

The manufacture of beet-sugar, though carried on in Canada, has not yet in any way endangered river and inland fisheries.

In such a country as Scotland where distilleries are frequently situated in the high mountainous country, in order amongst other things, to secure a supply of water suitable for the production of whiskey, the danger of pollution at the very head-waters of important streams and the sources of salmon rivers, is vastly increased. The Fisheries Superintendent for the Spey district, who has many times reported in an interesting way upon the condition of the many salmon resorts in that famous angling area, five or six years ago, gave the following facts in regard to the Fiddich—a branch of the Spey:—

'Last season on this stream there was an increase of about 50 per cent., of sea-trout beds when compared with the previous season; consequently when we deduct the sea-trout beds, which numbered 210, from the grilse and salmon beds, the real grilse and salmon beds for last season will only count 356. The average number of sea-trout beds on Fiddich during previous years would run to about 100 for the season. The best season's spawning that I have seen on this stream was during the season of 1888-89, when the total number of beds was 1045. During the two following seasons—1889-90 and 1890-91—the total number of spawning beds counted on the Fiddich was even behind that of last season, but, on these occasions, the deficiency was easily explained and understood by the fact that the other tributaries were proportionally behind in numbers. There are now 5 distilleries on the banks of Fiddich in the Dufftown district, all of which discharge their spent wash, spent lees, washings, and 'steep water' into said stream, thus polluting the stream from Dufftown down to Spey, a distance of upwards of four miles. Three of these distilleries—Parkmore, Balvenie, and Convalmore—have commenced work within the last 18 months. It is not unreasonable to assume that the deficiency in the salmon spawning on this stream during the last two seasons is attributable wholly to the pollution of the stream by said distilleries. That the refuse thus allowed to run into the stream from the distilleries is of a deleterious nature to fish was clearly demonstrated by experiments I carried out during the month of June last. I took four samples of water from the Fiddich below the distilleries during the time that a discharge of refuse was running, corked and sealed the bottles; then took a sample from Fiddich above distilleries, and corked and sealed that also. I then took all the samples to Fochaber's Salmon Hatchery, and filled four tumblers with the polluted water and one with the clean sample. From the hatchery boxes I took 25 fine healthy salmon fry, putting 5 into each glass. Result—fry in polluted water died in from one to two and a half hours, while the fry in the clean sample seemed as much at home as if in the hatchery boxes.'

This interesting experiment he followed up later and placed fifteen six-week salmon fry in three vessels, five in each. The first vessel he filled with water taken from the Spey three or four yards from the mouth of the Fiddich stream, which is charged with distillery waste; they were poisoned in an hour and fifteen minutes, while in the second vessel he placed water taken thirty yards below the point where the Fiddich pours in; and the fish died in a little less than two hours; but the third vessel was filled with water taken from the Spey thirty yards above the junction of the stream, and the little salmon continued in a healthy and lively condition. The poisonous nature of distillery waste was thus demonstrated, yet it must be admitted that the number of spawning salmon and spawning beds up the Fiddich showed a remarkable increase in the same year and above the distilleries the eggs and fry could suffer no harm, but all below would no doubt perish.

The manufacture of wood-pulp has attained, in recent years, vast proportions in Canada, and is likely to develop to an extent so enormously increased, in the future, that the effect of the waste matters resulting from such manufacture is of vital concern. In the first place the floating of pulp-wood, which consists of short lengths of very small lumber, is stated to be in many respects more injurious than the great 'sticks' or trunks of large trees which have been hitherto mainly conveyed along Canadian water-courses. The friction of the lengths of pulp-wood, it is said, tears off the epidermis, the corky bark and the fibrous bast tissue, leaving an offensive deposit in the beds of rivers. The trees being small, comparatively young, and of