of preparing a cheap material for the manufacture of beef and mutton, whether by cultivating linseed in this country, or by importing it, for the purpose of being formed into a compound with some of the farmers' home productions.

ROYAL POLYTECHNIC INSTITUTION.

F. H. Holmes, Esq., delivered some interesting lectures on agricultural chemistry at this interesting exhibition. This lecture treated on the organic constituents of plants and soils, the relative proportions contained in certain lands growing wheat, and proving that woody fibre, starch, and sugar, were all compounds in different proportions of water and carbon or charcoal; exhibiting numerous appropriate experiments illustrative of his subject. He explained that the source from which plante derived hydrogen was water that fell on their soils in the form of rain; the average amount of rain-water which fell on an acre of land in a year was said to be 4,500,000lbs. This was more than sufficient to supply the whole of the oxygen and hydrogen required by the largest crop of wheat. Oxygen, the lecturer remarked, formed a very important part of the atmosphere, as it had to do with the germinating of seeds, and therefore no soil could be fruitful which had entered into its composition any matter calculated to absorb the oxygen. The lecture was much applauded throughout by a highly respectable audience. Independent of this useful lecture, the other interesting experiments for which this place of intellectual amusement is celebrated, were exhibi-The electric telegraph was constantly ted. worked and explained-the chromatrope, diving bell, dissolving views, &c., are alone worth a visit.

PLANTS AND ANIMALS.

From a discourse by John Davey, Esq., M.D., F. R. S., Inspector General of Army Hospitals, Hon. Member of the General Agricultural Society of Barbadoes, &c. read at their third halfyearly meeting, and published at the request of the Society.

Plants and animals have in common the distinctive property of reproduction, a power exercised by means either of a bud, slip, seed, or ovum ;- the seed of one beir g analagous to the ovum of the other; whilst the bud or slip-manner of generation are common to both, and constitute one of their most remarkable links. Having a common mode of origin, so have they of growth; as the animal grows, not like the mineral from accretion from without, but by disposition from within, so likewise does the plant. Both plants and animals are nourished and owe their growth to foreign matter introduced from without; and both cease to grow-both waste and ultimately perish, if the foreign matter constituting their food be withdrawn. To both warmth, light, air, moist-

ure, are in certain degrees essential to their well being: and, to both, in other degrees, these are injurious. Whilst there are thus certain resemblances between plants and animals, there are also marked and characteristic differences. The two most remarkable are intimately connected with the subject under consideration - the kind of food required by each-and the kind of organs belonging to each for its reception. A mouth and stomach appear to be essential to the animal, in which the food taken is prepared, more or less, for distribution, and nourishment. In the plant the preparation appears to be external-in the soil; from whence the nutritive fluid is absorbed by the delicate roots, and by them conveyed for distribution where required. As to food, animals are dependent for their support on one another, or on vegetables. Plants on the contrary are not so dependent ; they derive their support from the soil and from the atmosphere :- and, whilst animals, in the act of supporting themselves, convert organic into inorganic matter,-vegetables in their growth have the opposite effect,- they create or form organic from inorganic materials,-are in brief organizers, for the sustenance of animal life. Let us take an example ;- A single seed of Guineau Corn, weighing about a quarter of a grain, planted in an artificial soil, composed of several earths, and contained a little phosphate of lime, and salts of the vegetable and volatile alkali, under favourable circumstances, with sufficiency of moisture from rain, will rapidly vegetate,-give rise to a plant many feet in height, and in less than six months yield a ripe head of corn, weighing in its dry state, 1,685 grains, and containing 3,537 grains of seed; for such I have found to be the weight of a head of average size,-and such the number of seed it contained; the weight of the seed alone was 1,460 grs. What a vast in-crease is here! And if we examine the parts of the plant, its roots, its stem, its leaves its seed, we shall find them composed of substances differing altogether from the materials which had constituted the food of the plant,-a difference depending on a new combination of elements,from, in brief, inorganic to organic compounds.

There is another point of difference, and a very interesting one, between plants an animals,-the effect they have on the atmosphere-comparing the leaves of the one with the lungs of the other. Animals inhale common air, consisting of azote and oxygen; a portion of the latter disappears, and its place is supplied by carbonic acid,-which is a compound of carbon and oxygen,-and which is expired; and, consequently, in respiration, animais are consumers of carbon ;---and, its consumption is attended with the production of animal Vegetables, on the contrary, absorb or heat. take in carbonic acid, and exhale oxygen by their leaves, and consequently are accumulators of carbon; and it may be, have the effect in evolving oxygen, of occasioning a reduction of temperature, or of creating a cooling process, the opposite of