able stock of implements, indeed of all machines and instruments for agriculture. The tools used for the purpose of teaching practical knowledge resembled those which come from England, or those which are in use in our great rural establishments, as the schools of brewering, distilling, vinegar, sugar, and starch making, which we find attached to these same academies, similar to the breweries, distilleries, and vinegar factories of our large towns, or rather to the manufactories of sugar and starch in the country. The machines and apparatus are old—like child's toys; in fact all that the scholar can learn through their medium is what he cannot avoid learning when he enters on practical life. Even the best moral institutions that the State supports possess faults, which increase from year to year; because the stimulus of competition, so powerful to excite industrial progress, is altogether excluded from a public establishment.

The agricultural academies have outlived themselves, like the pharmaceutical colleges which flourished till about twenty-five years ago, and then were no more heard of. The apothecary needs as much scientific and practical knowledge as the agriculturist, but he no longer now, as formerly, goes into a special institute; he apprentices himself to an accomplished apothecary for some years, and then finishes his education at the university. That is the path that Thaer proposed to indicate to the agriculturists—the object that they would attain much better, and more surely without special academies. If the State would expend usefully the money that it throws away in keeping up these academies and model institutions, which are in reality but child's play, it would give the means, now unattainable, of instruction. By procuring models of implements and machines, and forming permanent exhibitions in our large towns, it would do more for the advancement of practice, than the establishing of the most perfect model school.

In every age, as now, our academical operations have been directed towards science. The only problem that a session of learned men can solve is the increase of human knowledge. The only use that the people in mass, or citizens in particular, draw from these discoveries depends exclusively on the people or individuals; in fact, those alone can participate in the triumphs of a scientific spirit who have succeeded in mastering it.

Consequently, the effect of the operations of an academy of science depends essentially upon the intellectual elements that the nation possesses—the facility with which it approximates to itself the knowledge presented to it, and causes it to fructify. It is the essential nature of any intellectual work whatever to increase the amount of knowledge gathered in the domain of any particular science, and to exercise an influence in a circle more or less extensive. In many cases this effect is produced immediately; in others, on the contrary, it manifests itself only after a long course of years of changes, material or intellectual, in the situation of the human species. We know no means of measuring in advance the influence of a scientific work, and its value to the life of populations. Every great result has had a small beginning; every important discovery may be compared to the roots of the oak, which are so fine that they can scarcely be seen, but which must sustain a trunk, branches, and leaves before bearing flowers, and, still further, fruit. Millions of men taste the flavor of fruit without knowing what myriads of rootlets and leaves must work to extract from the soil the juices which fill them; many are even ignorant that without the aid of these innumerable agents the sterile tree would bear no fruit. Thus, like the diferent links of a chain, millions of discoveries precede the great results which are the fruits of the tree of science, and to which is attached the name of a discoverer whom the vulgar proclaim inventor. The smallest discovery, almost invisible when it bursts from the mind of the thinker, reaches maturity by the evolution of time, and thus arrives at the full development of the germs it contains. The most enthusiastic man would not have dared to predict, fifteen years ago, the influence that the ideas and researches of Sommering were destined to have over the incomes of men, nations, and ports of the world. Who would have been able to say that the discovery of new chemical preparations, possessed of the property of taking fire by collision, inaugurated a new epoch in the art of war? Could we divine that the works of Fraunhofer would exercise a useful influence over astronomy, and that thirty years would pass away before the salt of Glauber was applied to the fabrication of glass by the advice of Gehlen, and that the liquid glass invented by Fuchs would give birth to a new process of painting, and come into general use in the stereoscope? Each scientific result is an expression of the life of the soul; and it is in its nature to live for great things, just as the root gives birth to a complete organism.

On the Commercial Value of Artificial Manures.

Continued.

My attention has been directed to a remarkable change which has of late years come over the minds of some manufacturers with regard to analyses and money valuations; many of those who were once much opposed to such proceedings are now most anxious to have recourse to them for certain manures. The reason for this anxiety is obvious; for if scientific men whose names are well known to the public at large, gravely state that manures which are actually sold at £7 10s., according to the usual mode of computing their value, are worth £11 10s., it is