This then assumed, what a field opens to our view. By developing the same spirit of *progress* which actuates modern science, agriculture has become identified in principle, and consequently equally identified in with it. Moved, then, by the spirit, and *directed* by the pioneers of science, who can point out an end to its progress, or say, "thus far" to its prospects. Before the philosophic mind, whatever may be its favoured sphere of action, there is ample food. In animal and vegetable physiology, in the formation, classification, constitution, and fertilization of soils, and in the elucidation of, and the supplying the wants of vegetation, much has already been accomplished; but our best guarantee that much *will yet be done* is the fact that much *wants doing*.

"For instance, we know the structure and peculiarities of vegetables, and chemical constitution and mechanical process of vegetation; but we are ignorant of the elements of vitality. We know that certain soils are more fertile than others; we can trace the constituent elements of each, and discover external or machanical causes influencing the fertility; but of the essential principles of nutrition—the *elixir vitæ*—or of the combination best adapted to the wants of the vegetable life, we can scarcely be said to know the least. We may apply this ignorance to a single vegetable, to a *single* soil. How much, then, has to be accomplished before it be removed in toto?

We know something of the uses of animal and vegetable manures; but how can we know their proper economy till the mystery of vegetation is more clearly developed, and the constituents and conditions best adapted to special cases ascertained. Much, in fact, has yet to be developed before the essential elements of the soil, the operation of each constituent, the operation of various manures, and the effects, mechanical and chemical produced by certain crops, are clear to us; yet these must be known before agriculture reaches its fair and legitimate standing as a *science*, and before we can produce the conditions most essential to fertility.

To the practicalist are duties no less urgent. It is for him to banish from his vocabulary the word best; to think nothing good because it is old, and nothing worthless because it is new, but to lend an observing eye to its proof, and to endeavour to promulgate the truths that practical observation or *scientific knowledge* may have taught him. For much that is known has yet to be applied to practice. Thus geology has given us a key to the formation, nature, and properties of soils and their basis; and affords us, as is evidenced by Sir J. V. Johnson, (Journal of Royal Agricultural Society of England, vol. 1, p. 273), such practical results, as "1. The knowledge of applying lime. 2. Laying down fields to advantage to grass, and when and how to plant wheat. 3. What trees to plant in each stratum."

Chemical analysis, too, supplies us with the relative proportions of the constituents of the soil, and shows us what element or earth it is deficient in. Geology again teaches us where that element is found; yet how seldom do we find this method of improving the soil resorted to, although Davy long since made known, that "the best natural soils are those of which the materials have been derived from different strata, which have been minutely divided by air and water, and are intimately blended together; and in improving soils artificially, the farmer *cannot do better* than imitate the process of nature. The materials necessary for the purpose are seldom far distant; coarse sand is often found immediately on chalk, and beds of sand and gravel are commonly below clay. The labour of improving the texture is repaid by a great permanent advantage; less manure is required, and its fertility insured; and capital laid out in this way secures for ever the productiveness, and consequently the value of the land." (Lecture, p. 204). Although, too, we are aware, from the writings of agricultural chemists, of the high value of liquid manure—that, in fact, 1 lb. of urine will produce 1 lb. of wheat, how seldom do we see it preserved at all. A write. in the Prize Essay of the Higland Agricultural Society of Scotland, (Quarterly Journal of Agriculture for this month, December 1841), calculates that as much is lost as would, if applied, have an effect equal to the whole of the lime, rape dust, and bones which are commonly used. J. H.

North Deighton, Wetherby, Yorkshire, December 31st, 1841.

WHEAT FLY.

Professor Low, in his "Elements of Practical Agriculture," notices this insect in the following terms:—

"Certain flies also attack the wheat, at a later stage of its growth. The *Cecidomyia Tritici* is a fly with an orange coloured body and white wings About the month of June the female ascends the ear of wheat, and deposites her eggs in these by means of a fine trunk, and in a few days she perishes. The progeny being hatched in the ear, feed upon the grain. They are very small, from ten to fourteen being sometimes found in one grain, and are distinguished by being of a bright orange colour. They do not extend beyond the grain in which they have been produced; but several grains being thus consumed on each ear, the damage done is very considerable. The larvæ, after a period, fall down to the earth, in which they burrow, and remain there until the following summer, when they ascend from the earth in the form of the beautiful fly we have mentioned."

Professor Low does not mention any remedy against the ravages of this fly, perhaps because the injury produced by it in Britain is not very general or extensive. The wheat is in ear in England early in June, and the fly seldom appears previous to the 25th of that month, about the same period which it makes its appearance here. This is the circumstance which we believe saves the wheat in Britain from much injury by this insect. There is also more wind, and the crops have a freer circulation of air through them in Britain than in Canada; and the fly never moves from its place of concealment, about the roots of the wheat, unless the weather is perfectly calm. If there is the slightest agitation of the crop by wind, the fly moves not from its place of hiding and repose, and as it is only about sunset in the evening and sunrise in the morning that it does move to deposit its eggs in the ear. If the weather happens to be windy for a few days about the time of the wheat coming into ear, it may save the crop. The fly can do no harm if the ear is out for a few days; the glums become hard and the fly is unable to pierce it with its trunk. We have already recommended sowing wheat early in the fall, in drills, on land prepared by summer-fallowing, and limed if possible. If this was to become a general system, and that we were to introduce new varieties of seed that are known to resist the fly, we might raise good crops of wheat in Eastern Canada. But if we still persevere to cultivate in our usual slovenly manner, with our old seed, and growing more weeds than wheat, we can never expect to raise a profitable crop of that grain. We have seen crops of wheat this year, which, if perfectly safe from fly and rust, would not pay for cultivation. These crops were thus bad in consequence of insufficient draining, and injudicious cultivation every way.

BLACK THE WORST COLOUR FOR PAINTING WOOD-WORK IN THE OPEN AIR.—There is nothing that will prove this evil more than by observing the black streaks of a ship after being in a tropical climate for any length of time. It will be found that the wood round the fastenings is in a state of decay, while the white work is as sound as ever; the planks that are painted black will be found split in all directions, while the frequent necessity of caulking a ship in that situation, likewise adds to the common destruction; and I am fully persuaded that a piece of wood painted white will be preserved from perishing as long again, if exposed to the weather, as a similar piece painted black, especially in a tropical climate. I have heard many men of considerable experience say that black is good for nothing on wood, as it possesses no body to exclude the weather. This is, indeed, partly the case; but a far greater evil than this attends the use of black paint, which ought entirely to exclude its use on any work out of doors, viz.: its property of absorbing heat. A black unpolished surface is the greatest absorber and radiator of heat known; while a white surface, on the other hand, is a bad absorber and radiator of the same; consequently, black paint is more pernicious to the wood than white. Wood having a black surface, will imbibe considerably more heat in the same temperature of climate, than if that surface was white; from which circumstance we may easily conclude, that the pores of wood of any nature will have a tendency to expand, and recid it in all directions, when exposed under such circumstances; the water of course being admitted, causes a gradual and progressive decay, which must be imperceptibly increasing from every change of weather. The remedy to so great an evil is particularly simple, viz.: by using white instead of black paint, which not only forms a better surface but is a preventive to the action of heat, and is more impervious to the moisture. The saving of expense would also be immense, and I am convinced that men of practical experience will bear me out in my assertion. — *Transactions of the Society of Arts.*

MUTUAL SUPPORT. — The race of mankind would perish, did they cease to aid each other. From the time that the mother binds the child's head, till the moment that some kind assistant wipes the death-damp from the brow of the dying, we cannot exist without mutual help. All, therefore, that need aid have a right to ask it of their fellow mortals; no one who holds the power of granting can withhold it without guilt. — *Sir W. Scott.*