

3. How many years is it since it first began to be noticed among you?

4. At what time during the present season did it first appear in your neighbourhood? Has its appearance been sudden and unexpected?

NOTE.—A letter from a Mr. Gilchrist, of St. John's, New Brunswick, dated 27th September last, contains the following passage:—"I was never more surprised at anything than the change upon the appearance of the country from the time I had gone through it two months before. At that time everything looked beautiful, and crops of every kind seemed abundant; but now a blight seems over everything. From Halifax to St. John's, I did not see a single field of potatoes but what was completely destroyed; and it is universal throughout the whole of North America. So bad are they upon St. John's River, that the health officers have forbid them being brought to market; and, from what the country people say, there will be scarcely enough left for seed. It is a strange sort of disease. It first attacks the show, and so rapid is it, that in the course of two or three nights a whole field will be destroyed, and the stench that arises from them is almost unbearable."

5. What peculiar appearances has it presented—does it differ in character from the disease of former years? Does it generally show itself in the leaf and stem, before it appears in the bulb?

NOTE.—The rot in the tuber of the potato assumes two distinct characters, known by the names of dry and the wet rot. The former, which has hitherto prevailed most in this country, has the appearance of brown or brownish-black streaks, spots, or layers in the potato, beginning at the outside, and extending inwards, often to the very core. The affected potatoes often appear sound externally, though upon a closer inspection the seat of the disease may be traced by a slight wrinkling or discoloration of skin. In many cases the disease appears first at the end of the potato most distant from the root. In others it is the prominent eyes at the side of the potato which are first attacked, presenting a blue or livid appearance, and exhibiting, when cut, the brown fungus within. Potatoes, with this form of disease, are often difficult to boil soft. When far gone they have a disagreeable taste and smell after being boiled, and they not unfrequently decay after being pitted.

The wet rot forms an ulcer or distinctly decayed and rotten part in the potato. It sometimes appears as a rotten hole proceeding from the heel of the potato, where it is attached to the rootlet: sometimes it forms a soft mass over a large part of the surface, which can easily be pushed off by the thumb; and sometimes it appears sound externally, and yet may be crushed together in the hand.

The rotten portion has frequently the consistence of a paste, "with tenacity sufficient to rope when held up, and the semi-fluid mass strings down like honey."

6. On what soils is it most prevalent—on light or heavy—on wet or dry—or on all soils equally?

7. Has it, to your knowledge, appeared on peaty or on newly broken up grass lands?

8. In what varieties of potatoes? Have old or long cultivated varieties failed more than new or recently introduced varieties?

9. Are varieties raised from seed, to your knowledge, liable to failure?

10. Have potatoes planted whole shown any difference in the extent of the failures?

11. Has the previous draining of land any effect in preventing the diseases?

12. Has the kind of manure applied any influence on the appearance or fatality of the disease?

13. Do you think the want of lime in the land is any cause of failure?

14. Does it, in your district, attack particular fields or farms, and what are the peculiar conditions of these farms?

15. Does nearness to the sea or the use of sea-weed make any difference?

16. What is your opinion of the cause of the disease?

16. Do you think you have in any way contrived to prevent it, during the present or past seasons, and how?

NOTE.—An American Agriculturist says:—"I have used slacked lime, which I sprinkle on the potatoes as soon as they are cut for seed, and shovel them over in it, and plant them immediately. Since I have adopted this plan, I have not lost a potato, either in the ground, or after they were put in the cellar; and such of my neighbours as follow my example are alike fortunate, and in no way troubled with the rot." This was written in 1844.

In Scotland some practical men have supposed that by the use of saline, or chemical manures, they have been able to prevent it.

18. Has the peculiar wetness of the season, in your opinion, had anything to do with its occurrence in your neighbourhood?

NOTE.—The American Report for 1844, contains the following passage:—"Notwithstanding the intensity of the drought, and its long continuance, the potatoes in this section of the country are rotting to such an extent as to destroy nearly the whole crop."

19. What are the first symptoms of decay after storing?

20. It is said that the rot spreads faster after the potatoes are put together in heaps or pits, than when left in the soil—and late digging or leaving them all winter in the soil is therefore recommended, what practice would your experience lead you to adopt?

21. How would you recommend that the potatoes should be stored during the winter? Will a sprinkling of slacked lime, or of salt, or pounded charcoal, or charred peat, or wood ashes, be beneficial? Will washing the potatoes clean, and then picking and drying them before storing, help to preserve them?

22. What precautions would you adopt in preparing the seed in spring?

23. Have any cases occurred in your neighbourhood in which the use of diseased potatoes has been injurious to animal life?

24. Are you able to forward me any striking examples of very healthy or of very diseased potatoes from your neighbourhood, or specimens of insects or of fungi you suppose to infest the potatoes, for the purpose of chemical, botanical, or entomological examination?

JAMES F. W. JOHNSTON.

DR. BUCKLAND ON THE POTATO DISEASE.

At the Annual meeting of the Queen's College, Birmingham, for the distribution of prizes, Dr. Buckland delivered a powerful address, in the course of which he alluded in the following terms to the murrain of potatoes:—"It had been too notorious for some weeks past that a gangrene had seized upon the potato crop, that it was almost universal. It extended all over Europe, and it was felt in the United States. It was felt, in the first instance, in Belgium, and then all over France and in Italy. He (Dr. B.) had received, within these few days, the result of an investigation of the potato disease in Scotland, in which Dr. Johnston had been summoned to institute a chemical investigation into the nature of the disease, and it was only that morning he received intelligence which confirmed his worst fears of the nature and extent of the malady. He had read that morning before leaving London, in the letter of a gentleman culled the *Times* commissioner, the most awful statements relative to the condition of the potato crop in Ireland. That gentleman stated that he had just been informed by a priest that the disease of the potato crop was general in his parish in the county of Clare, and that out of 68 barrels of potatoes which had been buried in two pits, not one barrel had escaped uninjured. Nearly the whole were found to be diseased and decomposed. From these and other awful accounts he (Dr. B.) would say that the plague was begun. There was, he believed, yet a remedy for the disease, if taken in time. They must, how-