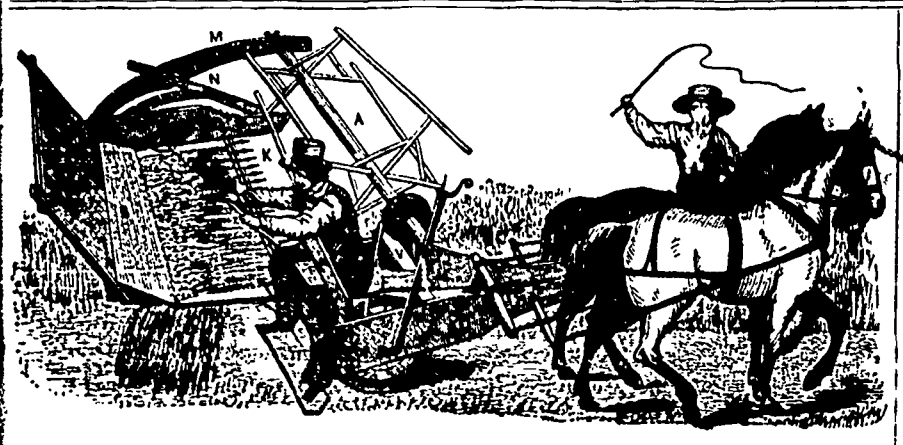
THE CANADA FARMER.

A Family Journal, devoted to Agriculture, Internal Improvements, Literature, Science, and General Intelligence.

Vol. I. TORONTO, SATURDAY, MAY 22, 1847. **No. 9.**



BELL'S PREMIUM "HORSE REAPER."

The above is a representation of one of the most useful of modern inventions. In this country, where labour is, and for some time must continue dear, labour-saving machines are objects of great importance to the Agriculturist. There is no period of the year when the farmer is more harrassed and put about for want of help than the time of harvest. Everybody just then requires an unusual number of hands, and the demand becomes immediately greater than the supply. The highest prices must be paid for inferior workmen, and the work is either done badly, or not done at the proper time. Loss is thus sustained, sometimes of considerable amount. Now, if a machine could be made, which with the complement of hands already on the spot would reap 15 or 20 acres in a day, two or three farmers, by joining together in its purchase, would probably save the price (if not too high) in one year, besides getting rid of much anxiety and annoyance. The machine made by Mr. Bell is, in our opinion, just the thing that is wanted. The principle has been fully tested in Canada, we believe, as well as the United States, and has been found to work well. As to the workmanship of the article, Mr. Bell has made several substantial improvements on the American pattern, and affords the "Reapers" at a *lower* price notwithstanding. Those who have fields tolerably clear of stumps, and pretty smooth, will do well to call upon Mr. Bell, and examine for themselves The price is 90 dollars cash, and 100 dollars at six months, with proper security. (See advertisement.) There is a slight error in the above cut The wheat is shown to be turned *round*, with the heads from the machine, and across the horses' path. This would cause more labour for the raker, and is unnecessary. It may be raked off as it falls.

From the N. Y. Farmer and Mechanic

FAMILIAR SCIENCE IN FARMING.

By John B. Newman, M. D., Editor of the Illustrated Flora.

In the fifth verse of the second chapter of Genesis we are told that God created every plant of the field before it grew. Most probably after the life power was formed, an image of each vegetable was made from the dust and united with it, thus giving the plant a visible existence.

By a reference to many passages of the Holy Scriptures it will be found that the life power is used as a synonym for the soul; and science also confirms the idea that both are identical. A plant independent of its nutritive functions, manifests but a small share of instinct, so small indeed, that it seems at first sight hardly possible to conceive a near relationship existing between a cabbage and an elephant; yet the life power of both is the same in kind, and wants but the nervous organization of the beast to display similar phenomena. To prevent misunderstanding, it is proper to mention in this place, that all animals except man are possessed of soul (life power) and matter; man is composed of SPIRIT, soul and matter, for when the Lord made him, he breathed into him the breath of lives, (not life, the Hebrew word is used in the plural form), one life, (the soul) beastly, and related to earth; the other, (the spirit) godlike, and related to heaven. Those who would wish to pursue this subject further, will find it fully explained in a work I am preparing for publication, entitled MAN as BEAST and ANGEL.

I am thus particular in defining the life power, because a knowledge of its laws, will enable us to solve all the phenomena it presents; and without that knowledge it would be impossible to obtain any conclusions worthy of reliance.

Seeds are the simplest forms of the union of the life power with matter; a seed generally consists of *envelopes* (integuments) *albumen* and *embryo*. When placed in a warm situation and covered in the earth, the life power of the seed is excited to action, a little stalk is shot upwards by the embryo, which pierces the envelopes and rises to the surface of the earth, and at the same time a root runs below to gather nourishment; to provide nutriment until the roots are able to supply it is the object of the albumen, which is principally composed of starch. The extremities of the branches are formed of leech-like mouths, (spongioles) and these as soon as prepared, directly begin sucking up the elementary atoms: they not only imbibe the food, but act the part of stomachs in instantly digesting it, for even the chemists tell us, that once inside the spongioles, the fluid is of a homogeneous nature, and entirely different from what it was before its sudden combination.

The sap requires a supply of carbonic acid and at the same time to get rid of its oxygen, before it is fitted to supply the necessities of the plants. To effect this it must pass through the leaves, to which it is carried by an ascending series of vessels; arrived at those organs the desired result takes place, and it then becomes the *proper juice*. A leaf is nothing more than a simple expansion of the stem, a contrivance for gaining a greater extent of surface on which to spread the chlorophylle or green coloring matter of plants, for it is in this coloring matter that the power of expelling oxygen and absorbing carbon resides.—Some plants as the cactus have no leaves, the green surface of the stem answering these purposes. Light is the stimulus which enables the chlorophylle to perform its offices.

Being now thoroughly purified and compounded, the proper juice goes through the vegetable system and furnishes nutriment to every part. It meets in its course with little deputations of the life power, called with them instruments of action, glands, and these secrete the salts, poisons and essential oils. The refuse of the proper juice is thrown off by the descending series of vessels at the roots; this excrement is indigestible in all cases by the plant, and its accumulation explains the reason why soil deteriorates by the continual growing in it of one species and the necessity for turning up and decomposing feeal matter. This is the true reason why there is a necessity for the rotation of crops.

PRESERVATION AND APPLICATION OF MANURES.

We take the following observations, on a subject of vital importance to the farmer, from the American Agriculturist.—

The distinguished chemist, Boussingault, "estimates the solid and liquid excrements of a man at 618 pounds per annum, containing 18 pounds of nitrogen—a quantity sufficient to grow 536 pounds of wheat." This would be equivalent to three barrels of flour Now, supposing there are only ten millions of adults, producing each nitrogen sufficient for three barrels of flour: and ten millions more producing only half that quantity, we should have of this indispensable ingredient, enough to produce, annually, forty-five millions of barrels of flour, being more than two barrels for each person, large and small. If the alkalies, and other inorganic elements, which are shown above to be so essential to the preservation of the fertility of our soil, should exist, only to half the extent of nitrogen in human excrements, the advantages of saving and applying them to our soil would be unspeakably great. In suggesting a plan, by which such immense benefits can be secured to the country, and which will for ever prevent our soil from deteriorating, and even reinstate that which has been, in a great degree, exhausted by improvident cultivation, I cannot do better than copy from the Report of the Commissioner of Patents, for the present year, the following extract, accompanied with the suggestion, that this plan, instead of being confined to our large cities, ought to be extended to every town, village, hamlet, and private residence. In a word, that it should be so extensive as to save all the human excrements, solid and liquid, excepting, of course, those which are deposited on cultivated fields by work hands, during their daily avocations.

"We will make a simple suggestion to the public, without charge. Insert under the aperture of a privy, drawers made of wood, iron, or metal, two feet wide, two feet deep, and any required length, with handles to each end, so that they can be as easily drawn up and handled as those of a desk. Put into these drawers peat, mixed with a little plaster of Paris, or charcoal-dust, mixed with plaster, to the depth of six inches, or a foot. Thus arranged, not the slightest unpleasant smell would arise from the privy; and every week or fortnight carts, with light boxes in them, should call at the house, and the drawers be emptied into them. In this way the yards would be purified of a shocking nuisance, and vast quantities of poudrette could be weekly manufactured, for which any company could well afford to pay the city of New York $100.000 per annum."

For this highly useful suggestion the Commissioner of Patents gives credit to the American Agriculturist, Volumne 4th, page 116.

Where peat is not to be had, charcoal-dust and plaster of Paris, or either of them, may, perhaps, answer the purpose of mixing the ammonia of the excrements. But this is a matter that may soon be ascertained by experience, and the aid of a good chemist. The drawers under the privies must, of course, be water-tight, so that no part of the liquid excrement may be lost, for these are the most valuable parts of them.

If the great city of New York should take the lead, in the introduction of a practice which is destined to be of such immense benefit to the country, she will be entitled to the gratitude of the whole nation She will, at the same time that she is rendering an immmense service to the agricultural interest, free herself from a most horrid nuisance, under which, in common with all other crowded cities, she is daily suffering the most serious evils Next to the manures, which may be derived from human excrements, are, perhaps, ashes These contain, not only alkalies in large quantities, but also most of the mineral elements, which enter into the composition of every description of plants These are the very substances, which, as Liebig has abundantly shown, are by far the most important ingredients in all good soil Other elements, such as oxygen, hydrogen, carbon, and nitrogen, are necessary, but these, except the latter, are abundantly supplied from the atmosphere; and it has been shown above, that the deficiency in the supply of nitrogen from the atmosphere can be more than compensated by a careful saving of human excrements, and the manufacture of them into poudrette. But the supplying of our soil with the alkalies, and other mineral elements, which exist so abundantly in the ashes of all kinds of wood and plants, is an object of great importance, and one which demands the utmost care and circumspection. Not only should the ashes be saved, which result from the wood consumed as fuel, but also all that result from the burning of logs, brush, &c, in the plantations and clearing up woodland pastures. If not convenient to haul and spread these ashes immediately upon fields, which require to be furnished with alkalies and other mineral elements, they should be placed under cover, otherwise the rains, snows, and dews will dissolve the alkalies, combined with the ashes, and thus these highly useful substances will be carried down into the earth and all lost to the purposes of agriculture.

METHOD OF ASCERTAINING THE WEIGHT OF CATTLE WHILE LIVING.

This is of the utmost utility for all those who are not experienced judges by the eye, and, by the following directions, the weight can be ascertained within a mere trifle. Under the head CATTLE we have already given a useful table on this subject; but the annexed rules will be found of service. Take a string, put it round the beast, standing square, just behind the shoulder blade; measure on a foot-rule the feet and inches the animal is in circumference, this is called the girth; then with the string measure from the bone of the tail, which plumbs the line with the hinder part of the buttock; direct the line along the back to the fore-part of the shoulder blade; take the dimensions of the footrule, as before, which is the length, and work the figures in the following manner:—Girth of the bullock, 6 feet 4 inches; length, 5 feet 3 inches; which, multiplied together, make 31 square superficial feet; that again, multiplied by 23 (the number of pounds allowed to each superficial foot of all cattle measuring less than 7 and more than 5 feet in girth), makes 713 lbs.; and allowing 14 lbs. to the stone, is 50 stone 13 lbs.; and where the animal measures less than 9 and more than 7 feet in girth, 31 is the number of pounds to each foot. Again, supposing a pig or any small beast should measure two feet in girth, and two feet along the back, which multiplied together, make 4 square feet, that multiplied by 11, the number of pounds allowed for each square foot of cattle measuring less than 3 in girth, makes 44 lbs.; which, divided by 14, to bring it to stones, is