THE POTATO BLIGHT IN ENGLAND.

Dr. Kidd has spoken out boldly relative to the potato disease, which is bidding fair to become a national calamity, not only in the destruction (to an enormous extent) of our supplies for next winter, but in its influence on the crop of 1873. After pointing out the fallacies of the various remedies which have at times been prescribed, Dr. Kidd remarks :—

"It strikes me that there is no virus, or disease, or error of thunderstorms, but that the plant has been over-cultivated, and the farmer who will go back to plain seedlings and plant the potato early will escape much of the blight. The natural rotation of crops —three or five or whatever the farmer knows is best—is done away with in too many places, and what lands turned into permanent grass have given up the potato to inferior land. Seedlings are got from the berries, of course, of the potato blossom. They are rather waterish at first, but by cultivation, as nature in her wonderful way stores up starch for the germ, they become dry and mealy, with more vitality. This vitality is what the plant wants. There is too much starch in the sets now planted. The power of assimilating or ripening the sap in its return from the leaf and forming fluid starch or cabium is diminished. The black 'spot' on the leaf is probably the effect not the cause of the disaster. The general upshot of what one can make out among farmers is clearly towards earlier and better planting of the good old tuber; more science or system as to the rotation of this and other crops; less science of the starch-grating or beanstalk kind, which would upset crop rotation; and trust to no crops but more cattle, and to potatoes got out of any worthless patch at haphazard. The potato, rather, in a phisiological sense, requires as nice soil and management as a tulip bulb. We know what a half-boiled bulb of a tulip would turn out; so of our present scrofulous potato plants or 'sets'"

Careful storing for seed is a subject of deep importance on which I wish to say a few words. In many districts of Yorkshire, Lancashire and other counties, especially where local flower shows exist, cottagers, as a rule, hold back a few seed potatoes, which they place in shallow boxes with one end of the tuber upwards, and these are exposed to the air or kept in some cool place, but preserved from frost. These are allowed to "sprout" early in the spring, and are planted with short sturdy roots attached to them. This plan is also adopted in many private gardens, especially where there is accommodation in the form of sheds, spare shelves in the fruit room or under a dry stage of a greenhouse.

It is not so easy for farmers who plant extensively to adopt this plan, but it is a question for their consideration whether it would not pay them to give their earnest attention to this subject. The present system of storing *seed* potatoes in pits is a fatal mistake if they are allowed to remain there after the end of January or early in February, and has been one of the chief causes of the fatalities attending the potato crop.

I will take as an instance the winter and early spring of this year, when the weather was very mild generally, and potatoes grew very early in the pits. In a great number of cases the potatoes had sprouted so much that the sprouts were torn away from the tubers, certainly once, and, in some instances, more than once. The same thing occurred when large quantities of potatoes were stored in heaps under cover, this sweating and premature formation of sprouts and their destruction tending to weaken the constitution of the tuber, and causing the "blindness" which we often meet with in fields and gardens. I know of instances when sound potatoes encountered this treatment, and where some of these, sold for seed to amateurs, resulting in from 25 to 40 per cent. of "blindness;" that is, failure of the tuber to reproduce itself. I maintain that the storage of our seed potatoes is a question of very great importance, and, in my opinion, we may trace to the improper storage of seed tubers one of the causes why the disease has made so much headway. This has been going on year after year, and is a mistake.

Growers on an extensive scale may ask,—How are we to store seed for a large quantity of ground if we adopt this plan? I think that difficulty is easily overcome, as several means for effectually storing seed tubers present themselves—such as utilizing spare space in out-buildings or the erection of potato-seed sheds, which can be readily done by using fern, heather, sods or any available material for the sides, and thatching the roof with straw, reeds, heath or any waste material, and putting in here and there an old sash for light and ventilation, of course, having doors at the ends also for thorough ventilation. One thing is a certainty—it is as much to our interest to look after our potato crop and prevent disease as it is to expensively house our cattle and prevent disease in them, and it behoves us to be up and doing, and to set our brains to work on what is best to be done.

Another primary cause of failure is to be found in the persistency with which, in so many cases, we plant potatoes year after year in the same ground; in other cases, with only a short interval between the crops of this tuber. We go on year after year manuring for the same purpose, but never supplying the best of all the manures nature has given us—*a change of good fresh unused soil.* Farmers have it in their power to do this, and probably do change their potato land frequently. There can be no question about the advisability of *deep digging* or *deep ploughing* for this crop in dry situations as well as wet, but especially in the latter. It is most desirable that the potato should be relieved from a superabundance of moisture—hence the necessity of providing every available means of relieving the ground as speedily as possible from an excess of moisture. I have a strong conviction that unless this is done the potato when just about arriving at maturity is unable to take up such a great amount of moisture at the root, and that rapid root decay sets in. Does this root decay pass to the tuber, and through the cellular tissues of the haulm to the foliage, where it manifests itself in the spot so familiar to us? I venture to think so, and that disease springs first from a disorganization of the roots, arising from too much moisture there at the period I speak of. I have founded this impression on observing for years past that the disease does not make headway only after much wet followed by close moist weather. I therefore regard drainage as imperative, and the drier the surface can be kept and the more air and light that can be admitted so much the better.—*William Dean.*

FARMING IN THE WESTERN STATES.

We would ask our Canadian farmers to compare their lot with the profit or loss of farming in the State of Illinois, as given in the statement of Mr. C. M. Smith, a farmer of that State :—

"I have given the matter very careful study for years, and I think I can tell just about how much it costs me to raise a bushel of corn. You may take first the labor. I think any farmer will tell you that it takes a man and a team at least five days to plow, harrow, mark out, plant, cultivate, harvest, and house an acre of corn. It can't be done in less time. Two dollars a day is no more than a fair price for the work of a man and a team. Then the first item of expense is $10. The land in this county is assessed at $33.33⅓ an acre; it is worth, unless the sale of the whole of it should be forced, $40; I refused $68 an acre for my farm last year. Interest at 10 per cent. on $40 for one year is $4.—Fifty bushels of corn to an acre is more than the average of this county. To shell a bushel of corn and haul it two miles to Kewanee, with taxes, the wear and tear on farming implements, &c., costs at least five cents a bushel, or $2.50 for the crop on an acre. So you see my acre of corn has cost me $16.50. Corn is now worth in Kewanee 20 cents a bushel. My fifty bushels will, therefore, bring me only $10. That is, I barely get pay for my labor, while I lose the interest on the money invested in my farm, the wear and tear of machinery, and get nothing for shelling and carting, or with which to pay my taxes.

Again, the bushel of corn has cost me 33 cents. I suppose we can raise corn at a profit for 30 cents a bushel. Our farmers don't expect to get 10 per cent. interest on their investments, though they have as good a right to it as the capitalist or merchant. Then there is one other thing which I did not take into account. The stalks have no cash value, but they furnish fodder for our stock. The only thing that has saved the Illinois farmer from complete ruin and bankruptcy has been his stock. After our corn has been husked, we turn our cattle into the fields, and they will come out in the Spring fat."

Over the entire north of Ireland the crops are reported to look exceedingly well.

AGRICULTURAL EXHIBITIONS.

The primary object of agricultural, horticultural and household exhibition is not merely to award premiums. The great central idea, besides the social and moral development, is that by bringing to one place occasionally animals and articles of superior excellence, as *models*, so that they can be conveniently seen, studied and compared, every one may have an opportunity of becoming acquainted with the appearance at least of whatever is best and most profitable of its kind—the horse of the fittest proportions, either for work or for speed, the cow best suited for milk or butter or as a breeder, the hog that promises the greatest return for a given amount of care and food, the sheep best adapted to each farmer's circumstances, either for wool or the market or both, and so on through the whole range of stock and fruits, household arts and manufactured products.

Every one by careful enquiry is enabled to learn much of the means by which these best results were secured, and may, perhaps, be put in the way of obtaining their like for his own use and advantage. The chance is offered to see and acquire the most approved of everything in the way of implements, machinery and various mechanical devices for the convenience of the farmer and his working force, for the saving of labor and the better execution of the work. Add to these advantages the stimulus which one derives from the discovery of his inferiority in practical farming and the encouragement another receives from his recognized superiority, and we have some of the special fruits of the industrial exhibition, the planning and management of which constitutes the chief work of the county society.

But aside from these direct and special advantages to the farmer, there are some other fruits which grow out of these annual exhibitions, the indirect benefit of which should not be overlooked. They give encouragement to the mechanical and manufacturing classes by affording them an opportunity to exhibit their inventions and products, and by furnishing an impartial though interesting umpire to pass upon their merits and test their relative values. The direct benefit of this accrues to the mechanic and manufacturer himself, but the farmer also secures advantages—first, by being aided in reaching proper conclusions as to the relative value of things invented and manufactured for his use; secondly, by afterwards reaping the fruits of the inventor's stimulus, in the form of still better machinery.

Finally, the social benefits secured by the intermingling of individuals at the annual county fairs are of considerable importance. They afford temporary rest from overwork—extend the farmer's field of observation—help cure his prejudices—enlarge his views—quicken and strengthen his sympathies with his fellows, and thus better fit him for intelligent co-operation in whatever promises to improve his condition and exalt and dignify his calling.—*Western Rural.*

THE POTATO AS FOOD.

The Germans as a nation object to the potato as food, and some of their savants have predicted that those nations who make use of this esculent as a principal article of diet will deteriorate both mentally and physically. The German savant, Carl Voight, says that, "the unnourishing potato does not restore the wasted tissues, but makes our proletariat (common people) physically and mentally weak." The Holland physiologist, Mulder, gives the same judgment, and declares that the excessive use of potatoes among the poorer classes, and coffee and tea among the higher ranks, is the cause of the indolence of nations. Leidenfrost maintains that the revolutions of the last three centuries have been caused by the changed nourishment. The lowest workman in former times ate more flesh than now, when the cheap potato forms his principal subsistence, but gives him no muscular or nervous strength.

While it is true that a diet composed of potatoes alone would have disastrous effects upon the people so using them, it is as true that an individual confined exclusively to bread made from wheat flour from which the bran and middlings were taken would as surely become enfeebled and die. The potata, as does wheat flour, consists largely of water and starch. According to Johnston it contains 75.52 of the former to 25.72 of the latter; but it varies, some of the coarser varieties giving much less than the quantity of starch enumerated by Johnston. It also contains dextrine, sugar, albumen, caseine and fat in small quantities.

The flour from the soft white wheats contains more starch and less gluten and albumen than that made from hard wheat. The fancy brands are especially deficient in these constituents. An analysis of Michigan flour contained—starch 67.70, gluten and albumen 10.00, glucose and dextrine 8.76, the balance being water, bran, ash, &c. The chief value of the potato, therefore, is in the carbon or heat-producing substance it contains, and this is largely the case with fine flour; consequently neither of these should be used except in connection with other food as flesh, eggs, milk, &c.

Man is an omniverous feeder, and cannot be confined to one diet. Neither is he adapted to subsist upon such articles of food as, great in bulk, furnish but a modicum of subsistence—the food must be concentrated. Nevertheless, of all the vegetable substances consumed by the human family, we could less afford to lose the potato than any other except perhaps wheat. Wheat in its integrity probably furnishes the most perfect description of human food of any one substance. While this holds good with the grain ground and used in its entire state, it does not by any means apply when divested of its bran, middlings and other coarser products. We have no doubt but that man would remain longer in health upon potatoes than when confined to bread made of the finer qualities of wheat flour.

The potato is the most universally used of any vegetable in the United States. Its introduction has prevented the famine which used to periodically occur in various countries before this esculent was known. It possesses just the proper capabilities for distending the stomach when taken in connection with other food, and its annihilation as an article of diet would create greater distress among the inhabitants of the civilized world than would that of any other article of human food, wheat excepted. Because it does not contain every requisite for human nourishment is no reason for its condemnation as being unfit for food. In conjunction with other food there is no one single vegetable so valuable to man or which will keep him in such good health.

DRAINING.

One reason why farmers are getting such inadequate compensation for their labor is the low average yield per acre. The remedy for this is to a considerable extent under our control. We must farm better. It is a large area of land under cultivation and the low average yield per acre that is the chief cause of all our troubles. A favourable season floods the market with produce which can hardly be given away; an unfavorable season causes light prices, but we have nothing to sell. A good farmer would have a fair crop even in an unfavorable season. If I had been a good farmer I should have had 200 bushels of potatoes per acre; but, as it was, I had not 100 bushels per acre, and many of these were too small to sell. For the good potatoes I got $1.06 per bushel, and, if I had had 200 bushels per acre and ten or a dozen acres, I should have no reason to complain of hard times. As it is I say, "The weather was so dry that my potato crop was a failure." But, in point of fact, I know that this is not the exact truth. I had a bad crop because I am a bad farmer. If I was a good farmer I should have had a good crop in spite of the drouth. This I know, because on one row manured for mangels but planted with potatoes, I had a large yield of large potatoes.

"Draining is all very well," says the Deacon, "but what has it to do with making manure?"

The Deacon plays shy of the drainage question. He has a quantity of low, rich land that is so wet that it could not be ploughed until June. I wanted to tell him that if that land was drained it could be sown in good season and would produce more than double what it does now, and consequently enable the Deacon to double the amount of manure. Draining, better tillage and irrigation are the means we must look to for growing larger crops and making more manure. We have to get the manure out of the soil, and, when we have got it, we must be careful not to waste it.—*Talks of the Farm in the American Agriculturalist.*

The Army Worm has committed great damage on the oat crop in some parts of Illinois.