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THE COLONIAL FARMER,

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

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HALIFAX, N. S., MARCH 1, 1843.

NO. 17.



THE COLONIAL FARMER.

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BREEDS OF CATTLE.

There is an idea very generally diffused that the largest breeds of cattle are the best. No rule can be more erroneous. The breed is that which gives the greatest profit in proportion to the expense of keeping it. The size of a breed depends upon the quantity and quality of its food. Where the pastures are very middling sized cattle have in the course of a century become a very large breed, and very poor pastures have within the period reduced middling sized cattle to a very small breed. In both the large and small breeds some will be found much superior to others for milk, and some will have the same superiority of property of fattening easily. These should be chosen for the purpose, but where the pasture is very poor the young calf should be allowed as much milk as it will take, because it will tend to increase the size, which in such a situation would prove injurious.

Many of the Tartars winter their cattle without hay, and give the young calf but half the milk if the cow gives an ordinary quantity. They say that if the calf is allowed all the milk, it will not when grown be able to stand the winter. A young calf notwithstanding should never be allowed to be very poor. It is wished to have cows give an extraordinary quantity of milk, the calf should always be very well fed, but in some situations such cows are rather objects of curiosity than of profit. A cow cannot create milk; the materials to form it must be given to her. We have known a cow which gave six gallons of milk daily, and in the neighbourhood two others that between them gave six and a half gallons; they all fed in a pasture which was rather overstocked, and had each as much Indian meal twice a day as it was thought safe to give them, being all in a condition that would have passed for passable beef. The pasture cost but little; the meal at that time was very dear; and as the large cow consumed more than the small ones, we conceive the latter to have been the most profitable. There are situations where cattle are allowed but little to live in winter much upon browse, and constantly attending to those who are cutting cordwood. The cattle who have been kept in this way for a considerable time are never large, they have a considerable proportion of bone and sinew, can run fast, leap fences, and climb steep rocky hills. They quickly take on fat in the early part of the summer, but rarely become very fat. They are poor milkers and go dry for a long time. Their mode

of living has altered them to animals stronger and more active than those from which they descended, but more unsuitable for furnishing milk or fat. The breeds that fatten easily are rather sluggish, with plenty of muscle, for the most part, but always with small bones and sinews, and possessing neither great strength, long wind, nor the quality of enduring labor without weariness, they spend their time rather in eating and resting than in wearing out their flesh by running about. The great milker is generally also a quiet cow with small bones and sinews, but always light at the shoulders and deeper behind. No one breed can be the best for every part of this province. As agricultural skill increases in any country, the pastures become richer, and the size of sheep and cattle increases proportionally; but in all situations the best only of every breed should be employed as the breeders. No regard should be paid to the size, very small cattle frequently pay as well for the food they consume as those that are larger. The particular conformation is important, but not all that is important. Cattle are often found very well formed who appear too sluggish to feed well; they stand still or lie down a great part of the time, and will rarely give any considerable quantity of milk without a large quantity of short feed is given them. Others not much differing in form feed with great activity and collect for themselves the food which furnishes a good mess of milk. There is spirit as well as flesh and bone in neat cattle as well as in horses, and this spirit is transmitted to their descendants, and should always be regarded in choosing cattle to breed from. It is rarely profitable to allow cattle to be poor in winter except in situations where the winter food costs but very little, for the cow that is very poor in May will rarely make two thirds the quantity of butter that she would have done had she been in good condition at that time. Where the pastures are very poor, if a small piece of good grass land is allotted to the purpose of furnishing the cattle with a feed of young grass when they are brought home at night, mowing it always before it is half grown, the first time; and if the hay for winter were cut about a fortnight earlier than the usual season, the cows would generally calve a year earlier, and would increase in size, and in the proportion of milk. It is commonly accounted that cows which calve at two years old are much reduced in size by breeding so young, but we have not observed any great effect of this kind, although it is certain that it retards their growth, but they generally prove better milkers than those which calve at four years old. Many writers have recommended that heifers should not be put to the bull till they are three years old, but it should be remembered that cattle are often injured and sometimes rendered worthless by neglecting to put them to the bull when in heat; there is danger that they will not afterwards stand to the bulling, and there are many cattle who from this cause rarely have a calf oftener than once in two years. Bull Stags (bulls who have been castrated when two years old or more) should never be allowed to run with heifers, which they often ruin, by reducing them to such a state that they cannot be fattened because they are half the time in heat, while they never get with calf when taken to the Bull.

The artificial Breed, the Durham short horn, has almost invariably given to every breed with which it has been crossed a portion of its properties, of early maturity, and a disposition to fatten, but it is not yet agreed generally that it is the best breed for

the dairy, although many good cows have been obtained from crosses with this breed. We do not think that it is possible to find or form a breed that shall combine the properties of the best working cattle, the best milkers, and the best breed for fattening. The first requires the greatest proportion of strength and activity. The second should have less bone and sinew, and the last a still smaller proportion. We have known a cow in very good condition attacked violently with the horn distemper, she had till then been a good milker; when cured she was manifestly weakened and not much disposed for stirring; high feeding failed to make her give anything near her usual quantity of milk, but she showed an uncommon disposition to fatten, and was made extremely fat in a much shorter time than usual.

FRENCH HORSES.

It would be a pity to allow this breed of horses to disappear entirely. They certainly were for many purposes superior to those which have replaced them. They were more compactly formed than the long-legged English horses and much superior to them in strength in proportion to their size, capable of living upon coarser food, and of working steadily with little or no grain. They were the best horses for poor men, for if they were not wanted for some time in summer they would keep in good order on the poorest common. A part of them were very slow, but there were many among them that would leave the long legged horses behind upon bad roads. Having been long bred in the poorest parts of the Province they had become excellent horses for steep hills, bad roads, and scanty pastures. They were necessarily small, for many of them were never housed or fed till they were rising four years old; they procured their living in winter by gnawing upon the grass-land when they could come at the ground, and by picking the hay and straw from heaps of manure when the snow was deep, sheltering themselves in cold storms by huddling together in thickets of fir. If a person who possesses horses of this ancient breed would undertake to improve them by breeding from the best, and giving them nearly as good feed as is allowed to our common horses, we have no doubt that he would in time form a breed which would be superior for draught and endurance of fatigue to those now in use, and that this breed would command a high price.

A LECTURE ON AGRICULTURAL CHEMISTRY AND VEGETABLE PHYSIOLOGY.

Read at a Meeting of the Gay's River Temperance Society—by its Vice President.

Vegetables of every class and description, from the lofty Pine, to the majestic elm, and the beautiful and stately sugar maple, of our country; down to the humble chickweed or sorrel: are composed of four primitive substances, viz. Carbon, Oxygen, Nitrogen, and Hydrogen.

These substances, the Farmer has continually present to his senses, and though almost countless in the number of their forms, tastes or smell, adopting every shade of colour that exists in the rays of light; comprehending also the black, with its shades, where those rays are absorbed; and the white, where they are reflected. These, as I have stated to you are composed of Hydrogen, Oxygen, Carbon, and Nitrogen, and many species of those vegetables, comprehend all those primitive substances; but differ in the quantity appropriated to each. Others again, lack one or more as they differ in quality, these variations causes this almost infinite variety of quality, taste,

smell, form, colour, and weight which distinguish the different classes, and orders in vegetation.

Now, my friends, I doubt not but you will be anxious to enquire how I came to know all this; or in other words, how things so mysterious can be known. In order to answer this question, and also to prove that the foregoing assertions are founded on facts which cannot be disputed, I will detail to you the analyses of a maple tree of the forest. You are all aware that charcoal, or as it is termed by the Chemists carbon, is manufactured from wood. I once with the intention of investigating more minutely this subject, filled a boiler with maple sugar wood, covered it with plates of iron, and luted the cracks with clay, which rendered it air tight. I also connected iron tubes with the stoop which conveyed the gas as it was formed into a receiver and condenser, that nothing would be lost; I then put fire into a furnace which gave sufficient heat to change the wood into carbon. As the heat increased, the water which was contained in the wood, became steam, and in this form passed through these tubes into a receiver where it was condensed and became water again. This was effected by applying snow to the exterior surface of the receiver which kept it a low temperature. Next as the heat increased, the oxygen, and hydrogen disengaged, and changed into the gaseous form; these also passed into the receiver, and were condensed in their turn, and produced tar and pyrolignous acid. This latter substance is a strong vinegar which would require five or six volumes of water, to reduce it to the strength of common vinegar. During the latter part of the process, carbonated hydrogen gas issued through the crevices caused by the drying of the luting, and escaped in the form of smoke. By applying a candle to this, a white blaze was formed: this is the same as the gas light, in cities and towns, which we breathe so much of. Here we see that at this stage of the analyses we have produced from the maple tree, tar, pyrolignous acid, and carbonated hydrogen gas. But this is only a part of the investigation when we uncover the boiler we find the wood (although a little diminished in size) exactly the same form, not even a splinter of it is altered, and the substance is become (instead of a portion of sugar maple) a mass of pure carbon, with one exception, which I will now investigate. If now when the boiler is opened, and admitted, and fire be set to the charcoal; the carbon as combustion takes place, unites with the oxygen of the atmosphere, and becomes carbonic acid. This is the only form in which carbonaceous feed plants, and in this form it enters, both by the leaves and roots. It combines with the water in the soil, and is drawn up by the fibres of the roots; the water evaporating through the leaves the carbon remains a constituent of the plant. It combines with the atmosphere, and is taken up by the leaves, which perform the same functions as the lungs of animals, with the exception that the latter retains the oxygen and expels the carbon; but the plant retains the carbon and expels the oxygen. Hence you may perceive, that the carbonic acid, which formed so large a constituent of the plant, enters it both by the leaves and roots. But I am digressing from the branch of the subject which it was my intention to pursue. As I before said, there was one exception to the purity of the carbon in the boiler. I will now explain it. As combustion progressed in the boiler, and the carbon vanished; there remained a beautiful white porous substance, of the same form, apparently occupying the same space, as the wood when put in the boiler. This substance has resisted all the powers which composed all the other constituents of the wood. This white substance is, pure ashes uncontaminated with coal, which gives that dark shade which we are accustomed to see them in; when coal falls from the fire on to the hearth, you will see it in its

state, and there the carbon evaporated and altogether disappeared; but leaves the porous substance in question. It will be natural for the inquiring mind to ask, what are these ashes composed of; in answer to this, I will state, that their base, is of the mineral kingdom; they consist of lime and potass, the basis of the former is calcium, and the latter potassium. These metals were discovered by Sir Humphrey Davy 35 years ago, by the aid of a powerful galvanic battery, he subjected each of these materials to its powerful decomposing influence, and from each he obtained a white metal in colour and lustre, similar to that of silver; but having a stronger affinity for oxygen than any other metal we are acquainted with, it attracted that substance from the atmosphere, and became lime and potass as before. This substance as we have seen, forms a very material constituent of the vegetable kingdom, and any vegetable of which this forms a part cannot be produced in its absence, no more than a stone or brick house can be built, without mortar or cement; and this undoubtedly is the case in the absence of any substance which we have seen that the vegetables are composed of.

We have now decomposed the vegetable and shown what its constituents are. We will now endeavour to show, how nature constructs a plant or stalk of wheat; and from where and how it obtains the materials for its construction.

When the seed of wheat is committed to the soil in the usual way, the water therein is absorbed by it, and causes it to germinate, or in other words to acquire vegetable life; it sends down its roots to the earth to obtain its necessary food; and it sends upwards its blade to inhale the atmosphere, that portion of its nutriment which is proper to be drawn from that element. The whole thus far is produced from the substance in the seed; hence one of the reasons why seed should be of a superior quality. Here we may notice, the great similarity between animals and vegetables, in the first dawn of their existence; we see the various classes of the mammalia tribe of animals, all nourish their young by the milk drawn from the teat of the mother, until they have maturity and strength, sufficient to provide for themselves; similar to this is the parent seed of wheat or other grain, if of good quality it contains sufficient quantity, of all the constituents, necessary to construct both root and leaf: then it is possessed, of the organs necessary to extract from the atmosphere with its leaf or blade, and from the earth with its roots, all the materials necessary for its construction.

You will easily see the great necessity, that the farmer should know all these articles; he requires also to know if these are in the soil where the seed is sown. Carbonic acid, as we have seen, forms a large portion of the whole plant; the skeleton of the stock is composed of it, and it also enters largely into the other parts. The next question is from where, or from what it is obtained. Leibig, one of the most popular writers on Agricultural Chemistry in Europe, informs us that the atmosphere contains only a thousandth part of carbonic acid: yet small as this quantity appears, it is quite sufficient to supply the whole of the present generation of living beings, with carbon for a thousand years; even if it were not renewed. The plants as shewn by this author, have the power of extracting this substance from the atmosphere by their leaves; and the decomposition of vegetable substance produces it and it is imbibed by the water, is taken up by the tubes of the roots, and conveyed to every part of the plant. But while this is going on, all the other ingredients are taking their place, in a similar manner. Water is composed of hydrogen and oxygen; these are also components of the plants. You all know that animals, both of the human and inferior classes, will digest or change the food taken

into their stomachs, for the nourishment of the body; this the chemical laboratory, which nature has given to the animal, each constituted suitable to prepare the various kinds of food, which the different kinds of animals consume. In like manner the plant is formed with apparatus, to analyse substances which contain its food. The water, as before said, contains two of the constituents in question, viz. hydrogen and oxygen. These substances taken up through the roots and analysed by the chemical power of the plant oxygen and hydrogen is produced, which enters its composition. Nitrogen is furnished in two ways; it is present in the form of carbonate of ammonia in rain water, and is absorbed by the plant, through this medium. Here we may readily account for the vivid colours, and beautiful lustre, of the fields in summer, when a shower of rain succeeds a long drought; the plant at this time must surely be much revived, as it is now partaking of a repast, composed of all its constituents, which the previous drought had in part deprived it of. The oxygen, hydrogen and nitrogen, as we have seen, is produced by rain water, this water after falling to the ground solved the carbonic acid and the salts of the ashes which were in the soil; these were taken up by the roots, and hence the splendid revival and beauty of vegetation when a summer shower succeeds a protracted drought. I have said that nitrogen is produced from two sources—only one of which I have yet described. It is contained, in the excrements of animals and the human body, in proportion as they have consumed more animal or vegetables that contain this substance. There is also a much greater portion in the urine, than the excrements, it exists in the composition of urine in the form of carbonate of ammonia, or salamoniac; its presence is easily detected, by the pungent smell which it produces. It is also produced by the decay of animals of every description. These are some of the sources from which it is obtained. It enters largely into the grain of wheat in the form of gluten, this substance is composed of nitrogen; and enters into the composition of all grain that produces bread stuff. Wheat contains from 15 to 20 per cent of it. Barley 10, and oats 5. The reason that wheat is superior to any other for bread is that it contains a larger portion of gluten. It is also a constituent of the animal structure, and of course enters into its composition.

At some future period, I intend to treat on manures, that is to say, Black mud, Lime, Barn Manure, Powderate, Urate, as well as the mineral salts which enter into the composition of vegetables.

MR. WADSWORTH'S ADDRESS.

Before the New-York State Agricultural Society, Jan. 18, 1813.

GENTLEMEN:—In complying with the request of the Executive Committee of the Society, to address you upon its progress and prospects, I find the embarrassment, which, under any circumstances would on my part attend the performance of this duty, greatly enhanced by the recollection that the task which now devolves upon me, was, on the occasion of our recent annual Fair, so happily and eloquently performed by the late distinguished chief magistrate of our state. I cannot but regard that event as one of the auspicious incidents in the history of our society. I trust that the appeal which we then listened to in behalf of the dignity and utility of our avocation, breathing as it did throughout, a high patriotism, and a deep solicitude for the objects which this society is intended to promote, was not lost upon any who had the happiness to hear it. I believe that few of us left the capital on that occasion, without a higher sense of the importance of self cultivation as well as agricultural progress, and a renewed determination to improve not only the firm but the farmer.

The annual Fair of the Society, was indeed, in all its main incidents, deemed by its friends eminently successful. The large collection of those animals, the domestication of which seems so intimately connected with the prosperity of the human race, marked the progress of agricultural improvement, and the great con-

course of observing spectators bore testimony to a widely diffused interest in the objects of the association.

A large portion of the improved breeds of farm stock known in this country, or in Europe, were represented on the occasion referred to, by animals of the highest order.

In the collection of Agricultural Implements and Domestic Manufactures, the exhibition was rich in the evidences of the ingenuity and skill of American mechanics.

In the distribution of premiums, the society called to its aid as far as possible, eminent agriculturists of other states, and it is gratifying to know their decisions were almost universally received with the deference due to their acknowledged competence and impartiality.

I find great pleasure, in referring to these indications that the society is, slowly perhaps, but certainly, accomplishing the objects for which it was established, and by the liberality of the legislature endowed. You will, gentlemen, have seen enough within your own observation, to satisfy you that your particular labours are not barren of the happiest results.

It may well add to the gratification, and to the hopeful anticipations with which we regard these evidences of progress, so unequivocal and so universal, that they are achieved in spite of the most depressing embarrassments.

The condition of the farming interests of our country, is indeed truly remarkable. The price of agricultural products has fallen to less than half the range of prices obtained during a period of years so long that they had come to be regarded as settled and permanent. Under this impression farms were bought, contracts made, improvements undertaken, habits of expenditure acquired, which, under the present range of prices, cause difficulties as extensive as they are in many cases unfortunately, irremediable.

Few of us are aware of the amount of individual suffering, the sacrifices of property accumulated by years of patient toil and frugality, the disappointment of hopes, of independence and comfort in advancing years, effected by this revolution in prices. It is no uncommon spectacle to see men now far advanced in life, who in their earlier years have been successful pioneers, compelled to abandon the comfortable homes and broad fields, which they have carved out of the wilderness, and seek again, amidst the hardships and privations of a forest life, the recovery of their fortunes.

If none had been swept away by this whirlwind, but those who nerved the storm, there would be slight ground for our sympathies; but unfortunately the cause was as universal and all powerful, as it was concealed and sinister.

It would be foreign to our present purpose to inquire into the origin, the history, and the remedy for these evils, and I fear that we could not enter upon the task without trespassing upon those political questions from which I hope this society will ever keep aloof.

The pain which those wide spread disasters must inflict upon every philanthropic mind, will be greatly relieved by the fact that they are so universally met in the right spirit. Renewed industry and greater economy, are every where the order of the day. But the fact to which I wish especially to invite your attention, as the advocates of agricultural improvement, is that it has not escaped the reflection of the great body of farmers, that the best way to encounter low prices is by improved cultivation. New agricultural implements, new modes of cultivation, improved breeds of farm stock, were never more readily adopted than at this moment of the extreme depression of the agricultural interests. There is in fact, everywhere depression, but no where apathy. We meet in every direction the most serious difficulties, the most extensive embarrassments, but we find too—thanks to the influence of our free institutions, and the acknowledged energy of our race, every where at work, the perseverance, the patience, and the versatility of expedient, before which all obstacles of human creation must give way. Such emphatically, are the difficulties with which we have to contend. They are the work of men's hands. They come not from the great Dispenser of good and evil, for never were the bounties of Providence more marked in our country than at this moment. Our harvests have been almost universally abundant. Pestilence and famine are no where to be found.

We may thus rely with a well grounded confidence upon the energy of a people at once educated and laborious, to overcome embarrassments which now so severely oppress the whole community. If we turn to the condition of other civilized nations, we shall find that in the comparison, we shall rather have cause for self-congratulation than despondency. Widely different is the

situation of that people, where the wages of labor are so high, that the capitalist finds it difficult to procure an adequate return for his investments, and the situation of a nation in which the wages of labor are so low, that the laborer finds it difficult to supply the daily requirements of his half clothed, half fed family.

What are all the pecuniary difficulties so universally felt here, compared with the sufferings of a people of which no small proportion close the toils of the day with entirely enough to supply its wants, and without knowing where, in case of sickness or loss of employment, they are to find the food which will keep them alive the next forty-eight hours.

I do not point to these comparisons to gratify the impulses of national vanity, but to show how much more ground we have for renewed and hopeful effort, than for that despondency which seldom seizes but upon feeble uncultivated intellects.

We have, gentlemen, other reasons for confidence in the future; even for the most sanguine anticipations of the development of coming years.

The application of science, the most profound which has yet been attained by the far reaching efforts of the human mind, to all the products of your industry, to the soil, the crop, the animal, has been reserved for the age in which we live. It is not claiming too much, to say that more progress has been made in this direction within the last twenty years than in any previous century. Our own countrymen, it is gratifying to perceive, are securing their share of this abundant harvest. Our chemists and geologists will not, we may be sure, rest contented as industrious gleaners after the Davies, Liebig, and Johnstons of other countries, but will push forward into the ample domains, which even those acute discoverers have not penetrated.

From the origin of our race almost to the present time, the path of the husbandmen has been clouded in darkness and doubt. From the sowing of the seed to the gathering of the harvest, mystery attended every step. The first link in the great chain of cause and effect was hidden in uncertainty. The precepts of tradition, the result of a multitude of experiments, were founded mostly on wisdom; but they were as inexplicable as they were sound. Not so now. The scientific analysis of soils, of manures, and of vegetable products, explains not only the workings of nature and the practices of art, but opens an inexhaustible field of new combinations and novel results. To spread far and wide this new light in the galaxy of human knowledge, is one of the objects.—I think it will be conceded to be the first object of this association.

I will not attempt to enforce by any argument or illustration of mine, the high importance of this trust. If other nations in the vigor of maturity, with more leisure and more means than we possess, have out-stripped us in the race of philosophical discovery, let it be our boast, that we have spread these discoveries wider, and made them at once available by making them part of the current knowledge of the nation. Let it be our first aim to diffuse knowledge, where the constitution has rightly given power, to the whole people.

It is not, gentlemen, the sole object of our society, to reward those who bring to our Fairs the finest animals, or to remunerate those who, with skill and industry, raise the best crops. These are but the means, and part of the means, by which it is hoped to achieve higher and wider ends. We wish, by associations by comparison of ideas, and by a generous emulation, to diffuse among ourselves and the mass of the agricultural community, the result of experience, the lights of science, and the productions of art.

Of the incalculable power, for good and evil, of association combined effort, the present age abounds in illustrations. To this great element of man's power has often been wielded to trample upon the equal rights, the peace and happiness of society cannot be denied. Of the many instances in which, with wide different and higher aims, it has effected the noblest achievements, I shall only refer to one. With what language can we describe what powers of calculation estimate the wide spread accomplished, the deep misery warded off, by temperance associations? What individual, wielding even a despot's scepter—what government, monarchical or democratic—what law—what armed force, could have achieved the great results brought about in our day, within our own observation, by these efforts? We see this signal illustration before us, we cannot lack confidence in its efforts wisely directed to a good end. With motives which cannot be impeached, with objects which can no where be condemned, asking no special privileges, requiring no exclusive immunities, seeking only to elevate and render more effective that labour the

which man is destined never to be exempt, we may surely here, if we will, call to our aid the great power of association and combination. With this element of strength we wish to awaken the public mind to a sense of the importance of our avocation, and to dispel whatever may be left of that ancient prejudice, that the labor of the soil is the drudgery of the human race.

It is strange that it should have been overlooked, even in the darkest days of despotism, ignorance and superstition, that he who sows the seed and reaps the harvest, works not only with the hoe and with the hoe and with the scythe, but that he yields, beyond the laborer in any other branch of industry or art, the elements and powers of nature. There is certainly no pursuit in which so many of the laws of nature must be consulted and understood, as in the cultivation of the earth. Every change of the season, every change even of the winds, every fall of rain, must direct some of the manifold operations of the farmer. In the improvement of our various domestic animals, some of the most abstruse principles of physiology must be consulted.

Is it to be supposed that men thus called upon to study, or to observe the laws of nature, and labour in conjunction with its powers, require less of the light of the highest science, than the merchant or manufacturer? Or is to be believed, that men who are so weakly, almost dully to different occupations, changing with the most incessant changes of the seasons, and whose business is to bring to maturity such a multiplicity of products, exercise less of the highest intellectual faculties of man, than the laborer who, day after day, and year after year, follows the unchanging manipulations of art?

Happily for the interests of the farmer, the history of our country abounds in evidence that this great misconception of the nature and tendency of agricultural labor, no longer exists. I cannot, gentlemen, allow this occasion to pass without referring to a recent event, which, with whatever diversities of opinion we may regard the great political questions which agitate our country, we, as farmers, cannot dwell upon without emotions of pride and pleasure. When the people of a great state, which, in population, in wealth, in power, if it had not voluntarily surrendered its immunities, might stand up among the independent empires of the earth, without fear and without reproach—of a state, which, in achievements of industry, of genius, of enterprise, we may search the history of the world, and search in vain for a rival—when the people of such a state turn to the ranks of its practical farmers for the unimpeachable integrity, the enlightened wisdom requisite to administer their highest trust, we may well claim that agricultural labor is not inconsistent with the highest intellectual cultivation and moral power.

It is not alone in the brilliant results of scientific investigation, or in the fertility of the soil, nor in the general salubrity of the climate, that the American farmer finds the ground of his bright anticipations for the future. There are other and higher elements in the composition of his fate. The government which watches over him is the government of his choice—a government in which the permanent interests of the great mass of the people are secured by placing the power in their own hands. Under such institutions the pendulum of public justice may sometimes vibrate between dangerous extremes, but it must eventually repose where justice and the interests of the many require that it should rest. Such are the hopes of the farmers of our country. It is not to be denied that their interests have been sometimes neglected, and their rights sacrificed to the sinister aspirations of classes more favorably situated for political combinations; but if there is any foundation for our faith, that a free government is the fountain of equal justice, their aberrations must be corrected in the slow but certain progress of truth and right.

I trust that American agriculture will illustrate and confirm the striking remark of the author of the "Esprit des Loix," a writer, the most philosophical and liberal of his time, "that it is not in those countries which possess the greatest fertility, which are the best cultivated, but those which have secured the most liberty." I find this suggestion so flattering to our hopes, eloquently commented upon by a late distinguished agriculturist of our country, in an address which he delivered before the Agricultural Society of Pennsylvania, and I gladly avail myself of this opportunity to offer to his memory a tribute of respect, which is due, in a more eminent degree, to but one other name in the history of American farmers and patriots. With many other improvements in agriculture, Judge Peters was emphatically the author of the plaster and

clover culture. The time which your patience will allow me to occupy on this occasion, will not permit me to recount the many experiments, at once ingenious and philosophical, with which he demonstrated the wonderful efficacy of plaster, nor the efforts, equally persevering and philanthropic, with which he laboured to introduce into general practice, this great fertilizer. He succeeded. None but those well acquainted with the course of husbandry in our wheat growing districts, can estimate how much of the eighty-four millions annually produced in our country, is owing to the introduction of plaster and clover. The benefits of this improvement are to be counted by annual millions; and I call it to your attention, not only to pay the debt of gratitude due to its distinguished author, but as an incentive to those who, with the better instruments of a more advanced science, have the same field of practical improvement before them. It is happily the nature of human knowledge that the more it achieves, the larger is the field of achievement. As the outer circle of invention and discovery is pushed farther and farther from the center, the more numerous and of a higher order are the objects which present themselves to the investigation of those whose lofty ambition it is to add something to the mass of human attainments.

The Society has endeavoured to contribute something to this onward movement by offering prizes for essays upon the application of science to agriculture. I trust that that the result will vindicate the wisdom of this policy, and lead to its continuance.

In this country, with just laws, justly administered, where the popular voice can promptly correct every oppressive enactment, where, with common schools and an untrammelled press, knowledge circulates as freely almost, as the air we breathe, it would be surprising, and not less discreditable than surprising, if agricultural improvement did not keep pace with the progress of the country in every other respect. For one, I have no fears on this point; I believe that our progress, with or without Agricultural Societies—though always greatly accelerated by them—is to be decided and rapid. I am not however unaware, nor should we ever lose sight of the fact, that agriculture, like learning, has had its dark ages. It has risen to great perfection, receded, and rested for centuries without any apparent improvement. The history of the world abounds with evidence that the cultivation of the earth was at an early day carried to a high point.

In China, it is well known that for uncounted centuries a degree of skill has been exhibited in the preparation and application of chemical and vegetable manures that is not, even now, equalled in any part of christendom. A recent popular writer counts it as not the least valuable result which may flow from the opium war, as it is properly designated, and which it is to be hoped for the honor of humanity, is now terminated, that by opening a mere general communication with that extraordinary people, we may learn something of their agricultural skill. The Chinese are not the only people beyond the pale of Christianity and modern civilization, who have attained a remarkable degree of skill in certain branches of husbandry. The aborigines of South America and Mexico practiced irrigation upon a scale, and with a perfection of detail, not surpassed in any modern improvements. The Spaniards, superior to them in the art of war, overcame them in battle, but have not equalled them in skilful and industrious tillage.

Throughout all those immense regions of British India, where the indomitable perseverance and courage of the Anglo-Saxons have subjected millions to the control of thousands, the conqueror has learned more than he has been able to impart of practical wisdom directed to the cultivation of the soil. A high cultivation, accompanied by the use of irrigation and mineral and vegetable applications, has there carried the productive powers of the earth to a point never yet attained in those parts of the globe claiming to be more enlightened.

In ancient Egypt, the results were, if possible, more extraordinary. There, not only agricultural productions, but the imperishable monuments of art, surpass even the comprehension of modern science.

Coming down to the early days of the Christian era, we find the Roman writers abounding in sound precepts and suggestions, which even now might be adopted with advantage. Nearly the whole of Varro might be read with profit by our modern farmers. True, it is often tinged with a superstition now happily discarded, and relates to a state of society and government, widely differing from our free institutions.

But in all that relates to tillage, to the preparation and application of manures, his suggestions accord with the views of our

best modern practical farmers. In the classification of mineral and vegetable manures, such as lime, marl, and many varieties of compost, he gives to each the relative value which has been affixed by the most profound chemical analysis.

If it is somewhat discouraging to look back and find ourselves but little in advance of the remotest times, in many departments of our profession, we may at least congratulate ourselves that we live in an age when agriculture is in the ascendant. It is no longer given up to serfs and slaves, as the fitting occupation of the most ignorant portions of the community. It now takes its rank among the honorable and elevating pursuits of industry. To follow the plow and tend the stock is no longer, here at least, the mark of ignorance and servitude, as under a false and despotic system it was, and in some parts of the globe still is. In this, we stand upon ground which the ancients never attained. It is the great achievement of modern times. The rights of man and the dignity of labour are vindicated; the one follows from the other. Agricultural improvement then rests upon a foundation on which it never stood before. It is sustained by free institutions; it is the result of laws, wise, because liberal. The enfranchisement of the many, the elevation of the masses, must go hand in hand with the intelligent, industrious and prosperous cultivation of the earth. If agriculture owes much to the benign influence of our institutions, liberty owes not less to agriculture.

Where do we look for the calm discretion, the disinterested patriotism, which must result in a representative government, but to the great community of cultivators of the earth? Even those most skeptical as to the fitness of man for self-government, admit that if the experiment ever succeeds, it will be in a nation of farmers. The experiment, thank Heaven, has succeeded; it has succeeded in a nation of farmers; and while we must not be guilty of the illiberality of doubting that the great manufacturing nations of other continents may be fitted to administer the high duties of freemen, it becomes us to cherish a profession which, more than any other, prepares man to receive the highest blessing of his race in this world—a free government. We must cherish it by industry, by virtue, by intellectual cultivation; by connecting it with science and the arts, and with everything which can elevate and adorn it. If we do our duty by ourselves and our children, agriculture will never again, it is to be hoped, know the dark ages in which for so many centuries it slept with liberty and learning. Let us do our duty in the responsible station and happy era in which Providence has cast our destiny, and I trust the day is far, far distant, when we shall cease to be a nation of farmers and a nation of freemen.

WHY DO SO MANY FARMERS FAIL?

It would seem at first blush very extraordinary that, in New England, a farmer, who has for example his farm free of incumbrance, should ever become bankrupt. So intimately connected is this subject with the prosperity and respectability of the agricultural profession, that some remarks in reference to it will not, I hope, be deemed misplaced.

Among the Romans, six acres were considered ample for the support of a family. With their hundred acres some of our farmers grow poor, and become hopelessly insolvent. In many cases not a tenth part of such farms is cultivated. Instead of asking how he can make every acre of his farm productive, the farmer inquires how he can subsist with the least possible expenditure of labour in its cultivation, or of capital in its improvement. No good in life can be obtained without labor; and sometimes, oftentimes, large and valuable tracts of land lie unproductive and worthless, because the farmer is unwilling to expend any thing in their redemption and improvement.

Then again in the families of many farmers there are too many unproductive hands. In the changes which, since the introduction of extensive manufactories of cotton and woolen among us, have taken place in our habits of domestic labor, some of the internal resources of the farmer have become dried up, and new occasions of expenditure introduced. I cannot better illustrate this matter than by a recurrence to a conversation, which I had with one of the most respectable farmers in this country. "Sir," said he to me, "I am a widower, and have only one daughter at home. I have gone to the utmost extent of my limited means for her education. She is a good scholar, and has everywhere stood high in her classes, and acquitted herself to the satisfaction of her instructors.

She is expert in all the common branches of education. She read Latin and French; she understands mineralogy and botany; she can show you with pleasure some of her fine needle work, embroidery and drawings. In the loss of her mother, she is a whole dependence; but instead of waiting upon me, I am obliged to hire a servant to wait upon her. I want her to take charge of my dairy, but she cannot think of milking; and as her mother was anxious that her child should be saved all hardship, for she used to say the poor girl would have enough of that by and bye, she never allowed her to share in her labors; and therefore she knows no more of the care of a dairy, or indeed of house-keeping, than a city milliner; so that in fact I have sold all my cows but one. This cow supplies us with what milk I want, but I buy my butter and cheese. I told her, a few days since, that my stockings were worn out, and that I had a good deal of wool in the chamber which I wished she would card and spin. Her reply was, in tones of unaffected surprise,—Why, father! no young lady does that; and besides, it is much easier to send it to the mill, and be it carded there. Well, I continued, you will knit the stockings I get the wool spun? Why no, father! mother never taught me how to knit, because she said it interfered with my lessons; and the if I knew how, it would take a great deal of time, and be much cheaper to buy the stockings at the store."

This incident illustrates perfectly the condition of many a farmer's family, and exhibits a serious drawback upon his prosperity and a serious impediment to his success. The false notions which prevail among us in regard to labor, create a distaste for it; and the fact that, if the time required to be employed in many articles of household manufacture be reckoned at its ordinary value, the cost of producing or making many articles of clothing would be more than that of purchasing them at the store, is deemed a sufficient reason for abandoning their production at home. In many cases however, this time is turned to no account, but absolutely squandered. But yet the clothing, if not made, must be bought; and they who might produce it must be sustained at an equal expense whether they work or are idle.

Another great occasion of many a farmer's ruin is the credit which he easily obtains, and a practice of dealing at the village store for barter. The fact, so common and notorious, that the owners of most of our village stores obtain liens in the form of mortgage, attachment, or forced sale, upon many of the farms in their vicinity, shows how great is the danger of the universal system of store trust and credit. Few farmers keep any accounts and before they are at all aware they have a long score on the trader's books, and that not only for the current price of the goods but enhanced by an additional charge for the delay of payment. But there is another circumstance in this case which is not always considered. In many instances the trader will purchase the produce of the farmer only upon what is called store pay—that is making the payment in goods from his store. The farmer, in this way, is not only obliged to sell at the lowest market price and pay the trader his profit upon his goods, but he and his family are induced to purchase a great many things which they do not need and which they would be better without. This leads likewise to the keeping an open account; which, if not rigidly watched and frequently settled, is as sure a fate to surprise the farmer with an unexpected and heavy balance against him. This usually produces ill blood between both parties, leading to vexatious lawsuits, and all their miserable consequences; and so far as any other comfort or success in life are concerned, a farmer might well see at his elbow, a personage, whom it may not be civil name, as get into the fangs of the law, or have a sheriff upon his premises. They are alike, equally ruthless and inexorable. Unless therefore in the rare instances, and there are some such, of a man disposed to deal with perfect honor and integrity, a village store in the vicinity of a farm must but too often be regarded as a precursor to debt and ruin to the neighbourhood.

The farmer should as far as possible sell only for cash; and endeavour to supply his wants, and those of his family, wholly from the farm. He should beware of debt under all circumstances, except for property—such as land for example—whose value is not likely to be reduced, and which is susceptible of mediate improvement and profit. He must recollect that, at least in New England, the returns of his husbandry come in various and small forms; and that it will never be easy for him to charge any debt but by a slow and gradual process from the products of his farm. Especially must he remember, that his price

which are idle, inefficient or unproductive; that the drones do not only fill but exhaust the hive and consume the products of the working bees; and that an expense avoided is a double gain.—*Simon's Ag. Report.*

From the New England Farmer.

JOSEPH HOW'S STATEMENT.

To the Committee on Fattening Cattle and Swine

DEAR SIRS—I resolved the present season, to try several experiments to ascertain the comparative value of different kinds of food for swine; also, scalded and unscalded food. In consequence, however, of change of food, some of the swine did not eat well. I had the experiment would not be satisfactory to myself, and I part discontinued it.

The following is the result of the experiment on scalded and unscalded meal:

On the 24th of August, I weighed five pigs, and put them into pens, and fed them with the same quantity of meal; each pig fed with 220 pounds of meal, in fifty-six days, to which was added about three pints of skimmed milk per day.

August 24th, their weight was as follows:

Pig in pen No. 1,	106 lb	—fed on	scalded meal.
" in " " 2,	110	" in do	raw meal.
" in " " 3,	99	" in do	" "
" in " " 4,	81	" in do	scalded meal.
" in " " 5,	73	" in do	" "

October 19th, I again weighed them: the result was as follows:—

Pig in pen No. 1,	170 lb	—gain in 56 days,	64 lb
" in " " 2,	189	" in do	70
" in " " 3,	167	" in do	68
" in " " 4,	134	" in do	61
" in " " 5,	148	" in do	67

I then changed their food; to those that had been fed with scalded meal, I gave raw meal; and those that had been fed with raw meal, I gave scalded meal. And instead of feeding them three times per day, as I had previously done, I fed them but twice per day; I gave them the same quantity of food—168 pounds, in 40 days. November 28th, I weighed them again, and the result was as follows:

Pig in pen No. 1,	209 lb	—gain in 40 days,	39 lb
" in " " 2,	213	" in do	33
" in " " 3,	207	" in do	40
" in " " 4,	183	" in do	35
" in " " 5,	182	" in do	49

Thus it appears that two pigs, fed on raw meal, gained in fifty-six days, 69 pounds each; and three pigs fed on scalded meal, during the same time, gained on average 64 pounds each; also, two fed on scalded meal, gained in sixty days, 36½ pounds each; and three fed on raw meal, during the same time, gained 41 pounds each.

After weighing the pig that weighed 183 pounds, I dressed it, and it then weighed 154 pounds.

That there should be no mistake in regard to the above experiments, I have fed them nearly all the time myself, and weighed myself.

JOSEPH HOW.

FARMING—ITS PLEASURE AND PROFIT.

DEAR SIR—It seems to be the fashion—and a very good one it is—for enterprising and observing farmers to give, in the columns of the agricultural papers, details of experiments they have been making in the raising of particular crops, in the application of manures, or in some other of the various departments of farm management. Now the whole business of farming has been a matter of experiment with me, and as the present hard times, and the prevailing state of depression of all other branches of business, have attracted the attention of many to agriculture as being less subjected to the vexatious vicissitudes, the ups and downs that attend the other callings, and not a few will probably try the same experiment myself of commencing a new and untried business, it might, perhaps, be a benefit to some such to have some hints of the experience of a beginner. I have no leisure to be very minute, nor did I willingly expose myself to be laughed at for undue

In the spring of 1841 I took a lease of a farm for several years, consisting of convenient proportions of mowing and tillage land, pasture, and salt marsh. The soil was naturally good, but in a low state of cultivation.—From my inexperience, my former habits of life, and my want of capital, my friends predicted an utter failure. I did not, however, allow myself to be depressed by their predictions, and have done my best to prove them false prophets. I engaged in the business with a view both to pleasure and profit, which I have certainly found in it, for besides the quiet, tranquil nature of its employments, favourable to health and enjoyment, I have made my new business a study, and found in it something like the pleasures the philosopher feels in learning the truths of science, or a literary man in the acquisition of a new language. I have endeavoured to supply the want of previous knowledge by reading agricultural publications, by inquiries about the experience of others, and by careful observation. These occupations have interested me, and I have found in them even more pleasure than I anticipated.

As to profit not much was to be expected in the two first years of a novice on a worn out farm. But even in this respect I have done quite as well as I expected, and I entertain sanguine hopes that in the remaining years of my lease, my profit will be much increased. Being near a large city, I have found milk and hay the principal articles to be raised for market. I make it a point to raise as much corn, rye, potatoes, &c. in short, as much of all kinds of farm and garden produce as is wanted for consumption on the farm, and if there happens to be a surplus it is sold. But milk and hay are the only articles I raise expressly for sale. I take pains to make a good quantity of manure, which is as essential to my crops, as provender is to my cows and oxen. I till only as much land as I can manure well and take proper care of. Every field in tillage I lay down as soon as I think it will produce a good crop of grass. Doubtful and expensive experiments I leave to amateur farmers who have plenty of money.

I seek to avoid all unnecessary expenses, for the profits of farming will never justify extravagance. I keep an exact account of all my receipts and expenditures and a daily journal of what is done on the farm. I can thus at any time tell how I stand with the world and what I have been doing. Not commencing with any expectation of great or rapid gains I have not been disappointed. He who makes haste to be rich should engage in some other calling. It has been said that nine out of every ten of the merchants and traders in our cities sooner or later fail. I am confident that nine out of every ten who engage in farming may succeed. The prizes in this calling are not so great, but there are more of them. Industry, frugality and good management are all that are wanted with the blessing of heaven to attain them.

These desultory observations will seem very trite and common place to experienced farmers. It is not for such I have written. But if the hints they contain serve to instruct or encourage any inexperienced beginner like myself, I shall have attained the end at which I aimed.—*Farmer's Journal.*

WATERING HORSES.

The watering of the horse is a very important, but disregarded portion of his general management. The kind of water has not been sufficiently considered. The difference between what is termed *hard* and *soft* water, is a circumstance of general observation. The former contains certain saline principles which decompose some bodies, as in the curdling of soap; and prevents the solution of others as in the making of tea—the boiling of vegetables, and the process of brewing. It is natural to suppose that these different kinds of water would produce somewhat different effects on the animal frame, and such is the fact. Hard water freshly drawn from the well, will frequently roughen the coat of the horse unaccustomed to it, give griping pains, or materially lessen his power of exertion. The racing and the hunting grooms are perfectly aware of this, and so is the horse, for he will refuse the purest water from the well, if he can obtain access to the running stream, or even to the turbid pool. Where there is power of choice, the safest water should undoubtedly be preferred.

The temperature of water is of far more consequence than its hardness. It will rarely harm if taken from the pond or running stream, but its coldness when recently drawn from the well has often been injurious. It has produced colic, spasms, and even death. It should therefore be exposed for some hours, if in the

summer, in the stable or some tank; and if in winter, it should be heated to the proper temperature.

There is often considerable prejudice against the horse being fairly supplied with water. It is supposed to chill him, to injure his wind, or to incapacitate him for hard work. It certainly would do so if immediately after drinking his fill he were galloped hard, but not if he were suffered to quench his thirst more frequently when at rest in the stable. The horse that has free access to water, will not drink so much in the course of the day, as another who, to cool his parched mouth, swallows as fast as he can, and knows not when to stop. When on a journey, a horse may with perfect safety be more liberally supplied with water than he generally is.

CASTOR OIL.—The cultivation of the castor bean for the manufacture of oil seems to have received a new impulse at the west particularly in Illinois. One firm in St. Louis worked up 18,580 bushels of beans in four months, producing 17,750 gallons of oil; and we are told that 800 barrels have been sold at \$50 per barrel. Here is a domestic manufacture with a vengeance. But this is the work of only one establishment in four months. Health would seem to be worth some care to preserve, if it were only to avoid the pain of swallowing those 800 barrels of oil. But the greater part of those hundreds of barrels are choked down the throats of infants, who have been improperly fed till they become restless; then paregoric or some other opiate is administered to still them; if their constitutions are proof against beef and potatoes and paregoric, their digestion at least is disordered, and then comes the castor oil. The most effectual preventive of sickness among children, would be to compel those having charge of them to take the oil, when they allow them to get sick through neglect, or make them so by improper treatment.—*N. Y. State Mechanic.*

LEACHED ASHES.—The German Agriculturists connect their experiments with great accuracy thereby making them of the greatest use. The *New Genesee Farmer* translates from the German a statement of experiments by W. Albert of Ruslan from which the following facts and results are taken:

A field of dry sandy soil, which had lain in grass eight years, overrun with moss, was dressed with leached ashes at the rate of 66 bushels to the acre.

The land was first ploughed about six inches deep, turning down the sod carefully so as to close it in completely: the ashes were then hauled on and spread, and covered with a shallow furrow about two inches deep.

A measured square rod thus prepared with ashes, and a measured rod without ashes, were sowed with Buckwheat in the year 1827. The ashed land produced 53 ounces—the unashed land 29½ oz. In 1828, the same land sowed with rye, produced 77½ and 44½ oz. In 1829, oats with clover produced on the same land 81½ and 38½ oz. In 1830, the land was depastured. In 1831, it was again sowed with rye, and the ashed land gave 53, the unashed 28½ oz.

The expense and cost of application of the leached ashes at 9 cents the bu. in the field was \$9.25 to the acre.

The grain crop in 1827, was \$4.05 per acre—in 1821, 5.25—in 1829, 3.62½—in 1830, 3.00—in 1831, 4.86: making \$19.98½ in the whole.

The land worth \$15 per acre gave in 5 years a gain of \$19.69½ on an expenditure of \$9.25.

WHEAT—HESSIAN FLY.—Mr. W. H. Hill has published a short essay on Wheat in the Nashville Agriculturist, in which he says, that for fifteen years past, his Wheat has not been materially affected by the Fly, with the exception of two years. His practice has been to sow his seed wheat two days, or more, before sowing. In the two years excepted, his Wheat was not sufficiently sinned.

This fact is worth noticing by farmers. If it is a preventive, it will be invaluable to the country.

Mr. Hill also says, it is important to select the largest and best grains for seed. For that purpose he uses a wire sieve, which will let the small grains of Wheat and all the foul seeds through, and retain the large grain only.

Blaikie's Portable Threshing Machine

Worked with two, three, or four horses at pleasure.

THE SUBSCRIBER begs to intimate to the Agricultural community throughout Nova Scotia, and the adjoining Colonies, that he is prepared to receive orders for making *Threshing Machines*, either portable or stationary. He believes that he is justified in stating that his machines are equal in speed, if superior to any now in use in the Colonies, or in the United States. With two horses, his machine will thresh 25 bushels of wheat per hour, and a fourth more for every additional horse, when the machine is in fair working condition. With two horses it will thresh bushels of oats per hour, and a fourth more for every additional horse. The horses move in a circle of 25 feet in diameter, at a rate of 2½ to 3 miles per hour, and can work during the full day without fatigue. The portable machines can be removed one barn to another with ease,—are easily erected and put in operation, and are rarely subject to get out of order. From the price at which they are made, and the rapid sale they have elsewhere received, wherever they have been tried, he has reason to believe that they only require to be known to come into extensive use.

Letters addressed (post paid or free) to the manufacturer, or the editor of the *Mechanic & Farmer*, will receive every attention.

THOMAS BLAIKIE

Green Hill, West River, February 1.

CERTIFICATES.

This is to certify that in December, 1841, I purchased one Mr. Thomas Blaikie's *Stationary Threshing Machine*, and since that time by the great saving of time and labour resulting from the use of it, it has amply repaid me for the use of it. I therefore confidently recommend these machines to every farmer who may require such an article; and will venture to assure any person that if they purchase one they will never have reason to regret it, as an unprofitable investment of capital.

GEORGE McDONALD

West River, January, 1843.

Having worked for some time with one of Mr Blaikie's *Threshing Machines*, with moving horse power, would recommend it as a superior article, and are certain, that no farmer could make a better investment than to supply himself with a machine of this kind.

SAMUEL FRASER
JOHN FRASER.

New Glasgow, January 3, 1843.

I have had Messrs. Fraser's *Threshing Machine*, made by Thomas Blaikie, threshing for me two or three days, and found it to surpass my expectations. It done the work well, and clean; and I would recommend it as a very superior article, as regards saving of labour and grain.

B. L. KIRKPATRICK

New Glasgow, January 3, 1843.

Having witnessed the *Threshing Apparatus*, made by Mr. Thomas Blaikie, in full operation, I give it as my decided opinion that it far exceeds, in usefulness, and saving of labour, any other of a similar nature which has come under my observation, and it is preferable to any other kind used in the Province.

JAMES CARMICHAEL

New Glasgow, January 3, 1843.

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