not yet got through with the component elements of wheat !

One acre of wheat, yielding 25 bushels, also contains, in the grain, 2 pound of sulphuric acid, and in the straw, 1 pound.

Prae. Far. Why, this is oil of vitriol is 'nt it ? Science. There is also taken from the soil, by 25 bushels of wheat, in the grain, 0.6 of a pound of phosphoric acid, and in the straw, 5 pounds: also in the grain, 0.15 of a pound of chlorine. and in the straw, 0.9 of a pound. This is all, and you must remember these are inorganic substances, such as do not grow like vegetables, and therefore they must be extracted from the soil. The total amount of these inorganic substances taken from one acre of ground, yielding 25 bushels of wheat, and including the straw, as it is usually cut by the cradle, is 120 pounds. Three fourths of this is silica, which is rendered soluble by the alkalies, potash, soda, and lime, thus showing the great importance of these substances in soil producing wheat.

Prac. Far. Well, I declare I did not know that wheat had so many things in it. I always thought that wheat grew out of the ground, and got its food from the vegetable manure that was contained in it, or was put there by the farmer.

Science. Well friend, you knew before by sad experience, that vegetable manure alone, would not raise wheat; for you say that when you put manure on your land, your wheat all went to straw, which was so weak that it fell down flat on the ground, and had no berry in the heads; and when you sowed your wheat without manure, it was struck with the rust, and the grain shriveled, so that you got not more than half a crop. Now you see that this book has told you some i things that you did not know before, and which perhaps you never would have found out by your own efforts, without calling in the aid of science.

Prac. Far. Well, if the wheat plant contains all these substances, and they are all extracted from the soil, how are we practical farmers to know when they are not present in the soil ? and above all, how are we to obtain all this potash, and soda, and lime, and flint; and sulphuric acid, and phosphoric acid?

Science. The failure of your wheat crop for a series of years is pretty good evidence that some of these substances are wanting in the soil, but it will not decide which. The only way to determine which one of the foregoing substances may be wanting, is to call in the aid of science, and have a correct analysis of the soil made. But. nevertheless, by the nature of the discase that affects the crops, we may be able to judge more correctly of the substance that may be wanting. When the straw is weak, and not able to stand crect, it may be certain that the alkalies are wanting to produce the silicates which are deposited in the stein, to give it strength and finaness This book, however, will tell what substances you must procure and apply to the land, which I and sprinkle liberally in the wounds.

it is taken up by the roots of plants. But I have [will supply the ingredients contained in the wheat plant.

> Prac. Far. I should like to hear something more about these matters,

This book gives an account of the Science. component ingredients of wood ashes. It says that "ashes always consists of a mixture in variable proportions of carbonates, silicates, sulphates and phosphorates of potash, soda, lime and magnesia, with certain other substances present in smaller quantity, yet more or less necessary, it may be presumed, to vegetable growth." "But they contain also, a greater or less quantity of imperfectly burned carbonaceous matter," or charcoal. Here you will perceive that you have nearly all the substances, at once, of which the wheat plant consists. It would seem then, that if ashes be mixed with the soil it will supply the greater part of the substance of wheat. Did you ever think of this before ?

Prac. Far. I have heard it casually remarked that ashes were useful, sowed upon wheat; but I never gave the subject much reflection, and therefore it did not strike me very forcibly But does your book tell any thing about the action of lime? I feel somewhat anxious to know this, for I have limestone on my farm, and I have a mind to try it.

'Yes, this book gives an interesting Science. account of the beneficial action of lime upon soils, and sums up its conclusions as follows ;

"Lime improves the quality of almost every cultivated crop."

" It supplies a kind of inorganic food, which appears to be necessary to the healthy growth of all cultivated plants.

" It neutralizes acid substances, which are naturally found in the soil, and decomposes, or renders harmless, other noxious compounds, which are not unfrequently within the reach of plants.

"It changes the inert vegetable matter in the soil, so as gradually to render it useful to vegetation."

Prac. Far. It appears then, that lime is neeful to vegetation in other respects than in furnishing this ingredient to the plants.

There are a variety of other sub-Science. stances discribed in this book, which are usefully applied to vegetation, both in ameliorating the sol, and in furnishing specific substances to the growing crops. But it will detain you too long, I am afraid; to read all of these to you now.

Prac Far. That must be a good book for farmers, I should think. What is the price of 11 ? Where did you get it? I will certainly have to get me one.

Science. It may be had at most of the buck stores in the State, for a few shillings; and the title of it is, Lectures on Agricultural Chemistry and Geology; by Jas. F. W. Johnston.

Mt. Tabor, Champ. co., 1845. D. L.

"qual quantities of suot and powdered charcoal,