

Dr. J. C. Gray, of the British Museum, has sent me the following extract from an address by himself (as president) to the Zoological and Botanical Section of the British Association in September, 1864 :—

"Besides the numerous attempts at home to replenish our rivers and oyster beds, much has been written, and large sums have been expended, in trying to introduce salmon into the rivers of Australia, but the many failures show how little those who undertook the task were acquainted with the most common physiological questions connected with the removal of fish, and how small was their knowledge of the habits and peculiarities of the fish which they proposed to remove. What, indeed, could be more absurd than the attempt to introduce salmon into rivers which, for a considerable part of the year, are reduced to a series of stagnant pools! I think I may venture to predict, that if ever salmon are introduced into Australia, they are much more likely to succeed in the deep and rapid rivers of Tasmania than in the streams of Australia proper. At the same time, when we consider the very limited geographic range of the salmon in Europe, confined as it is to those rivers which have their exit into the Northern seas, that the attempt to remove it from one river to another in Europe has always been a failure, and that it is not only necessary that the salmon should have a river similar to that which it inhabits here, but also the same food, and other peculiarities, without which, apparently, it cannot subsist, I must confess that I have no great faith in the success of the introduction of the salmon into Australia.

"I think, therefore, that it is to be regretted that the Australian Acclimatization Societies do not rather make some experiments on the introduction of the gouramy, or some of the other edible fish of countries nearer to and resembling their own."

Mr. Frank Buckland has furnished me with copies of several articles on trout egg-collecting and trout breeding, contributed by him to *Land and Water*, the remarks on this head being equally applicable to salmon. I beg to forward these articles as an appendix to the present memorandum.

WALTER BULLER.

7, Westminster Chambers, London, August 3, 1872.

APPENDIX.

Trout Egg Collecting.

TROUT-breeding by artificial means is a practical science, which, although seemingly easy to the uninitiated, is in reality surrounded at every step with continual difficulties, anxieties, and expense. Mr. Ponder and myself have this year done our utmost to get a good lot of eggs into the troughs at Hampton, the young therefrom to be turned out in due season into the Thames.

The Hampshire trout are celebrated for their handsome shape, pink flesh, and general condition. They are, therefore, the trout of all others that our friends the Thames anglers would like to catch with a spinning bait. I have, therefore, this year done all I could to obtain eggs for the purpose of stocking the Thames.

Having obtained permission of the proprietors of a trout fishery in Hampshire, I undertook the task myself of collecting the eggs. Experience of many years has taught me that if I wished to make a success of egg-collecting I must do it myself. Spawning trout are very delicate fish, and will stand no rough handling. If, moreover, any fish happen to be injured, the blame is quite certain to fall on me, and I really do not think I ever killed a fish in my life. I handle them with great care, and always make a point of nursing the fish when faint by holding their head up stream till they swim out of my hands.

On Wednesday morning last, January 17, at sunrise, I anxiously looked out of my bedroom window at the country inn where I was staying. By Jove, what a day!—raining in torrents, the wind coming round the street corners with the rush of a hurricane; the street gutters full, the roads in flood from a stopped-up drain—in fact, everything looking about as miserable and unpromising as possible. Thinking that some of my piscatorial friends who had never seen the operation of egg-taking would have liked to accompany me, I had invited six friends to go down with me, but one after the other they all declined, except my excellent friend Mr. Bartlett, who, with his usual kindness, came to lend me a hand. At breakfast Mr. Bartlett and myself consulted whether we should turn out such a wretched day. "Turn out?" I said, "of course we *must* go; but I can tell you we shall have a tremendous day of it:" so away we went to try our luck. We soon came to the water meadows in a sort of country omnibus, which took the water-bailiff and ourselves: nets, cans, spawning dishes, a great lot of packages altogether, but all necessary. When we arrived at the appointed place we turned out. The weather, if possible, was getting worse, the river was overbank full and in spate, the "carriers" in the water meadows were overflowing, every inch of ground was saturated, and it was most bitterly cold. "Never mind," I said, "let's go at it;" so in I went with one end of the net; but when the water was nearly up to my arm-pits I must say it was most awfully cold, and I shivered again, even though I had on a wading dress nearly up to my neck. We knew there were a lot of trout in this hole, and we were also aware it would require a good deal of dodging to catch them, as there were a lot of stubs in the hole. However, we fixed the net, beat the water up and down, and at the proper time, and drew it out alive with fish. The following is the list of haul No. 1:—1 hen ripe, 2 hens not ripe, 1 hen spawned, 11 cock-fish, and three as bright fish as though it was the month of May. It should be known that I always take the fish out of the net myself, as I am so afraid of their being injured. Inexperienced hands are apt to injure the gills, or pinch them between the fingers and thumb, and if a fish once bleeds from the gills the hæmorrhage is fatal. I always take with me two "crinoline" nets, that is nets stretched on hoops so as to hold the fish caught till we have got them altogether, and I can make my choice. The "crinolines" should be suspended in deep water, and the fish exposed to the air as little as possible. In a few minutes I had got a nice lot of eggs, and turned back all the fish without injury. Slip them in; don't throw them in. I then began the serious part