tage of from 50 to 100 per cent. from the use of superphosphate. In the case of the Canadian experiments, in which we are more particularly interested, and which were conducted with superphosphate made at Brockville, and applied on land in that vicinity, and results carefully noted, we shall go a little further into details. The superphosphate was sown in quantities varying from 400 to 600 pounds to the acre.

Estimated addition to the crop over and above that due to ordinary manuring.

Barley, at least	25	per o	et.
Rye	40	"	
Grass, field No. 1	40	. "	
do do 2	75	46	
Potatoes (highly manured).	40	"	
Oats	15	"	

The best effects were exhibited in cases where the superphosphate had been applied some years previously.

It has been well remarked by Mr. Waring, of Ogden Farm, with reference to phosphatic manure: "It is a capital manure in whatever form it may offer itself; and it is furthermore the manure of which all grain and meat-producing farms stand in the greatest need. Its importance to the agriculture of the country may be safely assumed to exceed that of all the other elements of imported or home-made fertilizers; that is, if we take into consideration not the results of a few years, but the prosperity of the country for generations."

Mr. Charles Robb, Mining Engineer, in his "Essay on the Mineral Resources of British North America," 1870, makes the following remark in reference to the same subject:

"When we consider the bearing of the phosphate of lime on the animal and vegetable economy, we must regard the discovery of this substance in such abundance, in a state of such purity, and so easily accessible, as one of the most valuable of the sources of wealth which have been added to the industry of the country during the last few years."

There are very large tracts of land in the eastern and southern part of this Continent which are said to have been in former years largely productive of wheat, but are now exhausted by careless cultivation, or rather want of cultivation. In our own immediate vicinity, the extensive alluvial flat lying between the St. Lawrence and Richelieu rivers, and comprising several thousand square miles, affords a striking example of such ruinous mismanagement, and a fine field for testing the restorative efficacy of our own phosphatic manures, which, as a legitimate object of mining and manufacturing enterprise, and as an article of use and export, bid fair to afford to Canada a rich and permanent source of labor and of profit.

In our next article we shall give our views in a popular and practical form, as to what we conceive to be the best means of establishing this business on a permanent and profitable basis.

WHAT EDUCATION IS OF MOST VALUE.

From a perusal of the series of articles on this subject hitherto given in our columns it will be apparent to all such as are occupied in the production, exchange, or distribution of commodities, that acquaintance with science in some of its departments is of fundamental impor. tance. Whoever is immediately or remotely implicated in any form of industry (and few are not) has a direct interest in understanding something of the mathematical, physical, and chemical properties of things; perhaps, also, has a direct interest in biology; and certainly has in sociology. Whether he does or does not succeed well in that indirect self-preservation which we call getting a good livelihood, depends in a great degree on his knowledge of one or more of these sciences: not, it may be, a rational knowledge; but still a knowledge, though empirical. For what we call learning a business, really implies learning the science involved in it, though not perhaps under the name of science. And hence a grounding in science is of great importance, both because it prepares for all this, and because rational knowledge has an immense superiority over empirical knowledge. Moreover, not only is it that scientific culture is requisite for each, that he may understand the how and the why of the things and processes with which he is concerned as maker or distributor; but it is often of much moment that he should understand the how and the why of various other things and processes. In this age of joint-stock undertakings, nearly everyman above the labourer is interested as capitalist in some other occupation than his own; and, as thus interested, his profit or loss often depends on his knowledge of the sciences bearing on this other occupation. Here is a mine, in the sinking of which many shareholders ruined themselves from not knowing that a certain fossil belonged to a strata below which the mineral they sought is never found. Many persons will remember the scheme prosecuted some years, ago in England for collecting the alcohol that distils from bread in baking, in which about \$100,000 was lost, all of which would have been

saved to the subscribers had they known that less than a hundredth part by weight of the flour is changed in fermentation. The Emma mine and similar schemes were not possible under a more general. knowledge of geologic laws. Numerous attempts have been made to construct electro magnetic engines, Keeley motors and such, in the hope of superseding steam, but had those who supplied the money, understood the general law of the correlation and equivalence of forces, they might have had better balances at their bankers. Daily are men induced to aid in carrying out inventions which a mere tyro in science could show to be futile. Scarcely a locality but has its histories of fortunes thrown away over some impossible project.

PROTECTION IN THE COLONIES.

Such is the heading of an article in the London Economist of the 5th April, and at this particular juncture it will be interesting to our readers to learn the dispassionate opinions of a thoroughly free trade organ of English opinion, and of one which never writes in the spirit of party, but which enunciates its views as if sitting on a judicial bench. The article commences by stating that one of the permanent ideas of the English people is that the protectionist delusion must be short-lived, and that the taxation of the many consumers for the benefit of the few producers will in time cause the former to insist on a return to free trade. The Economist while heartily wishing that this were so, is of opinion that "self deception is always costly," and that "we have not to convert ignorant persons, but persons clearly aware of all that can be urged in favor of free trade." The Economist deals with the question as affecting the colony of Victoria, and refers specially to the speeches of Mr. Berry, the Premier of that Colony, who is at present on a deputation in England to advocate a change in the constitution of the Legislative Council. The Economist admits that the Australian arguments "are not those of English protectionists at all, and are not answered by the ordinary arguments of free traders." The Economist thinks that he will do a service by laying these arguments before his readers fully and frankly. and he proceeds as follows :

The first, and the one of most direct importance, is the purely financial one. The Australians say they must have a large revenue or they could not carry out the public improvements necessary in a new colony, and they cannot obtain a large revenue from direct taxation. The people will not bear it. They are, as a rule, so well off that in reasonable moderation they do not mind things being dear, and