

## Mechanics and General Science.

IMPORTANCE OF SCIENTIFIC KNOWLEDGE TO PRACTICAL MEN, AND OF PRACTICAL KNOWLEDGE TO SCIENTIFIC MEN.

*Continued.*

Again—scientific knowledge amongst the labouring classes would elevate their calling, and induce many mistaken parents to educate their sons for mechanics, instead of thrusting them into the over crowded professions.

That the legal and medical professions are too much crowded needs no demonstration; the proof is before every body's face. Too many practitioners in both law and medicine, are without *practice*. A few the more fortunate, perhaps the older, or more learned, or best known, enjoy most of the business, and leave the others without even a competence unless derived from some other source. It is estimated that in New York there are some 700 or 800 lawyers and nearly as many Doctors. Of those there are 150 whose annual receipts are not more than £100; another 150 whose receipts are about £60; another 150 with receipts of £30; and still another 150 whose receipts average not more than £8 per annum. This estimate may be drawn in too dark colours, but I have taken it from a work published in New York. The remaining members of these professions are, of course, in the receipt of very large incomes. This may be regarded as a fair picture of the reality in all overgrown cities; in smaller towns and country places, there would not be so great a disproportion of professional men.

A change, however, is taking place in public opinion. On this subject the *New York Spectator* says:—"In the United States, a revolution is proceeding with respect to this matter, which will quietly, but surely tend to beneficial results. The Bar is no longer the resort of the ambitious youth of our country. The mechanical departments are preferred; there are now thirty young gentlemen in this city, who are serving their "time" as ship-wrights, architects, carpenters, &c. In a few years the United States will have the most accomplished mechanics in the world. A new class is springing up who will put the present men in the shade. The union of a substantial education with mechanical skill, will effect this. Indeed already we could name some mechanics who are excellent mathematicians, acquainted with French and German, and able to study books in those languages connected with their vocations. Heretofore fond fathers were wont to educate their sons as doctors or lawyers, to insure their respectability and success. That day is passed. Mechanics will take the lead, and in a few years will supply a large portion of the State and Federal Legislature."

Such is the language of one of the first papers of New York. Similar sentiments have been expressed in other and influential parts—and fortunate would it be for hundreds of young men of the present day, if they would follow such advice.

I would most earnestly recommend the sons of farmers who intend to follow the pursuits of their fathers, to study Chemistry and Natural

Philosophy. Farmer's sons in Canada generally devote the winter to study either at the Common School in their own neighbourhood, or at some public Seminary. No subject would open such a field for useful or interesting observation to the farmer as Chemistry and Natural Philosophy; none certainly would call for so frequent application as the principles of these Sciences. The whole process of vegetation, the germination of the seed, the growth of the plant, the composition of the seed and the plant, the soil and manures, are all appropriate subjects for Chemical investigation. Hence would follow the inquiries: What kinds of soils are adapted for the growth of particular plants? what manures? what culture? what rotation in crops, if any? A few facts will show the importance of a better knowledge of the science of agriculture. The object of agriculture is, of course, to obtain the greatest quantity of grain from a given plot of ground. How does it happen that often there is a luxuriant growth of straw and but little grain? As, for example, in the culture of fine pliable straw for Florentine hats. That kind of culture which will produce particular kind of straw, is very different from that which will produce the greatest amount of grain. Rotation of crops is found in all countries to be absolutely necessary; but in many of the new colonies of America wheat has been grown for a century on the same fields. Why this? Again, crops are not always abundant in proportion to the quantity of manure, even though it be of the best kind and the culture the most careful, during a season the most favourable. Fields which have become unfitted for one kind of grain are not unsuited for another.

Circumstances are constantly occurring to the farmer, which thwart his best calculations. But they are all subject to fixed and irrevocable laws; and were the practical agriculturists familiar with the principles of chemistry, many of these difficulties would be solved. Very little progress can, however, be made in the application of science to agriculture, while so powerful prejudices exist among the farmers. Perhaps another generation must arise, carefully educated in all the principles of science applicable to the growth and culture of plants, ere any important change can be expected.

The principles of natural philosophy are of vast importance to farmers, in the erection of buildings, the construction of roads, bridges, mills, windmills, &c., all of which are done, in whole or in part, by the farmers of a new country. The wheel and axle, the screw, the lever, and all the mechanical forces, are brought into constant requisition. I have often been exceedingly pained in observing young men, farmers' sons, wasting their time over the dead languages, or some other pursuits equally useless to them, instead of studying chemistry and natural philosophy, the principles of which would be required every day of their lives. Human life is a journey; and men should carry with them just what they will require, and not burden themselves with a Latin dictionary and Horace, when they need the axe, the lever, or the chemistry.

In every department of life, even the most humble, such knowledge would be of incalculable