

of this table, I may state that a sample of white Dutch clover contained the highest number of weed seeds I have observed in any sample, and this, too, came from a seedsman labelled as genuine. In a bushel of this I found no less than 7,680,000! Here, then, is the case of this white Dutch clover. With every square yard that was sown of this seed would be sown 174 weeds, which would of course be quite enough to stock any land for some years to come with weeds, however careful you may have been in weeding in previous years. Let us take ryegrass, a more fertile source of dirt than almost anything else. I have examined various samples of ryegrass. In one sample of Italian ryegrass, for example, I found 261,110 weed seeds in the bushel. These seeds are very much like ryegrass—couch grass very often; and some very inferior species of grass. As far as I have seen, with regard to ryegrass, there is not a more fertile source of couch grass than imported ryegrass seed. In a bushel of this seed will be found quite enough couch seed to stock your land, if it has been cleaned ever so much previously. Then, again, there is the common imported Italian ryegrass. The example I have here is one of the dirtiest I have ever found, for it contains 450,560 weed seeds to the bushel. The weeds consist, among other plants, of the creeping crowfoot, one plant of which will occupy several feet if it grows well, which it is almost sure to do, and if it starts amongst seeds, will grow them out in a very short time. Another of the weeds is the heavy lop grass, with no feeding properties whatever, and perfectly useless amongst ryegrass, or, if not useless, it is a grass the seed of which it is too bad to call upon the farmer to pay for, as it entails work upon you for years and years to get rid of out of your fields. There cannot, I am sure, be a more fertile source of weed cultivation than is offered in our common seeds. My examinations of flax seeds also show that you sow weeds very generally when you sow flax. I got several samples of the seed as ordinarily sold. If used for crushing, its value is reduced as much, or perhaps more, than if sown. In one sample of Tulsit linseed, in 100 parts I got 40 parts of flax seed, 44 parts of weed seeds, and 16 parts of dirt. Thus 60 parts were dirt and weeds. In Odessa linseed I found 66 parts flax, 20 weeds, and 4 dirt. In some Black Sea linseed 80 parts seeds 19 weeds, and 1 dirt. In Bombay linseed 95 seeds, 3 weeds, and 2 dirt. So that these show you that, though if you buy cheaply you may get some kinds very dirty, yet that it is possible to get almost pure flax seed in the market. If any of these dirty seeds is used, you get as a result a large number of weeds on your farm. Weeds which you never cultivated or saw will be obtained from those bad foreign flax seeds. Weeds are thus taken to various parts of the world in carelessly collected seed. Our emigrants in India and North America have thus taken our agrarian weeds with them. At one place in the neighborhood of Saratoga Springs

I counted some thirty species of weeds growing as rampantly as in England, they might have been taken to the farm, and there cultivated in the same manner; in fact a great part of our ordinary weeds have been brought from foreign countries. I am constantly having new plants brought to me. Some of these spread very rapidly. These new plants have been brought to us in foreign seeds, and they ought to be an evidence to us of the manner in which we sow weeds. Suppose we don't sow this dirty linseed, but send it to be crushed for oilcake, and the dirt happens, as is very often the case, to be mustard seed or charlock, both of which are hot and pungent—you will have a cake which is frequently destructive to cattle. The number of cases of cattle being so destroyed is more than you would be inclined to believe. Then again with regard to vetches, I can assure you it is almost impossible to get a genuine sample. The corn cockle is a plant that usually grows with vetches, and the flower being purple, like the vetch, it is not noticed. Here are some seeds of it; they are a little darker than vetches. Vetches are often sold containing more than half of the cockle. And as the vetch is a highly nutritious plant, while the cockle has no feeding properties whatever, when you buy them thus mixed you are paying not only for that which is bad in itself, but which dilutes that which is better. There are very few samples that are entirely devoid of that plant; but farmers will continue to buy vetch seed containing the cockle, leading one to suppose that they do not believe there is any mischief in cockle. I do not want to represent that farmers are not observers, for they are, and are looking so closely into these matters that the keenest students of nature can hardly keep pace with them. But in this case probably the close resemblance of the cockle seed to the vetch may cause them to overlook it; and perhaps a little botanical study may be of benefit even to farmers. I will now call your attention to another crop plant, which you do not grow much in the Vale, but which is more grown on the Cotswolds, and that is the sainfoin. There is a weed much taller than the sainfoin, but with leaves of much the same character, and that is the burnet. In the sainfoin the leaflets are not noticed, while in the burnet they are. I have had to give evidence about this in courts of justice. I have seen crops of sainfoin growing 50 per cent. of burnet. It is a large plant, growing strong woody matter amongst the sainfoin, and is of no use as a feeding plant. Instead of a crop of sainfoin lasting six or eight years, it is not found profitable to grow it more than three or four years, on account of this weed. I have specimens of burnet seed, which is light brown, and of sainfoin seed, and at first sight you would hardly see any difference. Here is a mixture of about equal parts of sainfoin and burnet, and from this you will see the difficulty which some persons would have in observing the difference between them notwithstanding the difference in the shape of two seeds.