The advantages of this mode of treatment are: The destruction of weeds, of insects and their eggs; the additional friability imparted to the soil; and the increase of *available* potash, phosphoric acid and lime. There is, of course, a loss of nitrogen, but the immense improvement in the texture of the soil—an irreducible clay becomes converted into an easy-working loam—will soon make up for that.

If any one tries this plan, he must not expect to go on selling all the produce of his farm as is commonly done. If he tries that way of making a profit, he will soon come to the end of his purse. The continuance of the system for rotation after rotation in the early part of the century had the effect of utterly ruining many of the heavy-land farms in the East of England. But as a means of bringing worn-out, rough land into a pleasant workable state, I do not know its equal. I add a few instances of the effect of paring and burning on soils with which I am well acquainted:

In Kent, on the chalk, a farm was full of couch-grass; the previous tenant had lost all his capital on it; no one would hire it; so the unfortunate landlord had to take it in hand himself. The first season 80 acres of the worst part of the farm were pared and burned, a hundred large loads of ashes—probably 40 bushels each—were spread on each acre, and, after lying exposed to the air and rain for two months, were ploughed in shallow. Rape was sown, fed off by sheep, and, after another ploughing, fall-wheat was sown. Yield of the wheat-crop 48 bushels an acre, which, as wheat was then worth 8 shillings a bushel = £19.4, a good deal more than the value of the fee-simple of the land, which had let up to the previous year for 5 shillings an acre, which, at 28 years purchase, would only made £7 an acre. The total expenditure was £8.10.

Mr. Randell, a large Berkshire farmer, started to improve a piece of land, 5 shillings an acre rent, "of the very poorest description of clay, on the side of a steep hill, totally inaccessible to the dung-cart. After once ploughing, it was worked with grubber, harrows and roller, the clods of couch-grass and every turf dragged to the surface, collected with rakes and forks, and burnt in heaps, at a total cost of £2 an acre. The land was ploughed, after the ashes were spread; tares sown, fed off by sheep, and the crop of fall-wheat following turned out 45 bushels an acre! With our cheap fuel, I am, and have long been, convinced that this would be the easiest way of awakening the dormant fertility of the heavy clays in the valley of the St. Lawrence.

Rations for horses.—Mr. E. W. Stewart says that he cannot make a horse-ration out of oat-straw and oats. Possibly not; and yet I never was better carried to hounds than in 1855 when my hunters had no hay, but oat-straw and all the *old* oats they would eat, which was about 120 pounds a week each. Beans were difficult to come by at that time, and in that locality—Wallop, on the chalk lands of Hampshire—or my horses would have had half a bushel a week apiece, in place of a bushel of oats, but they did their work well on their food as it was, with a bran-mash every Saturday night, and were always ready when called upon.

Plaster.—Among the many puzzles I have encountered in my studies is the action of plaster on leguminous plants. Why should sulphate of lime exercise a specific action on plants which bear their seeds in pods? Some agricultural chemists attribute the effects of plaster to the sulphuric acid, others to the lime contained in this substance. Ville, who teaches that clover, &c., obtain their nitrogen from the air, gives the following formula for manure for clover, haricot-beans, horse-beans, sainfoin, tares, and lucerne—all pod-bearing plants:

	lbs. per acre.
Superphosphate of lime	528
Chloride of potash	176
Plaster (sulphate of lime)	352

Lawes, on the other hand, knows of no *specific* manure for clover, plaster having no effect in England on that crop; probably, because the land is generally sufficiently supplied with it already.

In this country, many a farm refuses to grow pease at all, unless they are *plastered*; but, then, these are worn-out lands, that have never seen a load of dung since they were cleared from the forest. So, it is clear that plaster has some powerful, if at present occult, influence on pease in this province, and if on pease why not on all the leguminosæ, or plants of the same family.

And this brings me to a point which may serve to explain the action of this hitherto mysterious manure. All soils contain more or less potash but, unfortunately, the soil-potash is too frequently in an inert state; potash, in an active state, is an absolutely necessary ingredient in all soils if they are to perfect the growth of any plant, but emphatically so in the case of the pod-bearers. Exclude potash from an experimental pot-grown plant, and the effect is soon visible: the stalk, instead of growing vertically, bends as if it wanted solidity. What if plaster be a cooking-agent for the conversion of *inert* into *active* potash?

Fertilisers.—The present value of the constituents of fertilisers, according to the bulletins issued by the experiment-stations in the States, is as follows:

Nitrogen	16	cents a pound.
Soluble phosphoric acid	8	do
Potash	5	do

A simple formula for finding the worth of a mixed fertiliser may be thus stated:

N. % × 16 × 20 = value of nitrogen. (1)
Ph. % × 8 × 20 = value of soluble phosphoric acid.
P. % + 5 × 20 = value of potash.

And taking the case of a fertiliser containing, say 5 % of nitrogen, 10 % of soluble phosphoric acid, and 6 % of potash, the calculation would be carried out thus:

N. 5 × 16 × 20 =	$16.00
S. P. A. 10 % × 8 × 20 =	16.00
P. 6 % × 5 × 20 =	6.00
	$38.00

To convert the value of gross ton 2240 lbs into our ton of 2000 lbs. say:

28 : 25 :: value of gross ton : x

Thus, if the ton of manure is fetching ten pounds in England, it ought be worth here nine pounds, or: As $48.70 : $43. 83, plus, of course, freight, insurance, and (alas! that they will have it so) duty!

I copy the following from a fertiliser pamphlet:

No. 1 Fertiliser.—Use from 200 lbs to 400 lbs per acre.

Guaranteed Analysis.

Ammonia	1½ to 2¼	per cent.
Phosphoric acid (soluble and *precipitated*)	9 to 11	do
Potash (actual)	1 to 1½	do

Now let us take the medium quantities and value them as above:

Ammonia (equal to nitrogen 1.64)	$ 5.24
Ph. acid (calculated as *all soluble*)	16.00
Potash	1.25
	$22.49

(1) If nitrogen = 16 c. a lb., ammonia = 13 c.