Chemistry further shows us the intimate connexion subsisting between the animal and vegetable *kingdom*—how organized matter is produced from the soil, water, and the atmosphere—how this organized or vegetable matter is destined for the support of a still more highly organized existence, in the form of the various animals which all originally derive their food from plants, the herbivorous affording food to the carnivorous. Though apparently so dissimilar in their constitution, analysis shows animals and vegetables to be precisely identical in this respect, each being resolvable into a few primary elements, existing merely in different proportions and in different states of combination. However different the bones of animals, which, under certain conditions, almost bid defiance to the ravages of time, may appear from the blade of grass or a grain of corn, precisely similar ingredients will be found in the one as in the other; the animal organism being incapable of forming within itself any new elementary matter not originally taken into the system by the food. It is to chemistry also that we are indebted for a knowledge of the changes which take place in organized matter during its growth; how, in the animal enconomy, one proportion of the food is devoted to the production of muscle, and another of fat, as well as the peculiar circumstance under which this is, with the greatest facility, produced.

(To be continued.)

ATMOSPHERIC ELECTRICITY AS A PROMOTER OF VEGETATION.

It will be in the recollection of some of our readers, that in October last, Mr. Gorton, of Nash-House, announced to the Tring Agricultural Association, the then immature results, or rather prospects, of some experiment which had been instituted by Mr. Forster, of Findrassie, near Elgin, on the application of Atmospheric Electricity to the promotion of the growth of plants; those prospects (promising as they then were) have since more than realized the expectations then formed, inasmuch as Mr. Forster has threshed, weighed, and measured, fifteen bushels of Chevalier barley, fifty-four pounds and a quarter to the bushel, from an electric area of twenty-three perches of land only, being at the rate of upwards of one hundred and four bushels to the acre, with *more than three times* the weight of the ordinary quantity of straw. The barley outside the insulated area, and therefore not within the influence of the artificially excited electricity, did not exceed a good average crop in either grain or straw. These facts will almost electrify some of our agricultural friends, and no doubt occasion distrust or suspicion in the minds of others, as to the correctness of the data and other accompanying circumstances. Our informant has inquired carefully into them, and has at present no reason whatever to question their accuracy. Mr. Forster, it will be seen, even prematurely announced his discovery in the most frank and disinterested manner; and, if he has stated anything incorrectly, he is open to contradiction from hundreds of his neighbours who watched the barley from the seed time to the harvest.

The idea of electricity as applied to vegetation is by no means new; and Mr. Forster does not arrogate to himself anything of the kind. The process, however, by which he has adapted it, is perfectly original, and obviously the result of good theoretical reasoning, and of legitimate induction from previously ascertained and well-established facts. We may add, that with the knowledge of those facts, it comes strongly recommended to us by its simplicity.

Mr. Forster first defines, or incloses as it were, a given area of land, in the form of a parallelogram, to be experimented on (say a quarter of an acre, or about fifty-five yards by twenty-two) with common iron wire, of four-pence to the pound, which is buried in the ground at a depth of from two to three inches, and fastened at the corners by dry wooden pins. In the centre of this inclosed area he erects two stout poles of dry pine or fir wood, fifteen feet above the surface of the ground, and forty-five yards apart, and placed magnetically north and south. Over the tops of these poles a stouter iron wire is extended, and descends from them at either extremity, like the fore stay of the mast of a ship, and is fastened to the ground by a strong dry wooden hooked stake, and, of course, in immediate communication with the buried wire. The cost of this apparatus, including labour, is only five shillings, and would be considerably less, in proportion, if applied to a greater extent.

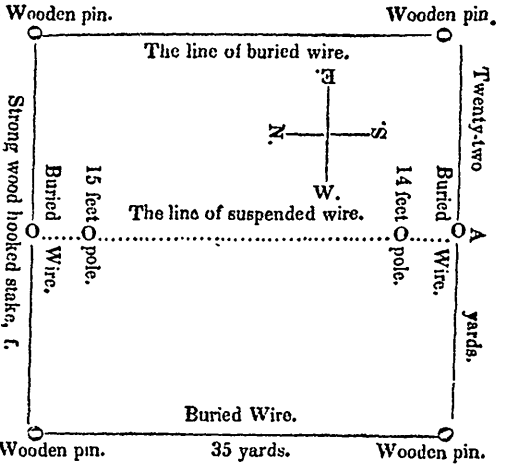
He thus establishes an insulated electric area, and having determined the principle, the extended application of it, modified according to circumstances, becomes simply a question of degree.

One of the most interesting results which have come to our knowledge is, that barley under the central suspended wire, grew higher and more vigorous than the rest, as if every beard and blade of corn strove to attain the source of the arrested element.

In September last, Mr. Stevens, an artist of Elgin, stated to Mr. Gordon, that he had seen barley growing at Mr. Forster's, of Firdrassie, under the influence of atmospheric electricity, as strong and luxuriant as if it had been sown on a dunghill. Mr. Gordon having ascertained its correctness, seized upon the fact; and, with the hope of seconding the disinterested views of Mr. Forster, and making them more extensively known, liberally offered to give a prize of thirty pounds (through the Council of the Royal Agricultural Society) for the best Essay on Electro-culture. For reasons hitherto unexplained the offer was declined.—*Bristol Mirror.*

CULTIVATION OF CORN BY ELECTRICITY.

The application of the free electricity of the atmosphere to the growth of corn is beginning to excite very general interest, in consequence of the successful experiments made by Dr. Forster, of Findrassie, near Elgin, who produced 104 bushels of Chevalier barley, from a single acre, by this novel mode of culture. The cost of the electric apparatus is 1*l.* per acre, and it will last for 20 years. The following is the plan upon which it is arranged on a quarter of an acre of ground :—



The cost of the above would be—for 6lbs. of iron wire, at 4d. per lb. (for burying) 2s.; 4lbs. of ditto, at 3d. per lb. (for suspension), 1s.; two poles of dry wood, 1s.; labour, &c., 1s.; total, 5s. As the area increases, the cost diminishes. Convenient and desirable areas are, for two acres, 127 by 75 yards; one acre, 80 by 55; three quarters of an acre, 82½ by 44; half an acre, 73 ½d by 33; quarter of an acre, 55 by 22; one-eighth of an acre, 36 by 16 ½d. The mode in which the plot is laid out is as follows :—With a mariner's compass and measured lengths of common string, lay out the places for the wooden pins, to which the *buried* wire is attached (by passing through a small staple), Care must be taken to lay the length of the buried wire due north and south by