

the attention of the Hon. the Commissioner to this point.

Ploughing matches, superintended by competent men, could be made of the greatest benefit to the people at large.

It is the most important of all farm-work.

#### *Agricultural Societies.*

As we said above, farming has been greatly improved; all that remains, then, is to bring it to perfection; and all would go on admirably well were every agricultural society to do its duty earnestly.

But, sad to say, many societies and clubs only exist for the purpose of absorbing the public money.

A programme of operations, that has never seen daylight, is reported to the Department of Agriculture, and the funds that were intended to promote the public prosperity is divided among the members with the greatest coolness.

These folk, too, are the first to make fun of the government for interesting itself in the prosperity of agriculture!

(From the French, by the Editor).

(To be continued).

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## Manures.

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### BARNYARD-MANURE.

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Professor Shutt, the Chemist attached to the Experiment-Farms, has had the kindness to forward us an early copy of his essay on the "Functions, Composition, Fermentation, Preservation, and Application of Barnyard-Manure." Before opening the pamphlet, we felt sure that it would contain—as all Mr. Shutt's essays do contain—many hints of great practical value to the farmer, and we were not disappointed.

The first part of the brochure is devoted to general considerations connected with the main subject; soil-fertility, light and air, warmth and moisture, good tilth, the composition of soils, organic constituents, particularly the value of *humus*, the "soil's storehouse of nitrogen," the inorganic constituents of the soil, and their functions.

*Soil-fertility.* — Manure is applied to land to

increased its fertility, and this depends chiefly on the amount of plant-food in an available state.

In the absence of light and air, plants cannot thrive; waterlogged soil shuts out air; barnyard manure makes land more permeable to air. Crowded crops, such as broadcast-corn, exclude light, and thereby diminish the beneficial effects of manure.

*Good tilth*, or frequent and thorough stirrings, accompanied by good dressings of manure, produce a favourable condition of the soil. By these means the land is adapted to promote the office of the roots of plants, that is, to enable them to seize and appropriate the plant-food present in the soil. It is therefore clear, that the *physical* and *mechanical* conditions of the soil must be studied, as both are inseparably connected the one with the other.

All fertile soils are made up of two sets of constituents: organic and inorganic; the latter is the same as mineral. Organic matter is formed by the decay of plants; inorganic, of disintegrated, partially decomposed rocks.

From the decay of plants results *humus*, a blackish substance, destitute of organised structure.

*Humus* contains nitrogen, which is not available as plant-food until it is *nitrified*, a process carried on by *microbes*, that is, certain microscopic plants. Without warmth, moisture, and air, these tiny organisms cannot develop and reproduce themselves. Lime and potash must be present, as bases, so that nitrates may be formed, which plants absorb by their roots. Dung introduces plenty of these microorganisms into the soil, a function not exercised by chemical, or artificial manures.

As a general rule, dark-coloured soils contain plenty of *humus*, but in the red-sandstone formation the *humus* is, so to speak, masked.

Of the *inorganic constituents* needed to be restored to the soil, after cropping, three are only generally necessary: potash, lime, and phosphoric acid. The rest may, practically be neglected, as they are sufficiently present in all land.

Nitrogen, phosphoric acid, and potash need constant restoration to all soils; lime to some soils.

Now, what is *manure*? As commonly understood, manure is the solid and liquid excrements of animals mixed with the substances used for their litter.

And how shall we get at the value of any sample