

man, who has all the labour, trouble, and great risk of bringing his lumber to the shipping ports of Canada. The price he obtains for it at these ports is very trifling in amount, compared to what this same lumber ultimately sells for to the English consumer, and all the amount of this enhanced value and price goes into the pockets of ship-owners and merchants. So that in reality the tax paid by the people of the British Isles upon our timber is not paid to us, but to parties who are fully protected by the English Navigation laws, and who are resident in the British Isles. It is very easy to say to the people of Canada, that the favour bestowed upon our producer has been a constant tax upon the British people; but we conceive that it is as easy of proof to show the contrary. If by the late change in the Custom House laws all protection and encouragement is taken away from our products, why should we be prevented from taking our produce by the cheapest means of transporting them to a market of sale. We cannot perceive the justice of saying to us—"It is true we have taken away all protection and encouragement from your products, but at the same time we must insist upon being allowed to transport all this produce for you at our own terms, and for our own exclusive advantage. You cannot be allowed to employ any other means of transport but protected British shipping." Now this is exactly the sort of free-trade that we think so objectionable, because it is not free-trade, and is not allowing to buy in the cheapest and sell in the dearest market. Indeed, unless all restrictions are done away, as well as the duties on provisions, we shall be in a worse position than foreigners, because we can only bring our products to the consumers by the employment of British ships that are completely protected by the Navigation Laws of England, and who can in consequence charge what they please for transport, and always have done so. The consideration of these matters is now forced upon us by the changes recently made in the Custom House Laws. We did not seek these changes, and those who have made them are accountable for all the consequences that must inevitably follow. It is absurd to pretend that so great an injustice would be expedient as to do away all protection to the products of agriculture, and retain protective duties upon every other article of consumption, and upon the ships that carry all description of products which we may buy or

sell. The agricultural classes, here and in the British Isles, are possessed of a degree of power, if they will only exercise it unanimously and judiciously, that will be much greater and more irresistible than was ever possessed by the Corn Law League, who have now dissolved themselves on obtaining the repeal of the Corn Laws, and are perfectly content that all other protective laws should be retained. Let agriculturists now unite and demand free-trade in all other commodities as well as in their own products, and they must succeed in obtaining this common justice, which is their due. They desire not to tax other classes for their benefit; but neither will they submit to be taxed for the benefit of others.

#### LECTURE ON THE CHEMICAL COMPOSITION AND NATURE OF MANURES.

BY J. C. NESBIT, F. G. S., M. C. S. L., & C., OF THE AGRICULTURAL AND SCIENTIFIC SCHOOL, KENNINGTON, LONDON.

(Continued.)

The substance called chalk, with which you are all so well acquainted, contains a large quantity of this carbonate acid, which can easily be liberated by means of a stronger acid. I will liberate a little from this chalk. I will put some chalk into this jar with some water, and pour in some spirits of salt; and you will find that the gas will at once become liberated. This gas, I should tell you, will not support flame: you see perfectly well that this candle is now burning brightly; but if I pass the candle into the vessel of gas which is now being liberated from the chalk, it will at once be extinguished. This gas—this carbonic acid gas—which you now see generated from chalk, is the same that is produced by the fermentation and decomposition of all your manures. I will explain to you how it is that this gas gets to the bottom of wells and vats: it is simply from this reason—that it is heavier than the atmospheric air. Now, I will make a little more of it: I have now a sufficient quantity to extinguish this candle. This gas being nearly twice as heavy as the air, I can pour it out of one vessel into another with the greatest ease. I have now poured some gas into this vessel, and you see by pouring it out upon the flame of the candle I have extinguished it. (Experiment performed).

You cannot see the gas itself; you cannot behold it; but it, nevertheless, exists, and you can see its effects. I will now show you a property which this substance has of giving to lime water a white colour. You perceive that as soon as I pour a little lime-water into the vessel containing the carbonic acid, there is a curdy precipitate; and this precipitate is exactly the same substance as that from which I originally prepared the carbonic acid, viz., carbonate of lime, or chalk. From the lungs of man, and other animals, the same gas is given out as that which was evolved by putting the acid upon the chalk. The very gas which the vegetables require for their growth is given out from the lungs of animals, as you will see by a very simple experiment. I will take this glass vessel of lime-water, and, with a tube, breathe the respired air of my lungs into it; you see that there is the same white precipitate as there was in the other experiment—a conclu-