## THE COLONIAL FARMER,

## EVOETD TO THE AGRICULTURAL INTERESTS OF NOVA-SCOTIA, NEW-BRUNSWICK, AND PRINCE EDWARD'S ISLAND.

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## AGRICULTURAL CHEMISTRY,

The principle of Life has always eluded the researches of philohers, its existence is known to all, but no one can grasp it. We is every living thing, actions and processes which are capable explanation from the principles of mechanics' or Chemistry, but both the animal and the plant we perceive that these principles under the command of another which we cannot comprehend his the opening and shutting of the hand we know is performed the action of the muscles, or what is commonly called the lean is, which is composed of clastic fibres which are always disposed cotract, and which may be compared to a skein of woollen yarn siderably stretched, which whill immediately become shorter ta left at liberty; we know also that the muscles which open those which shut the hand, exactly balance each other; but do not know, nor shall we, unless it be after " - 1 mismortal coil," why it is, that whenever it is our will to open or at the hand, this balance is instantly destroyed, by the muscle tit is our will shall act, becoming stronger than its antagonist. me than a century ago, a learned physician after overthrowing theory of the cause of animal heat that was then in fashion. with very strong arguments to prove that it was caused in a atmeasure by the process of digesting and assimilating the food. e discoveries of the new Chemistry have enabled Leibeg to ing so many facts to bear upon this subject, that he may be said avealmost demonstrated it: yet Chemistry cannot explain how it bit animals retain their heat, while in a torpid state, for many ths, when no such process is going on. In vegetables, we see mical as well as mechanical operations performed, but under direction of a power that we cannot comprehend. Through the summer, while vegetation is going on, the wood of a maple appears moist if cut, but no sap flows from it, -the leaves have kid and astringent taste, which continues till they die, when we them nearly tasteless, and may rationally conclude that a ion of their juices have retired to the stem. When it has bee so cold that the wood of the tree has been frozen, if a warm should came, a portion of sap will always flow from a wound he wood, and this quantity will continue to increase till very the time that the buds begin to swell, when it will start from with a force that indicates a pressure of some clastic sube, the sap at this time containing little more than two thirds quantity of sugar in a gallon than it did in February, but flow-

ing so fast that san enough to make a pound of sugar may be procured from v tree in one day, but should the weather then suddenly turn very warm, within thirty-six hours not a drop of sap will be found to flow upon cutting the trees, but it will be per" ceived that the buds have swelled, and that the bark is separated from the wood by a tasteless mucilaginous substance like scaided starch. We see that within thirty-six hours a chemical process has changed the sugar to muchage, which will in a few days more become a fibrous substance, and we may perceive that in the motion of the sap that there has been a mechanical process, for the sap runs rapidly, only when a very cold night is followed by a very warm day. During the cold night the volume of the air in the veins of the tree is greatly diminished, thus giving room for the roots to suck up moisture, and so far as the sap in the tree is frozen it must emit air, (as we see that water at the instant of freezing always evolves a great quantity of air. causing a perpetual rapid motion of the first formed particles of ice, and innumerable airbubbles in the ice after the whole surface is frozen.) The heat of the day will expand this air with sufficient power to push on the sap, but what principle of Mechanics' or Chemistry can make it place where needed, bark, wood, flower leaves, the waxlike pollen of the male flower, supple fibre for leaf-stems, &c? We shall never learn from Chemistry why plants in dry weather contract and wrinkle their leaves so as to appear stationary, while the roots are rapidly increasing; nor why, when the drought is terminated by a sudden shower, they shake all the reefs out of their leaves, expand them to the utmost, and push out new ones rapidly. We readily discover the wisdom of this arrangement. The Potatoe by extending its roots can collect more moisture and by williaming its leaves, it commissies the evaporation; and when a heavy shower falls, by fully expanding its leaves and greatly increasing the exposed surface it prevents suffocation from too large a quantity of water, by increasing the evaporation; but we no more comprehend the principle which directs these actions, than we do that which cause earth worms which lie in hard trod rich ground, always to bore a great number of holes the night before a rain. When we see them creeping out of their heles in the shower, we readily perceive they had been drowned had they not opened these passages, but how these blind, stupid creatures could, under six inches of earth, foresee what we did not, we do not conceive. It is not chemical attraction that causes the stamina of many flowers to bend towards the female part of the flower, when the pollen is ready to burst, nor does it cause the leaves of plants to close at night, and before rain to shelter their young buds, or . flowers, nor can it be an attraction of this kind that makes plants of different kinds which grow near together take up such different proportions of the substances contained in the soil, evidently showing that in their selection they are guided by something analogous to the appetites and powers of digestion in animals. We find a most extensive range of substances which serve for food for animals. Uunnmbered millions of the little sparklers of the occan which show like fire by night, appear to live mostly upon limestone and shells, and though soft gelatinous substances, are capable of perforating the flint; yet their food will appear less strango when we consider the quantity of carbon which it contains, and which forms no small part of the food of other animals. The