

HURON

TEN SHILLINGS IN ADVANCE.

"THE GREATEST POSSIBLE GOOD TO THE GREATEST POSSIBLE NUMBER"

TWELVE AND SIX PENCE AT THE END OF THE YEAR.

VOLUME III.

GODERICH, COUNTY OF HURON, (C. W.) THURSDAY, DECEMBER 19, 1850.

NUMBER XLIV.

The Huron Signal,

PRINTED AND PUBLISHED EVERY THURSDAY BY THOMAS MACQUEEN,

EDITOR AND PROPRIETOR.

OFFICE MARKET SQUARE, GODERICH.

Printed and Job Printing, executed with neatness and dispatch.

TERMS OF THE HURON SIGNAL.—TEN SHILLINGS per annum if paid strictly in advance, or TWELVE AND SIX PENCE with the expiration of the year.

No paper discontinued until arrears are paid up, unless the publisher thinks it his advantage to do so.

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nearly the same proportions, and this is the case whether air is taken at the level of the sea or from the top of high mountains.

[Nitrogen is a kind of simple air or gas. It is tasteless, invisible, extinguishes flame, and is poisonous to animals in its pure state. It serves to weaken the powerful effect of oxygen, with which it is mixed in the air we breathe.—Oxygen is a simple gas, possessing many extraordinary properties. It is destitute of smell and colourless; all bodies burn with increased brilliancy in oxygen, and animals when they breathe it pure are thrown into a state of the greatest excitement or fever, terminating in death. It forms a rust when it combines with metals, as with iron &c. It constitutes eight-ninths of water by weight, and is found to form a large portion of all rocks, stones &c. Water in the form of invisible vapour is always found in air, the quantity depends upon the temperature, and varies from 1 to 14 per cent., that is, in 100 gallons of air there will be from half a gallon to one gallon and half of watery vapour (nearly equal to fourth part of a cubic inch of water), according to the warmth of the air.—The deposition of dew is dependent upon the properties of air and plants acting simultaneously. When the sun sets the leaves of vegetables on cloudless nights rapidly become cool, and chill the air about them, causing it to deposit upon the upper surface of the leaves, the moisture which, in its chilled state it cannot retain.]

The air extends to the height of about 46 miles, and presses upon the surface of the earth with a weight equal to nearly 15 lbs. to every square inch of surface; it is, nevertheless, 814 times lighter than water. During thunder storms the passage of lightning through air, causes the formation of a substance, named Ammonia—a gas of very pungent odour, easily dissolved in water, and familiarly known by the name of Spirit of Hartshorn. Rain water invariably contains ammonia, which it collects from air in its descent to the earth.

Air, upon which the life of all vegetables is dependent, contains, as we have seen, insignificant quantities of three bodies Carbonic Acid, Water and Ammonia.

One of the most astonishing results of the application of chemistry to vegetable life and organization, is embraced in the discovery, that,

1st. NINETEEN-TWENTYTHS BY WEIGHT, OF ALL VEGETABLES, ARE DERIVED ORIGINALLY FROM THE AIR WE BREATHE:

2nd. THE ATMOSPHERIC FOOD OF PLANTS EXISTS IN THE FORM OF CARBONIC ACID, WATER AND AMMONIA.

These important principles in agricultural chemistry may be made more evident, by the following illustration:—Let us suppose we burn completely 1000 lbs weight of hard wood in a stove or fire place, and carefully weigh the ashes which remain behind. They will be found to constitute about one-twentieth of the whole mass of the wood, weighing not more than from 30 to 50 lbs, according to the kind of wood burnt. The whole of that portion which goes off in the form of smoke, vapour of water and gases, existed at one period in the air we breathe, in the form of carbonic acid, water and ammonia. The whole of the ashes were obtained from the soil in which the trees originally grew.

We may now proceed to consider the properties and sources of the atmospheric food of vegetables, and endeavor to ascertain the manner in which it assists in building up their structure, also to what extent the formation of the different parts of vegetables is dependent upon a proper supply of each particular kind of food.

CARBONIC ACID.—This important food of vegetables possesses many singular properties. It is poisonous to animals, and cannot support combustion. Water absorbs it with avidity, and thus acquires the power of dissolving chalk and limestone. It is also the most active agent in loosening and separating into their constituent parts, the surfaces of solid rocks, stones and soils.—In 22 lbs. weight of carbonic acid, there are 6 lbs of carbon or charcoal, and 16 lbs. of oxygen. The leaves of plants absorb it from the air by which they are surrounded, during the day time; or take it up in water which enters at their roots, in both cases light must fall upon the leaf to enable the plant to separate the carbon from the oxygen, which is returned to the air in its pure form of a simple gas. During the night time, whatever carbonic acid is contained in the water sucked up by the roots, is immediately given off by the leaves; few

plants having any power to separate the carbon from the oxygen during the darkness of night. A popular opinion prevails that some plants possess the power of turning their leaves to the sun. The motion observed is purely mechanical, and depends upon the rapid liberation of carbon from the absorbed carbonic acid in those parts of the plant which are exposed to the direct rays of the sun. The liberated carbon stiffens and contracts one side of the plant in forming new wood, while the other remains comparatively flexible. The contracted side becomes arched, and appears to give to the vegetable a light-power of motion in the direction of light—a brilliant artificial illumination produces the same effect in the ratio of its intensity. When carbon is separated from carbonic acid, it combines with the component parts of water, and forms woody fibre, starch, gum, sugar and oils.—Carbon obtained from carbonic acid forms from 45 to 50 lbs. in every 100 of the dry wood, stalks and seeds of cultivated plants. The constant presence of carbonic acid in the air we breathe is due to the respiration of animals, the combustion of burning bodies, and the decay of vegetable matter. A vast store exists in the extensive limestone rocks which form a large portion of the earth's crust. Pure limestone is composed of one-half lime and one-half carbonic acid, which may be driven off in the gaseous form by means of a violent heat, as in the operations of limekilns.

[The carbon contained in the vegetable matter of fertile soils, (decaying roots, leaves, &c.), slowly combines with the oxygen of the air, and forms carbonic acid, which is absorbed by water and thus taken into the system of vegetables. It is from this source that they derive their supply of carbonic acid before they have thrown out any leaves.—Each new leaf furnishes them with another mouth and stomach.]

The power of absorbing carbonic acid from the atmosphere is proportionate to the surface of the leaves. Straight and narrow leaved plants, those which are grown for their seed, as wheat, rye, oat barley, depend more upon the soil, for their supply of carbonic acid, than the Jerusalem artichoke the mangel wurtzel, or the beetroot, which are grown for the sake of their roots. The great size of the roots, stalks and leaves of the root crop would lead us to suppose that they contained a much larger quantity of carbon than the grain growing crops—this is not strictly the case—and the reason is found to lie in the fact, that, roots of turnips, mangel wurtzel, oats, potatoes, contain from 700 to 900 parts of water in 1000 of the fresh roots—whereas, the quantity of water in grasses and grain, varies from 120 to 150 pts. in the thousand. It is these that grain crops exhaust the soil of vegetable matter, and consequently of the means for supplying carbonic acid to the young plants; they take more carbon from the soil, than they leave behind in the form of decaying roots and stubble. The roots of clover, the grasses, and the leaves of turnips, mangel wurtzel &c., which are usually left upon the land, contain more carbon than the whole of the crop abstracted from the soil during its growth. A judicious rotation of crops leaves the land richer in vegetable matter than before the rotation began.

[To be continued.]

From the Birmingham Journal.

PRIVATE CORRESPONDENCE.

Political Economy.—A Hunt with Fox—Evidence of Political Unity—The Rationing of the Polish Invasion—The Premier of To-day and the Russell of a Pre-Reform Bill Era—Memento of Princess Alexandra—A Scotch Worth—Romance of a Life—Hungarian Liberalism—On a Touch of Nature—Nreman of Faintless Fame.

London, Friday Evening.

"The Pope he leads a happy life," would have been composed by a gentleman whose ideas of the infallible fisherman's felicity would have been considerably shocked by the proceedings of the present week. His holiness has done penance enough by depair, in the person of the officious Mr. Fox, to warrant a general goal delivery of purgatory, and the immediate removal of the locks, bolts, and bars of that model penitentiary house, without fee, reward, or indulgence of any sort. This had, indeed, been a most respectable work, for it has already had five "Hunts of November," and is pretty sure to-morrow to have six. Every day, every Monday included, has been devoted to the catching of Fox; and the business of everybody in London, with an exception or two you will probably be acquainted with, has seemingly been to assist at the auto-da-fé, though within the memory of the oldest inhabitant that operation has been confined to cook maids and pyrotechnically disposed hobby-dogs.

Instead of hunting Fox, however, your Correspondent so far reversed the etiquette proper to brunettes day, that he went to hunt with a fox by no means a wild goose chase, though the game ran down was rank humpage, just as Guy was, but in a very different sense. Fox, M. P. for Oldham, declared he would draw a cover at Redley, in Bridge Street, Blackfriars, and the drawing of upwards of 100 covers was resolved upon. The first was run-rate; the "course" being ditto, in Cockney way of talking of a fox hunt, but never mind that; every boy was content with the coarser; and a finer old reynard than W. J. never yet sported a brush in the nose of a steeple-hound. The occasion was the Trial by Jury Dinner—the anniversary of the acquisition of Hardy, Tooke, and Thelwall, day commemorated in these columns this time, yesterday, and now again about to be celebrated with the honors. There is something about these reunions peculiarly gratifying to the heart of a genuine, ingrained, onward Reformer—one who

is undeluded by the general theories and

lax and loose theories of general politics, with

their Pope and pontific, cathedrals and con-

venticles, hierarchies and handoms. These

doctrines, as the speakers rightly said, testify

that all appear agnosty, and all other new-

paper evidences to the contrary. "The people of

England are sound at the core." Without ad-

verting, without the assistance of words, or

speech or speaker, without the stimulus of per-

sonal duty or public notice, or private obser-

vation of any kind, year after year, now for the

thirty-six years from the event of the glorious

republicance is the sole leader of these devo-

tes of the principle embodied in the three fan-

atic words—Trial by Jury—the two fine find-

ings, and the British will need no external

renew their homage to the virtues indicated by

the state papers of '94. For five and thirty

consecutive years, with few exceptions, has Fox

been the most prominent personage at these

meetings. It cannot be to hear him, who may

be heard almost any day, repeat the same cir-

cumstances over and over again, in language

almost of necessity the literal echo of itself, that

there is annually drawn through this large num-

ber of persons from the middle and better edu-

cated ranks; and if not to hear him, certainly not

any of the minor characters familiar to the scene.

What then can it be? No other political asso-

ciation whatever in this country exhibits any-

thing like the same tendency of vitality. It

is not a mere association of names, or a mere

factitious agreement to waddle complacently

to some oddities among each other, every

three or four years, about their "hot youth, when

George the Third was King." The Reform

Club has no anniversary, and the Reform

Union, whose place in the Calendar hasn't yet been

defined by the almanack makers. The Radicals,

as such, never had a club, because they

have always been a name, and a name, and a

name, and a name, and a name, and a name,

any pressure from without to keep them within

the pale of self-interest. But here is a club that

has no laws, rules, regulation, or even mem-

bers, and whose only object is to keep them

in a state of cohesion so strong, that like the eternal

spirit of truth, whose annual ceremonial it was

instituted to observe, it knows neither youth

nor old age, and whose only object is to keep

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