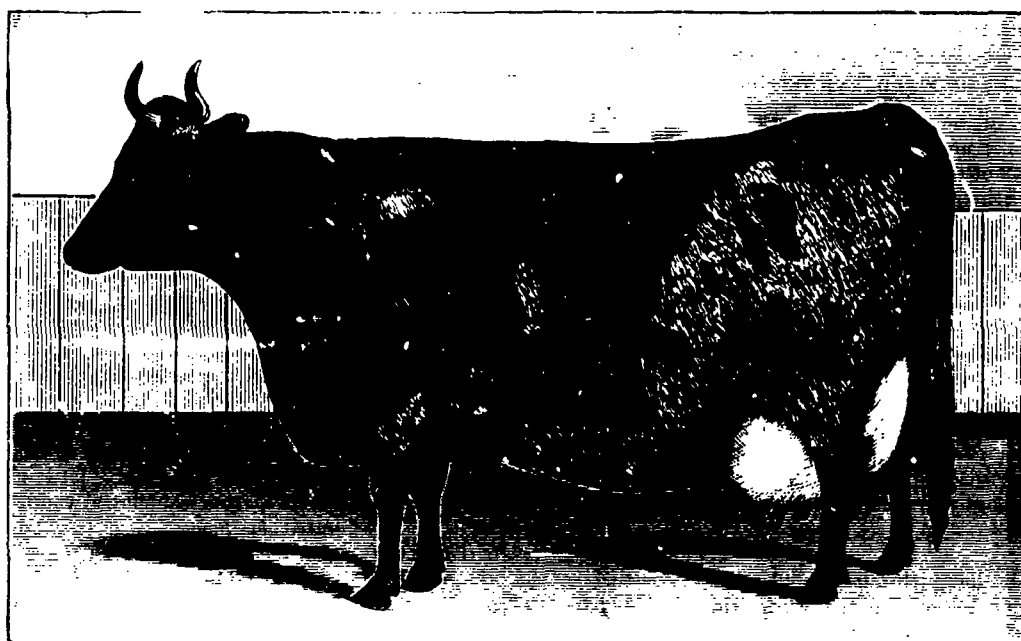


the soil to a great depth, and in every direction, in search of food. Plants won't wait for their food; they want it at once, when they are ready for it, and they want it to be easy of access: both these wants are satisfied by the application of diluted liquid manure to light land.

On soils not benefited by liquid manure, and on the causes of failure. No two things can be more different from each other than soils containing a fair proportion of clay and a sandy soil. They differ both chemically and physically. The more retentive soils contain not only the more common mineral elements found in plant-ashes, such as lime, soluble silica, &c., in sufficient abundance, but also the more valuable mineral substances, such as phosphoric acid and potash.

They moreover possess in a high degree the power of absorbing ammonia from the atmosphere, and retaining it; and in addition to this ammonia, under good cultivation, the vegetable remains left in such soils in the shape of roots and leaves

	Surface soil	Subsoil
* Organic matter and water of combination.	4.38	2.59
Alumina.....	2.15	5.39
Oxides of iron	3.15	7.16
Lime .....	.77	.26
Magnesia .....	.13	1.22
Potash.....	.49	.38
Soda .....	.13	.28
Phosphoric acid.....	.12	.19
Chlorine	trace	trace
Carbonic acid .....	.31	1.79
Insoluble silicates and sand.	88.31	80.24
	100.00	100.00
* Containing nitrogen .....	.182	.09
Equal to ammonia .....	.220	.11



AYRSHIRE COW, TIBBY.

from former crops, yield plenty of organic food for plants. Here, there is abundance of nourishment ready to be made use of if the proper stirring of the soil is not neglected, as was fully proved by the late Rev. J. Smith of Lois Weedon, Eng., who showed beyond a doubt that certain clay soils only require constant working in order to yield remunerative crops in succession for a number of years. This would be an utter impossibility if they did not contain a practically inexhaustible store of the mineral elements of nutrition, and if they did not, under his system of cultivation, provide also an ample supply of organic food. (1)

And now compare with the analysis, given above, of a sandy soil, the following analysis of a moderately retentive one; in 100 parts:—

(1) Mr. Smith's system, founded on the practice of old Jethro Tull, was as follows: three rows of wheat were sown at one foot apart; a space of three feet was left bare, which was ploughed and hoed, as were the foot intervals, as long as the crop was not damaged by the cultivation. The crop yielded for several years (I forget how many) an average of 38 bushels an acre. A. K. J. F.

A mechanical analysis gave:

	Surface soil.	Subsoil.
Sand	76.16	55.15
Clay	18.09	41.79
Lime, magnesia &c.....	1.37	.47
Organic matter.....	4.38	2.59
	100.00	100.00

The soil was clearly a friable loam on a clayey subsoil.

You will observe how richly the surface soil abounds in all the mineral elements required by our cultivated plants in conjunction with an appreciable quantity of organic matter containing nitrogen. Calculate the total amount of available fertilising substances for a depth of such soil of only 10 inches, and we shall find a quantity of mineral and organic fertilising matters in comparison with which the amount of manuring constituents supplied in 50,000 gallons of tank-liquid, even more concentrated than the liquid manure of Mr. Mechi, appears altogether insignificant, and this is pro-