tee of the Yonge Street Agricultural Society, who undertook and carried out the arrangements, in conjunction with the two Secretaries, Messrs. Wells and Crew, with so much promptitude and ability, and, as it proved in the final result, with so much success. We therefore confidently look forward to occasional meetings in other suitable parts of the district, in years to come; and when again the exhibition shall take place in Toronto, we hope and trust the citizens of all classes will be more prompt and liberal in aiding the society than they have been for some time past. It is a truth which requires only to be stated to be recognized, that the main source of our wealth and prosperity can be found nowhere else but in our agriculture.

We have omitted to say that, at 2 o'clock, Mr. Hind, of the Normal School, delivered an interesting and useful address on some of the applications of chemical science to practical farming, the substance of which we hope to lay before our readers in the present number. The lecture was delivered [illegible] of doors, and consequently much of its effect was lost. We regard the introduction of an address on these occasions, not only as new, but as an exceedingly important and encouraging feature, and we hope the society will continue the practice. It is, however, most desirable on several accounts that a large room should be obtained, if possible, for this purpose.

MR. HIND'S LECTURE.

(*From the British Colonist.*)

The lecturer introduced the subject to his auditors by asking the question, What is Agriculture? He remarked, that forty years ago, few would have any hesitation in answering that question, and saying, Agriculture is the *Art* of tilling the soil. At the present day, however, men would be inclined to add another word to the definition, and say, Agriculture embraces the *Science* and Art of tilling the soil. The art of agriculture consisted mainly in mechanical operations for improving the condition of the soil, whereas the science of agriculture suggested those means which were best adapted for raising the largest amount of produce at the least possible expense of capital, and at the same time were capable of continually increasing the fertility of the soil, or at least preventing its deterioration. The lecturer then adverted to the consideration of the sources from which vegetables derive those substances which enter into their composition. A vegetable existed in two mediums, the air and the earth; from these sources all their component parts must in some way or other be derived. There were two modes, and only two, in which substances could enter into plants, either by the direct absorption of gases from the atmosphere, by means of the leaves, or of gases and solids dissolved in water by means of the roots. The main object, therefore, that the farmer had in view, was to prepare the soil in such a manner that certain of its component parts might be susceptible of solution in water, and at an early stage of its development an ample supply of leaves might be thrown out for the purpose of absorbing gases from the atmosphere. The lecturer then proceeded to remark, that from ninety-five to ninety-nine parts out of a hundred of every vegetable had previously existed in the form of gases; that these gases had been absorbed by its leaves or roots, and under the influence of heat and light were prepared for the exercise of that mysterious vital force which caused them to enter into the structure of the plant; that the remaining five or less parts had before existed in the form of solid substances in the soil—one or two of which he would briefly allude to. First to flint, a most necessary element in the composition of the straw and seed of all grain-growing plants, and grasses generally. The introduction of flint into the composition of vegetables being obviously for the purpose of strengthening them, thereby enabling the stalk to support the fruit and leaves; secondly, to lime, phosphorus and sulphur. Although a vegetable might be perfect in structure, and capable of bearing fruit and flowers, yet if it did not contain these substances, it could serve little purpose in building up the framework of the animals which fed upon it—since the bones of animals required large quantities of lime and phosphorus to give them strength, while the hair always contained a considerable quantity of sulphur. He would now consider the mode in which a plentiful supply of proper gases might, by art, be afforded to plants. The names of those gases which vegetables most required for direct consumption were carbonic acid (the choke damp of miners), and ammonia (the gas which gives the strong odour to spirits of hartshorn). Both these gases exist in the atmosphere, carbonic acid to a much greater extent than ammonia, and that only to the extent of about one part in every two thousand of the air we breathe. When plants are so far developed as to be provided with leaves, they may obtain a large amount of carbonic acid from the atmosphere, but until they possess a sufficient quantity of leaves, they must obtain the carbonic acid and ammonia they require from the soil. The question which any intelligent and curious farmer would at once propose, the lecturer supposed, would be, How these gases were to be furnished to the soil for the use of plants? The usual answer to that question is, by manuring the soil. Manuring the soil, however, was far from being sufficient, and its inefficiency easily explained. In the air we breathe there is a certain gas possessing most powerful and energetic properties in its simple and undiluted state. The name of that gas is oxygen. The tendency which this oxygen continually exhibits is evinced in a desire to combine with every substance with which it comes in contact. No substance as yet known is capable of resisting the influence of this gas under favourable circumstances. With common charcoal it unites, and forms the carbonic acid already mentioned; with iron it unites, and forms rust; with many metals it combines, and constitutes earths—with every substance, vegetable and animal, the moment vitality is fled, the oxygen of the atmosphere seizes upon its decaying elements, combines with some of them, and ultimately causes nine parts out of ten to assume the form of carbonic acid, water, and ammonia. At the same time, therefore, that the farmer manures the soil, he must prepare it in such a manner that the oxygen of the atmosphere may permeate the soil, and accelerate the conversion of the vegetable manures he places in the soil into carbonic acid and ammonia. To effect that object a soil must be well and deeply ploughed to render it porous—it must be well drained to remove stagnant water and increase its porosity. When thus prepared, atmospheric air and consequently oxygen permeates every portion of the soil, and accelerates the decomposition of vegetable matter, furnishing a plentiful supply of carbonic acid and ammonia to the young plants. The *time* when these gases are most required by crops is when the seed is sown, before leaves have been thrown out. If they have a plentiful supply at the early periods of their growth, they will rapidly develope leaves, and in proportion as their leaves are developed will they obtain *means* of absorbing from the air additional quantities of that food, namely, carbonic acid, from which at least one-half of their substance is obtained. The farmer