wet weather, the small springs at the borders of the meadow would be stronger, but the important facts are that there is no lake or even marsh there and that neither Atlantic nor Pacific Creek has its rise in the meadow. Atlantic Creek, in fact, comes into the pass as two good-sized streams from opposite directions and leaves it by at least four channels, thus making an island of a considerable portion of the meadow. And it is certain that there is, under ordinary circumstances, a continuous waterway through Two-Ocean Pass of such a character as to permit fishes to pass easily and readily from Snake River over to the Yellowstone, or in the opposite direction. Indeed, it is possible, barring certain falls in Snake River, for a fish so inclined to start at the mouth of the Columbia, travel up that great river to its principal tributary, the Snake, thence on through the long, tortuous course of that stream, and, under the shadows of the Grand Tetons, enter the cold waters of Pacific Creek, by which it could journey on up to the very crest of the Great Continental Divide, to *Two-Ocean Pass;* through this pass it may have a choice of two routes to Atlantic Creek in which the down-stream journey is begun. Soon it reaches the Yellowstone down which it continues to Yellowstone Lake, then through the Lower Yellowstone out into the turbid waters of the Missouri; for many hundred miles it may continue down this mighty river before reaching the Father of Waters which will finally carry it to the Gulf of Mexico—a wonderful journey of nearly 6,000 miles, by far the longest possible fresh-water journey in the world.

We found trout in Pacific Creek at every point where we examined it. In Two-Ocean Pass we found trout in each of the streams and in such positions as would have permitted them to pass easily from one side of the divide to the other. We also found trout in Atlantic Creek below the pass and in the Upper Yellowstone where they were abundant.

Thus it is certain that there is no obstruction even in dry weather to prevent the passage of trout from the Snake River to Yellowstone Lake; it is quite evident that trout do pass over in this way; and it is almost absolutely certain that Yellowstone Lake was stocked with trout from the west via Two-Ocean Pass.

Grinnellia americana. By M. A. Brannon.

Grinnellia Americana is one of the most interesting and beautiful marine plants found along our Atlantic coast. So far as known, it ranges

only from Cape Cod to New Jersey, abounding chiefly in the shore waters of Long Island sound and New York harbor.

This alga attains a length of 50 cm. and a breadth of 10 cm., but this is an unusual size. The ordinary specimen would not exceed 20 cm. in length and 5 cm. in breadth.

This plant attaches itself to the piles of wharves, pieces of decayed wood, and rarely grows on stones and shells. It grows most abundantly 6 to 10 feet below low tide mark. It is a dioecious plant, and also has a non-sexual method of reproduction. The antheridia are small, nearly transparent dots promiscuously distributed in the tissue of the thallus. When liberated, in salt water, the antherozoids are quite active, and while they were not observed fertilizing the female organ, it is safe to affirm that they accomplish a union with the female portion of the plant in the way common to algæ.

The female organ—the cystocarp—is jug-shape, with a prominent orifice. The cystocarps are found equally distributed on the surfaces of the thallus which is one cell thick. The interior of the cystocarp is very complicated. It develops from an apical cell. This further testifies that Dr. Schmitz's theory of the origin of the reproductive organs of the red algæ is true—namely, they are terminal growths, or branches of the frond.

Experiments in germinating spores were quite successful. Carpophores were cultivated for several days in salt water. Cell division was rapid and there were young filaments developed containing 16 to 20 cells. The study of spore germination and the development of the young plant is to be continued.

Botanical field work in western Idaho. By D. T. MacDougal.

As may be seen by reference to the map, a large proportion of the state of Idaho consists of a triangular mountain mass, with its greatest length from north to south, reaching in places an elevation of 14,000 to 15,000 feet, and including on its eastern border the Bitter Root, Coeur d' Alene and Rocky Mountain ranges.

Botanical explorations have been carried on in the valley of Clark's Fork of the Columbia to the eastward in Montana, in the basin of the