challenged under the terrain change theory the hydrographic (water elevation) data obtained at the various lakeside gauges.

During the course of the Act of June 3 through Congress the Department of Interior was asked the cost of a full field survey of an 1896 contour line. The Department estimated \$798,000.00. H.R. Rep. No. 1327, 89th Cong., 2d Sess. at 5. This was in 1966 and Utah urges it would be even greater now due to inflation. The United States is of the opinion that the placement of a contour line and ascertainment of any acreage between it and



the meander line for which compensation would be due by Utah to the United States can be determined by a protracted office survey. Drafting equipment would be used to mark the contour line on topographic maps, interpolating between the two bracketing contour lines which already appear on the maps. It would be a curved contour line. Using it in computing acreage would call for turning it into a series of straight line segments like a meander line. Utah submits that the resulting line would be inaccurate because the two contour lines on the map used in this interpolation might themselves be mislocated by as much as  $2\frac{1}{2}$  feet, half of the contour interval of five feet. The Geological Survey does not claim greater accuracy than one-half interval for ninety percent of all contour lines, but the United States submits that the flat terrain here involved can be more precisely mapped.

Precision is required, Utah adds, stating that "If the Government had not reserved the mineral estate in its quit-claim deed to Utah . . . perhaps such a survey could have been avoided. . . . But, since the Government did reserve the mineral estate, then if it should be determined that the Government owned any lands below the surveyed meander line, there will be two permanent boundaries. The meander line will divide the surface estate of the parties and the contour will divide the mineral estates. And these will be permanent boundaries." It is urged that a protracted survey would be inadequate to the separation of mineral estates.

The Special Master is persuaded of the theoretical validity of the Utah position that seismic and siltation forces at work in the Great Basin have altered the topography of the region. Both Utah's independent evidence and the quoted Carver hearing testimony support such a finding. Less certain is the extent of such change, and its impact upon the reasonableness of the contour approach.

## APPENDIX B

Exhibit P-25 was introduced at the hearing before the Special Master by counsel for the State of Utah, Tr. 18, and witness Donald G. Prince was asked to identify it. Prince indicated that the base map had been prepared by the United States Geological Survey in conjunction with the Utah Geological and Mineralogical Survey. The exhibit shows the meander line as a solid black line, sections superseded by reservation boundaries as a dashed black line, an approximation of the statehood elevation as a solid green line, and the disputed areas between the surveyed meander line and the statehood elevation in yellow. Areas shown in orange are those few territories outside the meander line but below the statehood elevation line. These last-named territories are indisputably federal lands. In many areas the statehood elevation is an approximation only, shown as a dashed green line. Utah contended that the map is just for illustrative purposes, and does not show the exact acreage in dispute. Tr. 19. As was discussed at the hearing, Tr. 21-24, Exhibit P-25 incorrectly identifies those portions of the Hill Air Force Range lying east of the closing meander line of 1966 as territories in dispute, when in fact they are not. The portion of the map which is in error, showing as disputed lands portions of the Hill Air Force Range, was marked in ink at the hearing. Utah offered a concession as to the above-mentioned inaccuracy, Tr. 58-59, and the Special Master determined that the exhibit be lodged. *Id.* Subject to all caveats, and the understanding that other evidence will be relied upon for acreage estimates, Exhibit P-25 is admitted for such use as it may be to the Court.

Exhibit P-29 similarly was introduced at the hearing by counsel for the State of Utah and explained by witness Prince. Tr. 34. Here the base map was prepared by the Bureau of Land Management, and shows the sur-

vayed meander line as the limit of the federal land surveys surrounding Great Salt Lake. Each area separately surveyed by an individual or survey party is separately numbered and drawn in a different color. All segments constitute the original meander line, with the exceptions of segments numbered 16 and 17, which are respectively the reservation boundaries of the Bear River Migratory Bird Refuge and the Weber Basin Federal Reclamation Project (or Willard Bay Reservoir). The boundary contended for by the State of Utah now is the meander line as shown in all eighteen segments on Exhibit P-29. This position is premised on the view that Utah owned all the way out to the old meander segments above those reservation boundaries at statehood, but properly conveyed away the two federal tracts, thus limiting itself to the reservation boundaries. The map legend gives the date of adoption of each survey segment, along with the name or names of the leaders of the survey party. Tr. 34-35.





6-210-C  
(Rev. 3-51)

Rating table for

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY (WATER RESOURCES DIVISION)

EXHIBIT

P-5

51

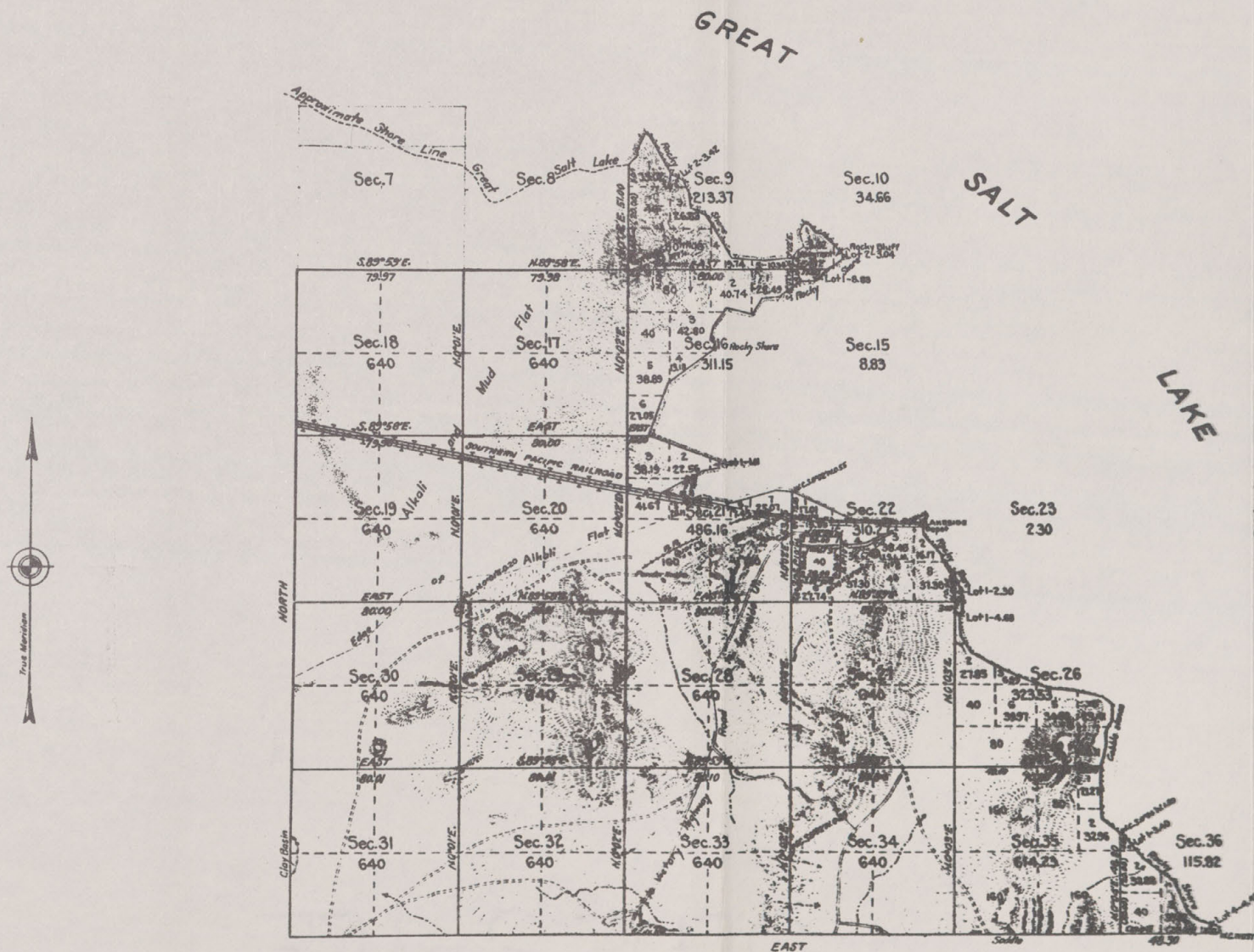
Great Salt Lake: Surface Area vs. Stage Dated

from AREA x 1000 to from to from to

Area sq. mi.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Area sq. mi.
4191.0	592	574	596	598	601	603	605	607	610	612	4200.0
4192.0	614	617	619	622	624	627	630	632	635	637	4201.0
4193.0	640	643	646	650	653	656	659	662	666	669	4202.0
4194.0	672	676	680	684	688	692	696	700	704	708	4203.0
4195.0	712	717	723	728	734	739	744	750	755	761	4204.0
4196.0	766	774	782	791	800	808	816	825	833	842	4205.0
4197.0	850	858	866	874	882	890	898	906	914	922	4206.0
4198.0	930	937	944	952	959	966	973	980	988	995	4207.0
4199.0	1002	1008	1014	1020	1026	1032	1038	1044	1050	1056	4208.0
4200.0	1062	1067	1073	1078	1083	1088	1094	1099	1104	1110	4209.0
4201.0	1115	1120	1125	1129	1134	1139	1144	1149	1153	1158	4210.0
4202.0	1163	1168	1173	1177	1182	1187	1192	1197	1201	1206	4211.0
4203.0	1211	1215	1220	1224	1229	1233	1237	1242	1246	1251	4212.0
4204.0	1255	1260	1264	1269	1274	1278	1283	1288	1293	1298	4213.0
4205.0	1302	1306	1310	1314	1318	1322	1325	1329	1333	1337	4214.0
4206.0	1341	1345	1349	1354	1358	1362	1366	1370	1375	1379	4215.0
4207.0	1383	1387	1391	1395	1399	1403	1407	1411	1415	1419	4216.0
4208.0	1423	1427	1432	1436	1440	1444	1449	1453	1457	1462	4217.0
4209.0	1466	1470	1474	1478	1482	1486	1489	1493	1497	1501	4218.0
4210.0	1505	1509	1513	1517	1521	1526	1530	1534	1538	1543	4219.0
4211.0	1546	1550	1554	1558	1562	1566	1570	1574	1578	1582	4220.0
4212.0	1586	1590	1594	1598	1602	1606	1609	1613	1617	1621	4221.0
4213.0	1625	1629	1633	1637	1641	1645	1649	1653	1657	1661	4222.0
4214.0	1665										4223.0
											4224.0
											4225.0
											4226.0
											4227.0
											4228.0
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Computed by R.L.M. 12/16/1968; Checked by G.L.W. 12/16/1968 Remarks





Scale: 40 Chains to an Inch

Area Surveyed, 10,100.32 Acres

Mean Magnetic Declination,

LINES DESIGNATED		BY WHOM SURVEYED	NO	GROUP	DATE	MILEAGE	CHS	WHEN SURVEYED	
						MLS		BEGUN	COMPLETED
Exterior, S & W.	Andrew Nelson	179	March 23, 1927	9	48.30	Sept. 21, 1928	Sept. 24, 1928		
Subdivisional	"	"	" " "	28	40.21	Sept. 25, 1928	Oct. 4, 1928		
Meanders	"	"	" " "	10	12.55	Oct. 3, 1928	Oct. 6, 1928		
Miscellaneous	"	"	" " "	1	13.19	Oct. 8, 1928	Oct. 8, 1928		

Office of U.S. Supervisor of Surveys

Denver, Colorado, Oct. 1, 1928.

The above plot of Township No. 6 North Range No. 9 West of the Salt Lake Base and Meridian, Utah is strictly conformable to the field notes of the survey thereof which have been examined and approved.

U.S. Supervisor of Surveys

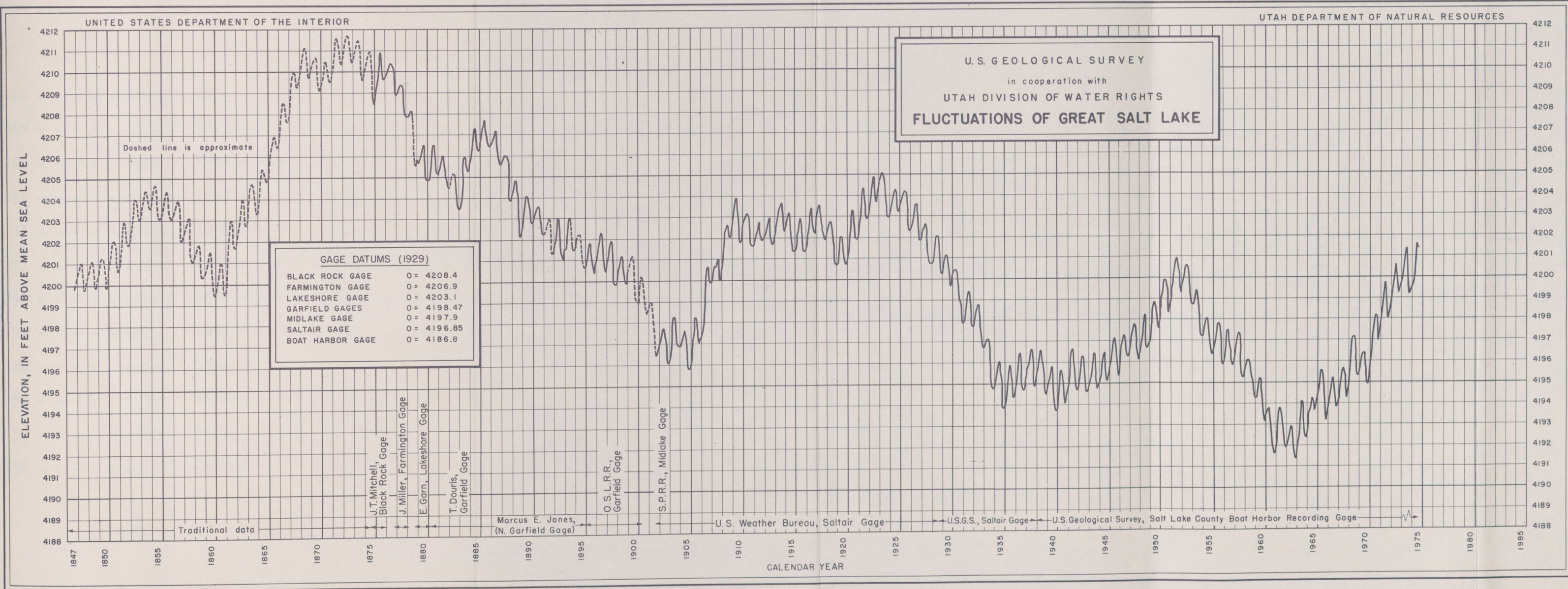
DEPARTMENT OF THE INTERIOR  
GENERAL LAND OFFICE

Washington, D.C., Nov. 27, 1928.

The survey represented by this plot having been correctly executed in accordance with the requirements of law and the regulations of this office, is hereby accepted.

Acting Assistant Commissioner







HIGH WATER LEVEL FOR EACH YEAR PRIOR TO STATEHOOD

1348 - - - - - 4201.0	1860 - - - - - 4201.5	1872 - - - - - 4211.5	1884 - - - - - 4205.9
1349 - - - - - 4201.1	1861 - - - - - 4201.0	1873 - - - - - 4211.6	1885 - - - - - 4207.3
1350 - - - - - 4201.3	1862 - - - - - 4203.0	1874 - - - - - 4211.4	1886 - - - - - 4207.7
1351 - - - - - 4202.1	1863 - - - - - 4204.0	1875 - - - - - 4211.0	1887 - - - - - 4207.2
1352 - - - - - 4202.9	1864 - - - - - 4204.7	1876 - - - - - 4210.9	1888 - - - - - 4206.0
1353 - - - - - 4204.0	1865 - - - - - 4205.4	1877 - - - - - 4210.4	1889 - - - - - 4204.8
1354 - - - - - 4204.4	1866 - - - - - 4206.9	1878 - - - - - 4209.4	1890 - - - - - 4204.1
1355 - - - - - 4204.7	1867 - - - - - 4208.5	1879 - - - - - 4208.1	1891 - - - - - 4203.5
1356 - - - - - 4204.4	1868 - - - - - 4210.0	1880 - - - - - 4206.5	1892 - - - - - 4203.0
1357 - - - - - 4203.9	1869 - - - - - 4211.1	1881 - - - - - 4206.5	1893 - - - - - 4203.0
1358 - - - - - 4203.1	1870 - - - - - 4210.6	1882 - - - - - 4206.0	1894 - - - - - 4203.0
1359 - - - - - 4201.8	1871 - - - - - 4210.4	1883 - - - - - 4205.1	1895 - - - - - 4202.2





