

## THE DUBOIS PROJECT.

The so-called Dubois project contemplates the utilization of the Falls River Basin and the Shoshone and Lewis Lakes for the irrigation of arid lands in Idaho between Aberdeen and Dubois, on the west side of the Snake River. It has not been ascertained whether the waters of Yellowstone Lake are involved in this project, and, in fact, I have very little information concerning this development. The fact that this project is being prepared for submission to Congress shows that the Bruneau project would not stop with the raising of waters in Lewis Lake.

## THE CARLISLE PROJECT.

Another project, developed in Cheyenne, Wyo., the so-called Carlisle project, contemplates the placing of a dam at the outlet of Yellowstone Lake, which would raise the normal level of the lake approximately 29 feet, the idea being to take the water stored by this dam in tunnels into the Snake River watershed in much the same way that the Bruneau project proposes taking the waters from Yellowstone Lake.

In order to ascertain what damage would be done to Yellowstone Lake if such a project as this one would go through, I had a reconnaissance survey of the lake made, in the late summer of 1919, which included the 25-foot contour line about the normal elevation of 7,741 feet above sea level, which is the normal water elevation of the lake as given by the United States Geological Survey maps. Owing to

the dryness of the season, the lake was, from reliable accounts, lower by about 22 inches than had been observed since 1901. For the purposes of the survey it was assumed that the normal water elevation of the lake was 7,739.5 feet above sea level, or 18 inches below normal. The 25-foot contour was therefore taken to be 26.5 feet above the present water elevation. A temporary gauge established at the pier of the Bureau of Fisheries indicated that there was but small variation in the lake elevation during the period in which the work was performed.

### DAMAGE DONE IF LAKE RAISED 25 FEET.

Assuming that the lake was to be raised 25 feet above the normal lake elevation, the area submerged would be 9,000 acres. Since but 100 miles of the lake shore (from Rock Point to Delusion Lake outlet) were traversed out of a total of 136 miles of shore line, the above amount was derived by computation and estimate. These show that 8,350 acres would be submerged in the 100 miles traversed and that 650 acres would probably be submerged in the remaining 36 miles. From a knowledge of the ground, it was assumed in the estimate that the 25-foot contour would be an average distance of 150 feet from the lake shore at the present elevation of the lake.

Of the 8,350 acres that were determined would be submerged, 4,000 acres are timberland, 3,400 acres are meadowland, 900 acres constitute the present beach, 35 acres are burnt area, and 15 acres are now occupied by small lakes. By far the greater portion of the 8,350 acres lies in the Pelican Valley and the upper Yellowstone Valley. Furthermore, 17,350 feet, or about 3¼ miles, of the present road system would be submerged. This does not include the road at the Thumb, which under those conditions is liable to be inundated.

### GAME FEEDING GROUNDS WOULD BE DESTROYED.

Several thousand acres of the finest feeding grounds for elk, deer, and other game would be made worthless, and it is estimated that lodgepole pine and spruce averaging between 4,000 and 5,000 board feet per acre, or about 18,000,000 board feet total, would be destroyed. The southern extremities of the Southwestern Arm, the South Arm, and the Flat Mountain Arm have been filled by huge deposits of mud, forming flats which during low water are covered with a fine growth of vegetation. These flats are the feeding grounds of innumerable fowl—geese, ducks, mud hens, swans, and other bird life. Also they appear to form a desirable rendezvous for moose. Although no moose were seen during the reconnaissance in the Southeast Arm, there were sufficient signs to show that they were plentiful. On the mud flats in South Arm and in Flat Mountain Arm several bull moose and cows were observed. Should the lake level be thus raised, both game and fowl would be forced to find new feeding grounds. The picturesque islands—Dot Island, Peale Island, and Stevenson Island—all would be obliterated. Furthermore, the numerous hot springs at Steamboat Point, Butte Springs, and possibly many at the Thumb, including the famous Fishing Cone, would be destroyed.

### EVEN FIVE-FOOT RAISE WOULD BE DESTRUCTIVE.

From what information I was able to gather from the engineer making the survey for the power and irrigation companies interested in the project of utilizing the Yellowstone Lake as a storage reservoir, I learned that possibly a raise in the lake elevation of but 5 feet above normal might be contemplated. The lake has a superficial area of 87,000 acres at normal elevation taken from the topographic map surveyed by the United States Geological Survey. Were the lake to be raised this figure, the present beach would be submerged and also a considerable portion of the present road system at Bridge Bay and Pelican Creek. This, however, would be under normal conditions. But the lake has a change of stage of about 6 feet, as recorded by the then low water and by high water recorded at the fish hatcheries in 1918. During high water, therefore, the country surrounding the lake would be submerged to an additional 4½ feet. What additional land would thus be submerged I am not prepared at this time, without detailed investigation, to say: undoubtedly lands in Pelican Valley and in the upper Yellowstone Valley would be affected. The fact remains indubitable and incontrovertible that the natural scenic beauty would be affected, and, once a low dam is in, a 10-foot dam or a 25-foot dam would be the natural consequence. The precedent simply must not be established.

Lack of funds and engineering assistance prevented me from having similar brief surveys made of Heart, Lewis, and Shoshone Lakes and of the Falls River Basin, where the same data could have been secured regarding the timber that would be destroyed and the areas that would be submerged by the construction of dams, as I secured by the reconnaissance survey of Yellowstone Lake. And it must be remembered, and I wish to emphasize this, that the Yellowstone survey was a brief reconnaissance and not a detailed survey, and that only the latter would produce such accurate figures and other desirable information as would not be open to question.