2. These are dependent upon the chemical, as well as on the mechanical changes, both produced upon burning clay.

3. Clay after burning becomes more soluble in dilute acids.

4. The temperature used in burning clay regulates the solubility of clay; too intense a heat renders clay, again, less soluble.

5. A temperature whereby the organic matter in clay soils is merely changed, but not destroyed altogether, should be employed in burning clay in the field.

6. On overburning clay becomes less soluble than it is in its natural state.

7. Burnt clay contains more soluble potash and soda than unburnt.

8. Properly burnt clay furnishes a larger proportion of soluble potash and soda than clay burnt at too high a temperature.

9. In burning clay the same effects are produced as in bare-fullow.

10. The fertilizing effects of burnt clay are mainly dependent on the larger amount of potash and soda, particularly of potash, which is liberated from the insoluble silicates in the process of burning.

11. Clays originally containing much undecomposed silicates of potash and soda are best suited for burning.

12. On the contrary, those resembling in composition pure pipe and porcelain clays, and all those which contain mere traces of undecomposed alkaline silicates, are unfit for burning.

13. It is desirable that clay which is intended to be burnt should contain lime.

14. The application of quicklime to newly burnt clay land, or the mixing of clay with lime before burning, is likely to be attended with much benefit.

15. Burnt clay absorbs ammonia from the atmosphere.

16. Clay in its natural state furnishes more ammonia than properly burnt clay.

17. Overburnt clay does not absorb so much ammonia as properly burnt clay.

18. The cause of the failures attending overburning clay are due :--

1. To the mechanical changes which clay experiences in overburning, whereby it is rendered hard like stone.

2. To the chemical changes whereby the constituents of clay are rendered less soluble.

3. To the diminished porosity, and consequently reduced absorbtive power of such clays.

19. Burnt clay improves especially turnips, carrots, potatoes, and other green crops, because it furnishes potash, which these crops largely require, more abundantly and more readily than unburnt clay.

## CHIPPENHAM HUNDRED FARMERS' CLUB

## ON DRAINAGE.

In fields of uniform texture, the ordinary drain: should run parallel to one another, at equal depths and distances, and at right angles to the bottom or main drain; in other cases the judgment of the drainer must regulate their position. The top ends of the drains should always be deeper than the lower ends, if the fall will admit of it, as it is there the water generally rises—and they should all be joined into a top drain, to admit of a circulation of air to dry the head ridge, and intercept springs. An outlet should be given for every five acres, and if the run of the field be too long, the drains can be cut off in the middle, and tho water sent down by a main drain thus:



Outfall\*

In addition to the general advantages which I have already stated as resulting from drainage, I shall shortly state the actual results of some of the drainage operations which I conducted in Cheshire, between the years 1841 and 1842, and for which I twice obtained the drainage medal of the Manchester and Liverpool Agricultural Society.

The first case which I shall adduce is a fair average of the others. It is a *thirteen acre* field, of stilf, brown loam, resting on tenacious blue clay and marl, and had been let at 17s. 6d. per acre; it was drained early in 1842, with 2½ inch tiles and soles, laid 3 feet deep and 22 feet apart; it cost—

Labor ... ... ... ... £24 1 4 23,000 tiles and soles. 40 10 0

£64 11 4, or nearly £5 per acre.

It had previously been cropped as follows, without manure :--- in 1838, wheat ; 1839, oats ; 1840, bare fallow; and 1841, wheat. After drainage it was deeply ploughed and worked by Finlayson's grubber, and sown with Swedish turnips, manured with 160 cubic yards of good, well-rotted cow-dung, 4 cwt. of guano, and two tons boiled bones. The produce averaged 30 tons per acre, and some of the bulbs weighed 171 lbs. They were all pulled and consumed by cattle in the The next crop was wheat, sown on the house. 7th March, producing 290 bushels, equal to twenty-three bushels per acre. It was sown down with permanent grass seeds, and let for grazing with ewes and lambs, at £30, or 46s. per acre. The party who paid this rent, having, sold all his stock, and made a fair profit, obtained

A strong character should never have the complete control of a weak one; the weak cannot sympathize with the strong, and; to conceal his weakness, enters into a series of deception that often end fatally for the weak.