tion of poisonous waste, by which rivers have been injured. The processes for obtaining pyroligneous acid, acetic acid and wood naphtha, leaves a tarry residue, and certain alkaline and calcareous products which are poured into adjacent streams when not utilized. Similar oily and tarry refuse has been noticed floating down rivers from gas works, and its tenacious and offensive nature must work harm to fish, though the quantity, as a rule, is small compared with similar waste from extensive chemical and paraffin factories. In several cases of pollution from gas works, a careful investigation did not show that dead fish had been found in the neighbouring waters. Of course, when the production of these waste materials (chiefly ammoniacal, oily and tarry in their nature) is extensive, their utilization is a source of profit, such bye-products yielding valuable substances (staining, saccharine, flavouring, &c.) which are in great demand.

As I have already pointed out in regard to the alleged deadly character of chemical and other pollutions, there is a singular lack of actual demonstration or proof. It is not sufficient to say of a particular stream that fish once abounded there and now they are gone, therefore the factories situated along its banks have killed off the fish with their injurious waste matters. There are numerous cases of depletion of lakes and rivers in Canada, where no such thing as factory pollution has occurred, the decline of the fishery being due either to overfishing, to poaching and destruction of spawning fish, or in some cases apparently to deforestation and cultivation of the land, which has wholly altered the character of the waters.

A clear case of destruction of fish by factory pollution is that of the river Doon, where during the latter part of October (as detailed in the 12th Annual Report of the Scottish Fishery Board), 68 salmon and 62 sea trout, besides a quantity of small fish, were taken out of the river in a dead or dying condition. Dead fish had been noticed by a great many parties, and one party stated that above a certain point very few live fish now occurred. Early in December, outside in the estuary of the river, 135 salmon and 294 sea-trout were picked up apparently poisoned, as there were no indications of fungus, nor were the fish marked or injured in any way. It appeared that the Dalmellington Iron Company, which began in 1893 to manufacture tar, pitch, ammonia, &c., had by an accident allowed a quantity of waste products to escape into the river. A settling pond had been provided, but in October the embankment had given way, and the poisonous products had escaped. The settling pond and certain evaporating contrivances in connection with the works, were arranged to render the wasted matter less poisonous.

Breweries where beer is manufactured in quantities produce waste of a grave noxious character, the acids and other deleterious products, which are produced not only in the brewing of the beverage itself, but in the shape of 'sour beer,' cask-washings, etc., especially in cases where factories are on an immense scale, are inimical, it cannot be doubted, to fish life. Indeed Dr. Tolke in a paper published in 1879 included, as he states 'Among these industries sugar refineries, starch factories, distilleries, breweries and malt-houses whose refuse-water is strongly impregnated with organic matter and causes most of the complaints.

The manufacture of beet-sugar, with which I have been familiar for many years, shall form the subject of a special investigation. This important industry, probably the most important of our agricultural industries, has, thanks to a sensible protective tariff and a rational system of taxation, developed from very small beginnings to its present vast extent.

'This important industry certainly deserves to be protected in the interest of the national finances and agriculture; but it cannot be denied that this growing industry is the very one which contributes the largest share to the pollution of our brooks and rivers, particularly as it consumes an enormous amount of water.

'It will be easily understood, therefore, why the complaints from the beet-sugar manufacturing districts are so numerous and well founded, and every impartial witness will have to concede that the brooks and rivers of those districts produce a very disagreeable impression not only on the eyes, but also on the olfactory organs. Such polluted brooks and rivers are, of course, entirely unfit for fish; but, what is worse, their water cannot be used for drinking and for agricultural purposes.'