



BLIGHTS OF THE WHEAT.

CHAPTER VI.

Before any description is given of wheat blights due to the agency of more perfect parasitic insects than the infusorial one last noticed, it will be expedient to point out the peculiarities of a most extraordinary abortion of the grain, which has been attributed to various causes. The diagrams will convey a correct idea of its appearance in rye and wheat. It is called *ergot*, which is French for *cock spur*, from its resemblance to the spur of the male domestic fowl. The ergotted grain is



Ergot of Wheat.

Ergot of Rye.

changed both in form and properties, and is one of the most wonderful monstrosities to be met with in nature. The altered grains elongate, turn black, and protrude in the manner shown in the figures, both of which are drawings of actual specimens. Ergot has been the subject of numerous speculations, and it has, by a singular mistake, been actually classed amongst the fungi, to which it bears no true resemblance whatever. A very superficial examination, in the present state of science, is enough to show that this is a great error. Some persons have imagined that it is caused by the puncture of an insect made for the purpose of laying its egg, such as is well known to be the case in certain remarkable excrescences on plants, of which oak apples, and nut-galls are common examples. By such punctures, morbid action is induced, and the results are the excrescences alluded to, some of which are articles of commercial importance and of great use to man. A certain fungus invariably accompanies ergot, and therefore it has been concluded by certain observers that it produces the disease. It is however quite as probable that the fungus is accidental to the ergot, as that the ergot is caused by the presence of the fungus. "Be the cause of its production," says professor Henslow, "what it may, the ergot is a monstrous state of the seed in which the embryo, and particularly one part of it, is preternaturally enlarged, protrudes beyond the chaff, and often assumes a curved form somewhat resembling a cock's spur, from whence the name "ergot," which is of French extraction. It is black superficially, and of a spongy texture internally, containing much oily matter, so that it will burn like an almond when lighted at a candle." Daniell, in his table of sugars and their congeners, says that a certain saccharine matter, which he calls "mushroom sugar," is derived from ergot, consisting of twelve equivalents of carbon, thirteen of

hydrogen, and thirteen of oxygen. Another chemist announced that he had discovered in it a non-azotised vegetable substance, which he denominated *ergotine*. It is obtained in the state of a brown powder, of a pungent and bitter taste, and he looks upon it as the active principle. He says that it is narcotic and poisonous, but the composition and properties do not yet seem to be ascertained; and most probably, if it could be duly examined, it would turn out to be a mixture. Unquestionably ergot contains oily matter and a saccharine principle, and when taken into the system, its effects are extremely violent. The use of ergot of rye as a medicine, in peculiar cases, has long been well known to the faculty, and recently ergot of wheat has been found to be even more potent than the other. A high temperature, as is the case with most vegetable poisons, destroys its injurious properties, and the rapidity with which such substances become volatile, presents a serious obstacle to its being accurately examined in the laboratory of the chemist.

In certain places, ergot is extremely common in rye, and it is more so than has been suspected in wheat. It occurs in many grasses. In 1844 and 1845, it was abundant in the following grasses—*lolium perenne*, *lolium arvense*, *festuca pratensis*, *phleum pratense*, *dactylis glomerata*. In the *lolium* it was extremely abundant, so that the author can say, he scarcely examined a field either in the east or west of England, for he tried many in both, without speedily finding specimens. There are localities in which the ergot has not been seen at all in wheat, and we find botanists accordingly who state that they never met with it. But the same individuals would, perhaps, in other places, discover more than they wish to find. Professor Henslow desired his miller to search for him in two bushels of rye wheat, and he quickly produced three dozen specimens, and said there was as many more left in the sample. The author in 1844 suspected the existence of ergot in certain low lands in a village near Great Yarmouth, and requested the miller of the place to look into the corn when sent to be ground from one particular farmer, on a very small occupation near the marshes. The miller soon received from this place four bushels of wheat, and on searching found directly forty-eight specimens, which he brought to the author. The following season the author searched in a wheat field on the same little farm, and could not find any ergot in it; but gathered a large quantity in the grasses growing in the same district, in places where the drainage was bad.

The medicinal effects of ergot, in small doses, have already been noticed as being extremely powerful, but if taken to any extent, its results on the animal frame are truly awful. This has been proved by numerous experiments, of which professor Henslow gives a most striking account in his valuable notice of this disease; to which he adds a proper caution against their repetition now the question is settled. Animals which refused ergot mixed with their food have been compelled to swallow it, and it reduced them to a wretched condition. It was tried upon pigs, and also upon poultry, and the consequences were sickness, gangrene, and inflammatory action so intense, that the flesh actually sloughed away. In some cases, the limbs rotted off, and no description of animal suffering has ever exceeded the direful ills thus inflicted. These experiments were made with a view to determine whether the ergot of rye, constantly ground up with the flour in some parts of France, might not be the cause of the gangrenous diseases so prevalent amongst the poor in certain districts. The symptoms of these epidemic diseases are dreadful, and there seems to be very little doubt that the suspicions as to their originating from