

that the art of Agriculture, unaided by science, made but little if any progress in a thousand years, and we know that in the last ten its most important improvements have been made. We have seen that experience without science has not improved the art, because no principle could be established of general application. A manure beneficial in one place was found worthless in another; because no rule could be give for its use, no reason for its failure. The success of one might thus bring loss to another who might be induced to follow in his paths—and why? because empiricism can give facts, not reasons—local maxims, not general laws.

Where many facts are known and where they must be constantly accumulating as in agriculture, science is especially required to arrange those facts, show the reasons of their occurrence, and from its deductions give general, universal laws. Since the repeal of the corn-laws under Sir Robert Peel's administration, owing to the application of chemical science, the increased crops in some parts of England have counterbalanced the duty which was on bread stuffs. "Moreover," says an able writer in the North British Review, "just in proportion as in any part of Britain agricultural science has improved, in the same proportion has practical agriculture. It is at least a curious coincidence that Scotland, which justly boasts of the best practical farmers and gardeners, should also boast of the best agricultural chemists." We have seen how important science, especially chemical science, has been to every art. I could fill pages with examples, but your honorable body knows them already. Indeed I cannot see how any Agriculturist, unless blessed with knowledge far above that of the world, can fail to be benefited by that science which can determine the nature and quality of the elements of the soil with almost infallible exactness; determine in like manner the composition of manures, and thus adapt the one to the other without loss and without disappointment. Chemistry has determined the constituents of plants, and thereby made known the substance necessary to their existence. It can teach the composition of fertile soils and thus show practically how those which are barren can be made equal to them. It detects the composition of different manures, too often thrust upon the farmer with imposing certificates, and sometimes worthless. When aided by a sufficient number of practical observations, it will make farming as certain as any thing which has to depend on atmospheric influence for success. Let it not be supposed that I undervalue Agriculture, as an Art; it is both an art and a science. Mere science cannot be a substitute for practice, judgment, and manual dexterity, and we have seen that those unaided by science have failed to give us a perfect system, nay, mote, have ceased to approximate to it. They must be joined together, each giving the other support, each giving and receiving benefit in an equal degree; practice and