

clover there is no reason why the summer-fallow should be continued." No! Did the writer never hear that the too frequent repetition of the clover-crop rendered the land absolutely incapable of producing that plant? I fear he must have read his Lawes to very little purpose if he has not seen this pointed out in the accounts of the Rothamsted experiments.

3. "The killing of weeds was held to be a prominent point in favour of the summer-fallow; but, weeds should never become troublesome on a well managed farm." On light soils, weeds can be kept under by a resolute system of growing hoed-crops of corn or roots; but on heavy clays, the experience of centuries shows that summer-fallowing is the only means by which land can be kept clean.

4. "Land-plaster used on the manure heaps would preserve the nitrogen from escaping in the form of ammonia." I fear that any one who tries the experiment of retaining the ammonia of dung-heaps by scattering plaster over them will be disappointed in the results. Dry sulphate of lime—land-plaster,—ground into never so fine a powder, will have little or no effect upon manure in its ordinary state. The effects of commercial sulphuric acid, which is a liquid, are very different.

5. "Nitrogen, as stated above, is a stimulating fertiliser, but its stimulating effect is more noticeable by an increased growth of hay, straw, &c., than in an increased yield of grain." And get Lawes & Gilbert found, and all the great agricultural writers agree in this point with them, that "the wheat crop requires in its growth an abundant supply of nitrogen by manure, and we assert that in practical agriculture, nitrogenous manures are peculiarly adapted to the growth of wheat." See Journal of the R. A. Soc. vol. 12, page 32. In the Rothamsted experiments, conducted to confute Liebig's mineral theory, Lawes was not trying to grow the greatest possible yield of wheat straw but of the grain of wheat, and he proved irrefutably that nitrogen is the mother of wheat.

Vines and trellises.—I was looking, the other day, at small vineyard belonging to Mr. MacDougall, of Lachine, and was surprised to how very foul and uncultivated it was. The alleys between the long rows of vines were clean enough, but the spaces where the vines were planted, and the transverse lines, were full of weeds, rough, and entirely untilled. A little time devoted to the inspection of the yard made the reason of these faults perfectly clear. The vines were growing attached to trellises extending from one end of the rows to the other, so that, although the grubber, or cultivator, could be used lengthways, the cross-alleys would not admit its passage. The crop, as might be expected, was very poor. Hand-hoeing would have done something to remedy the defects of cultivation, but hand-labour is expensive, and by no means so efficacious as horse-work.

But if the vines are planted eight feet apart each way, a good stout post set for each vine, and the vine kept within reasonable limits, as in the accompanying engravings, the land can be kept under cultivation throughout the season with cultivator, harrow, and roller, the only hand hoeing require being just the small square about the roots of the vine. Other systems of training may give more fruit to the acre, but this seems to me an eminently practical plan for the farmer who cares more for economy of labour than for land.

No two grape growers agree as to the best mode of pruning. Here is one, practised, it would seem most successfully, at the Wisconsin agricultural station, which is simple enough:

1. Keep the vine limited to the post, do not let it spread far enough to be in the way of cultivation; 2. prune in the fall; 3. aim at growing at least four to each canes post; 4. cut out the oldest cane close to the ground each season, letting one new strong cane succeed it; 5. the three or more canes left

must bear the fruit-wood. Leave at pruning time three or four spurs of new-wood to each of the three canes, and cut these spurs back to two or three buds; 6. guard the vine from getting top-heavy by keeping the fruit-wood down low on the plant.

All the summer pruning done at the station is to go with a pair of hedge-shears and clip the great leafy clusters of the vines on all sides into a rather compact form: about three such clippings are required. Of course the young wood must be tied up from time to time as required.

The engravings illustrating the above are taken from the Fifth Annual Report of the Agricultural Experiment Station of the University of Wisconsin.

Pigs. The prices paid for fat pigs at the packing shops in England vary in the inverse ratio to their weight. At the large bacon-factory at Calce, Wiltshire, the following are the rates per score in the month of November:

Pigs from 140 lbs. to 180 lbs... 8/6 a score = 10 cents a pound.
 " " 200 " " 220 " ... 7/6 " = 8½ " "

A telling difference in price to a man who fats, as I used to do forty years ago, from 100 to 120 pigs a year. We must send more sheep and better pork to England.

OUR ENGRAVINGS.

The Delaware grape as grown at the Wisconsin Agricultural Experiment Station.

The Worden grape from the Fifth Annual Report of the above station.

Lorillard Tomatoes in a forcing house. It will be observed that these plants are grown on my plan of only one stem, as shown more naturally in the photographed tomato garden at Sorel in the October-number of the Journal for 1886, p. 153.

The pot-plants are not staked, but are tied to a wire extending to the roof from the pot. The pots are 10-inch, containing, each, a gallon of clear loam. Last winter, Mr. John Gardner, of New-Jersey, grew, 300 plants of tomatoes in this way and "gathered 7,500 lbs. of fruit, being an average of 25 lbs. per plant—all of fine marketable size, firm and handsome in appearance, while the flavour was equal to the best outside-grown tomato." If the latter part of Mr. Gardner's statement is correct, the New-Jersey winter sun must be very powerful indeed. No heat without sun will give colour and flavour.

Stephen's Book on the Farm—A new edition, the fourth, of this invaluable book has just been published. Much new matter has been added, and the revision of the old completed by the well known writer on agricultural subjects, Mr. James Macdonald. Though not written for this climate, the book is so thoughtfully composed and so clear in all its parts, that it should be introduced as a text-book in every agricultural college.

Summer-fallows.—It is all very well for men who have never occupied any other but light loams to say that summer-fallowing is an exploded system, but some of our English farmers still adhere to the practice. In 1887, out of a total of 12,375,549 acres of arable land in England, there were 456,412 in bare fallow. Essex had 40,885 out of 605,861 arable acres in fallow. The land in Essex, particularly in that part called "The Hundreds," is of a peculiarly tenacious character, and although all under-drained has to be ploughed in yard wide ridges with innumerable water-furrows. In Scotland, except in what is called the *carse-land*—Carse of Stirling, Carse of Gowrie—, there is nothing heavier than