The Great Salt Lake is a unique lake. It is the largest surface water body in the western hemisphere which does not drain into an ocean. It is a remnant of Lake Bonneville which reached its highest level during the late Pleistocene time. At that time it covered about 20,000 square miles, before overflowing the rim of the basin at Red Rock Pass about 20 miles northwest of Preston, Idaho, and discharging into the ocean through the Port Neuf, Snake, and Columbia Rivers. With the return of warm and dry climate, evaporation of the lake surface exceeded inflow and the lake receded.

When the pioneers reached the Great Salt Lake in 1847 its water surface elevation was approximately 4,200 feet above main sea level with a maximum depth about 35 feet. Since that time the lake has fluctuated greatly, rising to 4,211.5 feet in 1872, declining to approximately 4,196 feet in late 1904, increasing to 4,205 feet in 1923, receding to 4,194 feet in 1934, increasing to 4,201 feet in 1952, receding to approximately 4,191.5 feet in November 1963. The present stage of the lake is 4,195 feet.

The inclination of the shore in many locations is so gradual that a relatively small change in stage greatly increases or decreases the area. On the basis of a Geological Survey chart entitled "Area and Volume of Great Salt Lake, Utah" dated June 15, 1961, and starting with the present stage of the lake, our hydrologists calculate the average increase in area per foot of rise for the next 5 feet would be 68,000 acres. The area at the maximum stage of the lake (4,211.6 feet) has been 1,570,000 acres; area for the minimum stage of 4,191.35 feet has
been 600,000 acres giving a difference of 160 percent in area from the minimum to the maximum.

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 or 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. 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.

While all the various ramifications of the lake fluctuations may be intensely interesting to various students, the lack of a line between the holdings of the Federal Government and State government on this relicted bed of the Great Salt Lake is very frustrating for administrators. Legal precedent based on the common law of riparian rights, as satisfying as it may be as a demonstration in logic, is not helpful to an administrator seeking to know with exactitude the limits of his responsibilities in a situation like the one I have just outlined.
Increasing commercial interest in the minerals in and around the Great Salt Lake in recent years converts the speculations, conjectures and spinning of theories to a hard, concrete, specific problem for administrators, both those representing the United States and those representing the State of Utah.

In discussing the mineral values which have aroused this interest I want to be specifically clear on the point that two classes of minerals, viewed legally, are involved. They are the minerals which attach to the relict lands and those which are present in the water.

This bill and my discussion are confined solely to the minerals which attach to the land. The resources within navigable waters were confirmed to State of Utah by the Act of May 22, 1953 (43 U.S.C. 1311(a)).

My concern as an administrator is to clear up an anomalous situation where I do not know and cannot predict from one year to the next the extent and location of the lands in the vicinity of the Great Salt Lake subject to the Department's responsibilities for mineral development. I have to keep in mind that the Department has responsibilities as the public land steward for the American people. It has as other responsibilities to assist in the development of our minerals as part of the growth of the national economy.

The paradox here is that adherence to legalisms countervails sound administration and effective development of mineral resources.

Fortunately, there is a way out of the paradox. The establishment of a definite line, wherever located, which would serve for all time as the demarcation of these relict lands would make it possible for the Department to meet its
responsibilities to foster mineral development on Federal lands as part of the general economic development.

Any line that the Congress would see fit to prescribe in its power "to dispose of or make all needful Rules and Regulations respecting the . . . property of the United States" would meet the needs of any administrator. The substitute bill attached to the Department's report makes a recommendation on this point. Since that report was made, however, the Senate Committee has reported S. 265 with amendments. The approach taken by the Senate Committee involves:

1. A conveyance to the State of the United States title below the original meander line, subject to a reservation of minerals in the land.

2. Payment by the State of an amount approximating the fair value of the United States lands conveyed.

3. A congressional recognition of the right of the State to the school sections in the relented land, for which no consideration would be paid.

4. A determination of the amount of consideration to be paid by an arbitration type commission.

5. Permission for the State to lease the relented lands during the interim period while the consideration is being determined. All revenues will come to the United States but will be credited to the consideration payable by the State.

The Department has advised the Senate Committee that this approach is satisfactory to the Department. This does not mean, of course, that other approaches might not also accomplish the desired goal.
The legal aspects of this problem have received a comprehensive review by the Department of the Interior. It is embodied in State of Utah, 70 I.D. 27 (1963), and summarized in the Department's report.
1. On Oct. 15, 1954, Fish and Wildlife Service requested withdrawal of lands lying between the meander line established by survey in 1855 and the then edge of the water, for a waterfowl refuge. Similar request at about the same time by Bureau of Reclamation for the Willard Dam.

2. May 20, 1955, Field Solicitor concluded that the land lying between the surveyed 1855 meander line and the edge of the water was "state and federal land." He also concluded that the land below the high water mark at the time of statehood, 1896, was state land, and that above was federal.

3. May 28, 1956, Utah State Supervisor, BLM, advised BLM Director that "the determination of the high water mark at that particular time, ... will be an extremely difficult, if not impossible task".

4. February 25, 1958, BLM State Supervisor reports on a meeting between BLM and State of Utah officials wherein "it was agreed by all members present that the elevation of the Great Salt Lake at the time of Statehood as determined by the U. S. Geological Survey, could be accepted as the mean high water mark at the