

poses of science, while the great mass of those which are made, and communicated to farmers as something necessary or useful to them, are equally worthless for science and practice." (p. 23.)

It is proper to remark, that since this edition of our author's work, published in 1843, a very large number of exact chemical analyses of soils and their products have been made in Britain, and many other countries of Europe; and among this useful class of pioneers, the name of JOHNSTON, the reader in chemistry in the *University of Durham*, and the consulting chemist of the *Highland Society*, stands eminent'y and most deservedly distinguished. Never shall we forget the lucid and interesting manner in which that able teacher is apt to expound the most difficult doctrines of organic chemistry, not only to the comprehension of his regular pupils, but to large numbers of farmers promiscuously. There can be now no doubt, that the high talent and deep and exact research which scientific men have brought to bear on agriculture, especially during the last dozen years, have thrown an interesting light on many important, yet little-understood processes; those labours, to say the least, have been eminent by suggestion, and for the future they promise abundant fruit. The full realisation of so desirable a harvest, must mainly depend, not upon confounding the very different relations of the chemist and the farmer, but by the harmonious blending of their joint efforts. Science with practice cannot fail to advance continually the agricultural art.

We are tempted to give our readers another extract from *Professor Low's Elements* (p. 44), in reference to the practical aid of geology to agriculture, a point on which much hardy conjecture has been hazarded: "We see, therefore, that the mere knowledge of the geological formations of a country, does not afford the data for determining the nature and properties of the soils in the manner required for practice. Speculative writers, indeed, have maintained, that a knowledge of geology is not only eminently useful to the practical farmer, but even necessary to enable him to distinguish soils, and adopt the suitable means of improving them. It is surprising that such statements should be hazarded. The farmer, as all experience shews, can distinguish soils by their agricultural characters much more certainly and readily than the geologist can by their geological; and it does not appear in what manner geology can give that knowledge to a farmer which can enable him to cultivate and improve his land. The farmer, it is manifest, must regard the soil which he has to till, not in its relations with a whole district, but with reference to its own characters and fertility. He may find the soil, not only of a single farm, but of a single field,

varying in every degree; and it will be necessary that he adapt his management to these variations, whatever be the geological position in which they may be placed. It were greatly to be desired, indeed, that the practical farmer could acquire a knowledge of geology, and learn to read a portion of that marvellous history, which is written on every rock and mineral bed around him. Such a knowledge would give a charm to rural pursuits, and connect a liberal and interesting study with the observations of daily life; yet such a knowledge, however excellent, will not enable the farmer to discriminate soils better for the ends of practice, much less enable him to cultivate them with greater skill, which is knowledge he must derive from agriculture, and not from geology."

There is nothing, we conceive, really inconsistent in the remarks just quoted, and what was advanced in a former article. Geology, although it may not enable the farmer directly to discriminate soils on a limited area so as better to meet the wants of practice, yet a knowledge of the earth's stratification, of the composition of rocks, their angle of inclination, &c., will often be found of very great service to the farmer in draining and otherwise improving his lands; and such information is essentially requisite in order to direct with efficiency and economy all mining and many civil engineering operations. What we chiefly wish to impress upon the minds of our readers in this paper is, not to rely too much on any deductions of science, however plausible they may appear, until they are confirmed by their only certain test of experience. This caution is more particularly needed in a country where labour is dear and produce cheap. We have known several amateur and would-be-scientific farmers, at home, but seldom one that could make it pay. There can be no doubt that in Canada an immense scope exists for agricultural improvement. Much might be done, with adequate judgment and means, that would afford a remunerating return. But let no one come to this country with a system already cut and dried, however correct in the abstract may be its science, or however well adapted it may have proved on other soils and under different skies, for here it is ten to one but it would prove a failure. It is true that the principles of agriculture are the same throughout the world, but they require an endless series of modifications in practice to suit the constantly recurring variations of climate and soils, to say nothing of the exchangeable value of produce; and this is a species of knowledge, which experience only can supply. Let every young farmer then, who is about to try his skill and strength in a new field, adopt in the first place the general practice of the district, and deviate from it only as increasing