

fit for the malster, and the straw valueless as fodder. The farmer then finds that his young clovers have been killed by the lodgment of the barley crop; the next year produces him either an inferior crop of hay or a scanty run for his flock, and the succeeding one yields him but an inferior crop of wheat; for every practical man knows how much the produce of this crop, when it succeeds clover, is influenced by the degree of fertility in its predecessor, occasioned, no doubt, by the amount of roots left in the ground, as has been pointed out in more than one lecture of our friend Mr. Nesbit. Let us endeavour now to ascertain the cause of this disease among the Swedes (the cause of the frequent failure of the remaining three crops I have already alluded to) and then see if we can throw out some hints for an improvement of the rotation. That when a longer period than four years elapses between the crop of Swedes, the crop is usually found to be heavier, and success more certain, is well known. A remarkable instance of this I may quote, as taking place in a parish adjoining the one in which I reside. At the close of last year my neighbour Mr. A. W. Crouch, in common with the rest of us, lost almost the entire crop of a fine piece of Swedes in a certain large field, by some inexplicable disease; but across this large field was a broad belt of magnificent Swedes, totally uninjured by disease, and presenting a marvellous contrast to their decayed and offensive neighbours. What was the cause? Each part of the field had been manured alike, and each acre had received the like attention. The secret was this—four years previously this belt of sound bulbs had been preceded by Mangel Wurzel; the remainder of the field had at the same period been cropped with Swedes. Our friend Mr. Joseph Paine has told me that the same phenomenon occurred on the occupation of a near relative of his, and I have witnessed it in other places as well. Let us at least gather something from these remarkable facts. Mr. Thomas then proposed alterations on the 4-course system not as a rule, but as a relaxation of a rule possible under certain circumstances. Let us now suppose, said he, that we change the rotation from the four to a five course; and that it be turnips, wheat, barley, clover, and wheat. Its advantages would be these. In the course of 20 years it would be found that the four crops of Swedes each at five years' distance from each other, would have produced a greater aggregate amount of food than five crops would have done, each four years distant from the other, and that the bulbs would be much freer from either disease or failure. I then propose to take a crop of wheat, as our Scotch brethren almost invariably do. We know by practice that our ordinary wheats succeed remarkably well when sown early after turnips. We have then the Talavera, and other prolific Spanish wheats to fall back on; and, lastly, the April wheat which may be sown with security up to the 1st of May. I may here mention in parenthesis that a remarkably good farmer (now I am sorry to say no longer a member of this club), and who adopts the rotation we are discussing—I mean Mr. Shaw of Cotton End—sows much of the wheat drilled after turnips with Italian rye-grass, for the keep of his couples during the month of March, and, ploughing this land about the 1st of April, sows it with barley and ordinary clover seeds. It is, however, very doubtful whether the Italian rye-grass could be intro-

duced in this manner to any large extent. Next, then, in order to the wheat, comes the barley—the proscribed act—two white straw crops together. The experience of every one who has tried this tells him that this is the very mode to obtain a fine sample of malting barley; and, as there appears to be no prospect of a remission of the malt tax, this, to those who cultivate the grain, is a great object indeed. But I do not propose to sow this second white straw crop without bestowing upon the land some nitrogenous manure. I should do it in the form of guano. Our friend Mr. Mechi would, no doubt, do it with liquid manure. Perhaps other means would answer the purpose, but I agree with the late Mr. Pusey, “that liquid manure is a pretty toy, but solid dung is for farming in earnest.” By guano I, of course, mean genuine Peruvian, and not the worthless trash which is under that name vended by hosts of unprincipled dealers. I read in the report for East-Lothian, in the Journal of the Royal Agricultural Society, “It is now found that guano, at the rate of two cwt per acre, can always be applied with profit to the oat crop however high the condition the land may be in; and if this applies to the Oat Crop (Barley is but little grown in Scotland) I imagine it must apply to the Barley also. The idea of growing Barley after wheat, or two crops of Barley consecutively, is not new. In Rachelor's report of Bedfordshire, 1807, he says, “barley is a favourite crop towards Biggleswade, and is frequently sown after wheat;” and speaking of another part of the country he says—“The large quantity of London and other manure which is here used, causes the barley to grow too luxuriantly to make it prudent to venture the clover to be sown in the first season. The barley is therefore repeated for that purpose, and with better success.” But in much more recent times, we find the same course recommended. In the report for Dorsetshire, published in the Journal of the Royal Agricultural Society, it is mentioned as becoming universal. In Mr. Caird's report, too, on the farming of Lancashire, he is loud in the praise of a Mr. Longton, of Rain Hill, and adds (p. 268):—“Mr. Longton is decidedly of opinion that barley after wheat is the best management with which he is acquainted.” With such examples, there would be no doubt about the success of the clover crop, and, after a luxuriant crop of clover, but little of that of the wheat.

Mr. J. Paine, Bedfordshire, remarked that he had long recognised the difficulty of getting his turnips every fourth year, and the subject connected with his name, which Mr. Thomas had mentioned, came under his notice about two years ago.

It happened that on a 30 acre piece, well cultivated for turnips, and with a good plant, the greater part of the field became blighted during the summer; the only exceptions being about seven acres, which had borne a crop of pease during the routine of the previous four years, and which was constantly eight years from the Swede crop, and above an acre and a half which had been well limed. Here the produce was very good, but these portions were all that was worth a farthing, though the entire field had been sown with the same seed, under precisely similar circumstances. When the process of hoeing was performed, a more luxuriant crop could not be seen; yet, within six weeks from that time, saving the two portions referred to, the roots were not worth picking up. What was the conclusion

to which he naturally came? Why, that the fault lay in sowing the turnips too frequently. For his own part he was inclined to think that, through the agency of artificial manures, the farmer might in some districts cultivate his land even upon a six course. Were the English turnip introduced in one course, and the Swede in another, he believed it would also be found greatly to aid the growth and fertility in the latter. Certainly a plan similar to that which he had adopted with clover, was attended with much advantage. That plan was to sow mixed clovers (white clover, grasses and so on, not broad clover) in one course, and then broad clover in the following course. If the seeds of turnips were “coursed” in this same way, he saw no reason why equal benefit should not arise from pursuing that system.

Mr. R. Baker observed—The true principle in the rotation of crops appear to be, not to bring in rotation in successive years such crops as draw from the land the same description of support, but rather that one crop should so alternate with another as to supply its successor with food, or at all events, not be injurious to it. On lands well managed the following would admit of a green crop of rye or tares, or rather vegetables, to conclude with turnips. On his light land he always took rye before turnips, after the turnips barley, and then clover. The turnips furnished abundant food for the barley, and the barley was a good preparation for the clover. To the clover succeeded wheat, then followed an autumnal fallow, manured slightly and barley again. But of course the rotation must vary according as the description of soil varied or changed; therefore the farmer should have the privilege of selecting that mode of rotation which was best adapted to the soil. Upon his light land also, many gentlemen present had seen the experiment, he had adopted the system of taking oats after turnips, and wheat after oats, and he found that he could grow better wheat in this order than by any other process he had ever tried. In fact the crop was a most productive one—his last yielding, upon being threshed out, forty bushels an acre, and whenever he could get that quantity he was satisfied. The time had now arrived when the old idea about the exhaustion of the soil ought to be entirely abandoned. There was no such thing as exhaustion of the soil. Only give him an opportunity of clearing the crops as they came in rotation, and an ample supply of manure of an organic character, and he could go on producing crops year by year forever, and, in other words, carry out what had been ironically termed the “everlasting shift.”

Several speakers expressed their opinions on the subject of leases, and in conclusion Mr. Owen Wallis proposed the following resolution:—“Resolved, that it is the opinion of this meeting that the landlord who binds his tenantry down to a prescribed routine, from which they must not, under a penalty, deviate, inflicts both upon them and the public a very serious injury without conferring any corresponding advantage.” Mr. Smithies seconded the motion which was put to the meeting and carried unanimously.

The whole subject, in its various phases, has been well brought under review in a recent editorial article in the ‘North British Agriculturist,’ from which it may be advisable to quote a few remarks, before proceeding to discuss details, especially as these refer to the proceedings of the Club above referred to.