

right ideas of the mission of a learned corporation. Our academy certainly is not science itself; but each member in his sphere, and according to his strength, takes part in the solution of the scientific problems of the age, and exercises a certain influence over legislation, commerce, trade, and manufactures.

Those who profit by the discovery of science are rarely in a position to know in what manner science has increased their strength or fortune. If chemistry gave to the farmer good receipts for manure for every field, or a remedy for the potato disease, a means of destroying moles and mice, or prevent the laying or rotting of corn, the practical man would no longer be in ignorance of the sources of these ameliorations. But science does not occupy itself with things useful only to individuals; it seeks to discover what will be useful to all, and those ideas that rule and guide the actions of men. It seeks to discover whether these ideas are conformable to the laws of reason and nature; it rectifies false views, and puts the perfect in place of the imperfect.

Science is only useful so far as she rectifies the ideas of men. But all intellectual progress takes a long time to develop itself; and often many generations succeed each other before one old error generally believed gives place to a recently-discovered truth. As the roots of a plant only take just what is necessary for its nourishment from a large sheet of water, and as it is killed by too much nourishment; as it is necessary that the light and heat of the sun should give their aid to the germ before it can develop itself and become a vigorous tree, bear fruit; so the development of men's ideas is governed by similar natural laws.

The abstract idea, though fruit in itself, is not the tree full of fruits; it is the germ of that tree, which needs heat, care, and nourishment extremely diluted, before it is able to bear fruit. There are some ideas which, for a time, disturb a whole population, and then disappear without leaving traces of their existence; they perish, as the branch of a tree from another climate, put into water, throws out leaves and flowers, but bears no fruit, because it has no roots. The fruits of progress which we of the present time enjoy had their roots in generations which have passed away; and the new discoveries which we make now will only be profitable to our children. Even the smallest improvement in a trade took a long time to work its way into the masses. The idea of using phosphorus in the manufacture of matches originated in the middle of the last century. More than fifteen years were necessary for obtaining useful results from the experiment of igniting powder in a closed space; and now to those very experiments we owe all the improvements in firearms.

A prevailing error—which is much more difficult to destroy than the majority of men believe—is not the sole cause of the long time which elapses before a scientific truth comes into gen-

eral use; the routine, the want of being able to think deeply, the dislike men have to use their reason, are not the less obstacles. The most ignorant peasant knows that the rain which falls on his dung heap reduces it in value, and that it would be to his advantage if he could have upon his fields what infests the streets of the village and poisons his wells; but he sees it with an indifferent eye, just as his father did before him, because it has always been thus.

It is the same in large towns: the municipal authorities spend large sums in carrying away and putting out of reach of the cultivators the excrements of men and animals which amass themselves and which would be sufficient to reproduce bread and meat for hundreds of millions of men. This the farmers see with as much indifference as the citizen. They think it is of no importance to the public welfare, when they are obliged to bring from America, a distance of some thousands leagues, the very same matter. The way of seeing more justly and correctly, which raises the intellectual power of a man, requires a long time to develop and extend itself; intelligent application abridges the time, but the mass cannot perceive so readily.

If the populations are not prepared by education to receive the instructions of science, which tells them to try and adopt what will better them, then all efforts to render these instructions generally useful will be fruitless. If in such a country science went from house to house offering its services, those most in want of it would, in their senselessness, shut the door against it. He would say that he did not want its help, it was of no importance to him; that he had enough instruction, and that there were other things which he wanted. We have often seen the farmers refuse to try the experiment of using artificial manures upon their lands that the agricultural societies offered them at half the trade price. They wanted to get them for nothing, and then he thanked for taking it from them; and, in fact, when they got it for nothing, they would not make use of it. All these circumstances are only transient, for no population can for ever shut itself from progress, and renounce the power and riches that science procures. For these populations there is always one source of consolation left—that truth and goodness are indestructible, and that in a suitable time God will cause the seeds to ripen.

But, again, in the countries where scientific results have been favorably received, as a rule, those to whom they are the most useful are the men who know least the reason why they are so useful; for if after some years' struggling they have conquered, in fixing a scientific truth, all the obstacles which oppose themselves to its useful action upon life, the next generation, which has grown up in the new ideas, knows not that they are the fruits of immense intellectual labors. It knows as little as the young telegraphist of to-day knows