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HORSE TAMING SECRETS.

We published, a few months ago, some remarks on the subject of taming horses, with an enumeration of certain drugs or substances of which the horse is very fond, and which have been employed as aids in winning his confidence and rendering him docile. A new method has been discovered, or perhaps, speaking more correctly, an old method has been lately revived, for taming vicious horses, and its efficacy been tested in the presence of Royalty. A Mr. Rarey, of Ohio, accompanied by Mr. Goodenough, of Toronto, is now in England, exhibiting his peculiar skill to the aristocracy and scientific men of that country. He has succeeded in taming some vicious horses belonging to Prince Albert. Her Majesty was present at one or two of his taming operations, and expressed great satisfaction at the result. We believe we are in possession of this secret, or one equally efficacious, and shall publish it for the benefit of our readers. The secret of Mr. Rarey is, it is likely, exceedingly simple, and the same as is commonly practised in some of the adjoining States, where it has become known to so many that it will soon pass, as should be the case with all secrets affecting any important interest of mankind, out of the empiricism and mystery which now envelop it, into the common stock of useful knowledge.

Mr. Rarey has communicated his secret to Lord Alfred Paget and others, under the most stringent obligations that they will not disclose it. Some of the "horse breakers" who have communicated their secrets to us, have imposed upon us no such condition, and it will soon be as public as the "patent method" of breaking steers. The improvement as regards steers consists more in confining them during the operation in a small inclosure usually made of rails, and in the exercise of perfect patience; never striking the animals except when they act on the offensive. "If you strike and keep striking a steer," says an old farmer, "no matter what it does, it is sure to think it may as well do wrong as right." All young creatures should be allowed time for reflection, and it is relatively quite as important to avoid irritation or any-

thing like a sense of injustice in treating the lower animals, especially when they are young, as in our transactions with our own more reasoning species.

Caresses, the use of drugs agreeable to the horse, scratching in parts not easily reached by the animal itself, giving food or water after long abstinence has occasioned hunger or thirst, the careful use of various tones of the human voice—are useful in the tuition of the horse. A liking for the pupil, and tact in training it, which, if they are not natural, it is almost as difficult to acquire perfectly as to become a poet, are essential qualifications in the tamer of all animals, throughout their various grades of intellect. We believe that the peculiarity and secret in the treatment by Mr. Rarey, like that by his "confreres" who profess equal secrecy, consists in raising one of the fore feet of the horse, doubling the knee, and keeping a strap around the fetlock, fastening the foot close to the arm or shoulder. The horse then stands upon three legs. Having next put on a surcingle, pass a long strap or rein through the surcingle, and fastening one end of it around the fetlock of the other fore foot, attach the other to the surcingle after the animal is thrown, so closely as to deprive it of the use of the limb In this item the treatment may be varied by fastening the second fetlock to the arm or shoulder after the animal is down.

When the above course has been adopted, the horse is confined to the ground, and is entirely powerless. He should previously, if practicable, have been halter-broke, and a bridle should be kept on during the operation we have above described. If he has shown much fear of any particular object, a buffalo skin for instance, bring it before him, present it closely to his nose, wrap his head up in it, and by every practicable method teach him—what men and horses are slow to learn—that imaginary dangers cause more fear than realities. This may also be done by opening and shutting an umbrella close to his face, by beating a drum or firing a pistol near his head, or many other experiments.

This plan is successfully pursued by many skillful horse-breakers among the hills and valleys of Western New York, and the horse yields to the necessities of the case; his spirit of opposition is broken.

We learn that Mr. Rarey, with the shrewd "eye to the main chance" for which his countrymen have sufficient credit, has determined to open a subscription list at two guineas each, for persons desirous of learning the new method of subjugating and educating the horse, and when the subscribers amount to five hundred, classes will be formed to receive the necessary instructions (under certain conditions to be agreed to at the time of subscribing) at the riding school of the Duke of Wellington, who has kindly placed the building at the disposal of Mr. Rarey.

Mr. Rarey is in a fair way to make a fortune.

J. B. Freeman, in the New England *Farmer*, declares that pumpkin seeds have the effect of drying up milk cows; and that cows fed on pumpkins without the seed increased their milk, whilst the reverse was the fact when seeds were left so that they too were eaten with the pumpkin.

HINTS TO HORSE-KEEPERS.

SIMPLE REMEDIES FOR SIMPLE AILMENTS.

There is a class of ailments, which every horse-keeper ought to be prepared to treat himself without assistance. To call in a veterinary surgeon on every occassion of slight illness, would be both an absurb expense and useless waste of time. For instance, costiveness, common cough, bronchitis, or catarrhal disease, strangles, or colt-distemper, worms, difficulty in staling, and some others, are cases which any man who keeps a horse ought to be able to treat successfully himself without any advice, and with ordinary medicines, easily procurable from any druggist. Condition, in its proper sense, is more dependent on proper and systematic feeding, exercising, clothing and lodging, than on medicine; and if a horse be of good sound constitution, and judiciously fed, regularly worked, warmly yet not too warmly clothed, and stabled in a building properly ventilated and aerated; and, above all, if he be kept scrupulously and religiously clean, there will for him be but little need of medicine of any kind. From ill constructed stables arise half the worst diseases, those for instance of the lungs, from want of ventilation; many of those of the eyes, from the excess of ammoniacal vapors and unnatural darkness; many of those of the feet, as cracked heels, thrashes, grease—which in America is known as scratches—from filth and neglect; and most of those of the bowels, and the bowels and lungs combined, from bad food, or good food badly administered. Still, diseases will and do arise from other causes, in the best stables, and among the best-attended horses. And, again, they do arise, and when arising must be dealt with medically, owing to the causes above enumerated.

It may be well in this place to describe briefly the most approved modes of bleeding and administering medicine. The former operation is performed in the jugular vein, the hair is smoothed along the course of the vein with the moistened finger, then, if the fleam be used —which in our opinion, ought to be exploded—with the third and little fingers of the left hand, which holds the fleam, pressure is made upon the vein sufficient to bring it into full view, the fleam is to be placed on the vein, in the direct line of its course, precisely over the centre of it; not exactly touching it, but as near to it as possible without doing so. A smart blow is then given to the back of the fleam with an instrument called the blood-stick, which gives it force sufficient to pierce the skin and open the vessel. A much neater way, however, is to use a broad bladed lancet. The vein is secured and pressed sufficiently to bring it into full view and cause it to swell, with the divided fingers of the left hand, when the point of the lancet is sent in, without an effort, so as to cut slightly upward and to open a clean and sufficient aperture. By this method the danger of cutting the neck foul, without touching the vein, owing to the horse starting at the moment the blow is given upon the fleam, and the yet worse danger of dividing both sides of the vein, are both avoided. When enough blood has been taken, the edges of the wound should be brought smoothly together, and secured by a sharp pin, around which a little tow or a few hairs of the horse should be twisted. The blood, while it is flowing, should be made by a gentle pressure on the vein below the aperture to spring out in a clear, full jet, and to fall into the centre of the vessel used to receive it. If it be allowed to trickle down by the sides of the pail, it will not undergo the changes by which the extent of inflammation may be judged. The operator should accurately know the size of the vessel he uses, so as to calculate the flow of blood.

In giving medicine, if balls be used they should never weigh above an ounce and a half, or above an inch in diameter, and three in length. The horse should be lashed in the stall, the tongue should be drawn gently out with the left hand on the off side of the mouth and fixed there, not by continuing to pull at it, but by pressing the fingers against the side of the lower jaw. The ball is then taken between the tips of the fingers of the right hand, the arm

being bared and passed rapidly up the mouth, as near the palate as possible, until it reaches the root of the tongue, when it is delivered with a slight jerk, the hand is withdrawn, and the tongue being released the ball is forced down into the œsophagus. Its passage should be watched down the left side of the throat, and if it do not pass immediately, a slight tap under the chin will easily cause the horse to swallow it. The only safe purgative for a horse is Barbadoes aloes, or the flour of the Croton bean, for some peculiar purposes; but its drastic nature renders it undesirable as a general aperient. When aloes are used, care should be taken to have them new, as they speedily lose their power, and they should be freshly mixed. Very mild doses only should be used; four or five drachms are amply sufficient if the horse have been prepared, as he should be, being fed for two days, at least, entirely on mashes, which will cause a small dose to have a beneficial effect, equal to double the quantity administered to a horse not duly prepared for it. The immense doses of eight, nine, ten and even twelve drachms, which were formerly in vogue, and which are still favoured by grooms, ostlers and carters, are utterly exploded; and it was well known that eight or nine good fluid evacuations are all that can be desired, and far safer than twice the number.

Four and a half drachms of aloes with olive or linseed oil and molasses sufficient to form a mass in the proportion of eight of the aloes to one of the oil and three of the molasses, is the best general ball, though often four drachms, given after a sufficiency of mashes or green food will accomplish all that is needed or desirable. Castor oil is a most dangerous and uncertain medicine. Linseed is not much better. Olive oil is safe, but weak. Epsom salts is inefficient, except in enormous doses, and is then dangerous. It is, however, excellent, given in clysters of weak gruel; which, by the way, except where very searching and thorough purging is required, as in cases of mange or grease, is by far the safest, most agreeable and mildest way of purging the horse, and evacuating his bowels. Where, however, his intestines are overloaded with fat, where he shows signs of surfeit, or where it is necessary to prepare him to undergo some great change of system, as from a long run at grass to a hot stable, or *vice versa*, a mild course of two or three doses of physic, with a clear interval of a week between the setting of one dose and the giving of another, is necessary and cannot be properly dispensed with.

Ordinary cases of costiveness can generally be conquered by diet without medicine, such as hop bran mashes, green meat and carrots; but where it is obstinate, the rectum should be cleared of dry fæces by passing the naked arm, well greased up the anus; and the bowels should be then thoroughly evacuated by clysters of thin gruel, with half an ounce of Barbadoes aloes, or half a pound of Epsom salts dissolved in it. If the patent syringe be used, the injection will reach the colon and cæcum and dispose them also to evacuate their contents. Common cough is generally, subdued without much difficulty, though it often becomes of most serious consequence, if neglected. It is accompanied by a heightened pulse; a slight discharge of the nose and eyes, a rough coat and a diminished appetite being its symptoms. The horse should be kept warm, fed on mashes, and should have a dose or two of medicine. If the cough be very obstinate, bleeding may be necessary.

Bronchitis is a cough, with catarrh extending to the entrance of the lungs superadded. It is characterized by a quick hard breathing, and a peculiar wheezing, followed and relieved by coughing up mucus. It must be treated by bleeding, though by no means so copious as in cases of inflammation of the lungs. Repeated bleeding of four or five quarts, at intervals, until relief is obtained, are preferable to the abstraction of large quantities at once. The chest should be blistered, and digitalis, nitre and tartar emetic exhibited, as for inflammation of the lungs; bronchitis, if neglected is apt to degenerate into thick wind.

Strangles or colt distemper, is a disease which shows itself in all young horses, and from which, when they have once passed through its ordeal, they have no more to fear It is

preceded by some derangement of circulation, quickening of the pulse, some fever, cough and sore throat. The parts around the throat swell, the maxillary glands are swollen and tender, and sometimes the parotids also. The animal refuses to drink, and often declines his food. There is a flow of saliva from the mouth and a semi-purulent discharge from the nose. The jaws, throat and glands of the neck should be poulticed with steaming mashes, the skin stimulated by means of a liquid blister, and the head steamed, in order to promote suppuration. As soon as fluctuation can be perceived, the swelling should be lanced, and a rowel introduced, to keep the abcess open and the discharge flowing for a few days. The animal should have walking exercise, and be treated with green food, until the symptoms abate, when he will require liberal and generous food to recruit his strength.

Worms are, sometimes, troublesome to a horse, but in a far less degree than is generally supposed. Botts have long since, been proved to be perfectly harmless while they are within the stomach, all the stories of their eating through its coats being pure *myths*, althougth they are very often troublesome after they have passed out of the œsophagus and rectum and begin to adhere to the orifice of the anus. Common purgations will often bring away vast numbers of the long white worm, *teres lumbricus*, which occasionally, when existing in great numbers, consume too large a proportion of the animal's food and produce a tight skin, a tucked-up belly and a rough coat. Calomel should never be given, as it too frequently is for the removal of these worms, which will readily yield to balls of two drachms of tartar emetic, one scruple of ginger, with molasses and linseed oil *quantum suff.*, given alternate mornings half an hour before feeding time. The smaller worm, *ascaris*, which often causes serious irritation about the fundament, is best removed by injecting a quart of linseed oil, or an ounce of aloes, dissolved in warm water, which is a most effectual remedy.

Diseases of the bladder are many, serious, and often mistreated. They require, however, so much skill, and so accurate a diagnosis, that none but a regular practitioner should pretend to treat them. Simple difficulty of staling can generally be relieved by cleansing the sheath with the hand and giving doses of nitre. These are most of the diseases which may be simply and successfully treated at home, and with which every horse-keeper ought to be at least superficially and generally acquainted. We may, possibly, hereafter touch upon the subject of accidents, strains, simple laziness, contusion, and the like, which can often be perfectly cured by cold lotions or simple warm fomentations, without any further or more difficult process, though ignorant persons make much of them, as if their cure proved marvellous skill, and required magnificent appliances.

AGRICULTURE IN BRITAIN.—England and Wales, in 1841, were estimated to contain 37,006,400 acres, but had only about 29,000,000 acres under cultivation, and of this, three-fifths in quantity were in meadow, pasture, &c., not under tillage; and it was estimated, at that time, that under proper cultivation, the soil of England could maintain twice its existing population. The average yield of grain in England in 1817, was estimated at 40 bushels to the acre. In 1839, it was only 26 bushels to the acre. This improvement in the husbandry of England has continued, by the extended use of drainage, sub-soiling, irrigation, the application of guano and chemical manures, and the greater use of refuse and sewage, made available in later years, by the cheapness of railway transit. The filth and offal of cities transported to the field of the agriculturalist, become the instruments of increased fertility, while relieving them of the fruitful sources of pestilence and death. In Aberdeen, Scotland, the cleaning of the streets, costs $1,400 per annum and the refuse sells at $2,000, yielding a profit of $3,000 a year, and similar results are given in other European cities.

CURIOUS CATTLE.—A Cincinnati paper thus speaks of a lot of cattle recently exhibited in the Fifth-st. Market, and which attracted a large crowd:—"They consisted of a cow of the Chinese species, five years old, which measured only thirty-six inches in height; a calf by her side, four months old, 26 inches high; and a bull, of the same species, measuring 48 inches. There were also three calves a l of the same lilliputian dimensions. The cow generally gives from 10 to 15 quarts of milk per day. Full grown cattle of this species weigh about 400 lbs. The group in the market were great curiosities in a small way."

POTATOES—MOST VALUABLE IN NEW YORK MARKET.

We condense from an interesting article in the New York Weekly *Tribune*, the following remarks on the potatoe. The varieties most largely cultivated in the State of New York, by market gardeners, are named and described. As the season for planting early varieties is near at hand, and as so many of the common varieties have failed to reward the cultivator, we advise our readers to supply themselves with the most promising of the new varieties within their reach. We shall be able to spare a few bushels of the new varieties which we have grown for three seasons. Last year they yielded well, and were free from rot, while all the common varieties in the same field were badly affected. Their qualities as table potatoes are not yet fully known, as new varieties generally improve in that respect by cultivation. They are white-fleshed, prolific, good-shape, fair size, hardy, and so far, free from rot. New varieties possessing these qualities should not be rejected, if not so agreeable in flavour as pink-eyes and cups, for a few seasons.

ORIGIN OF THE POTATO.

Historically, we are told that this most important of all vegetables originated in South America, where it grows wild, and where it was first discovered by Europeans, probably within the limits of the torrid zone.

It was introduced into Europe by Sir Walter Raleigh about the year 1586, and its culture was confined to the gardens of the nobility of England during the succeeding century, In 1613, the price of potatoes is stated, in the household expenses of Queen Anne, at 1s. per pound.

Sir Walter Raleigh introduced potatoes into Ireland in 1610. Their culture, as a field crop, commenced in Scotland in 1728.

English writers estimate that twice as much food is produced from an acre of potatoes as from an acre of wheat. Its character is anomalous.

No theory of climate, soil or culture can as yet explain the phenomena of its growth, or the nature and cause of the disease, which of late years has reduced it from the most certain to the most uncertain of crops.

Though a native of the torrid zone, it grows most luxuriantly in the Northern States and British Provinces of this continent, while in Ireland its culture attained the highest relative importance. In Sweden it is cultivated as far north as the sixty-fourth degree.

VARIETIES.

The varieties are innumerable and ever-changing. Whether different sorts may be crossed or mixed by contiguous planting or not, is an open question.

New varieties are constantly obtained from the seed-balls of the vine, which usually have little resemblance to the parent root, and mature or attain full size about the third year. Very few varieties ever attain a standard character, and enterprising cultivators are constantly on the alert for something new.

Every section and almost every neighbourhood must rely upon its own experience; nothing can be taken on trust or from distant repute.

Some varieties are improved in quality and yield by change of climate or locality; others degenerate from the same cause. Some sorts become acclimated at once, and attain a standard character in new locations; others flourish well at first, but require a yearly renewal of seed from the parent soil; and a knowledge of these peculiar characteristics is attained only by experiment.

We have noticed some facts, which we offer for the benefit of cultivators. As a general rule, yellow potatoes are rank and strong—white ones, good-flavoured.

The *Mercer* has been for many years the standard variety, having continued to succeed longer and attained a wider culture than any other. It is said to have originated in Pennsylvania

about 25 years ago. When first introduced, this variety was objected to on account of the blue streaks pervading the otherwise white meat, but the excellent quality and reliable yield has kept the Mercers in general use. This and other parti-coloured varieties are very much whiter when raised in this latitude than at the North, and if northern seed of these sorts be carried South, the product will be much whiter and handsomer than the original seed, taking precedence in market over the same varieties of northern growth. The Mercer seems to be now on the decline in many sections, and likely to be succeeded by new varieties of northern growth.

The *Carter* is one of the finest table potatoes ever grown. It is white throughout, slightly oblong, with deep under-set eyes, and when boiled has a dry, light, flour-like appearance, with great delicacy of flavor. It originated some 20 years ago with a Mr. Carter, near Pittsfield Mass., and was soon cultivated largely by the Shakers. From them their culture spread northward, and is now mostly confined to Washington County, New York.

The Carter ripens late, and has failed of success in this latitude—is very liable to rot, and is now running out where it has succeeded best.

The *White Pinkeyes*, or *Pinkeye Kidneys*, are an old variety of excellent quality, rambling growers, generally yielding fairly upon rich and well-adapted ground.

Junes, *Yellow Pinkeyes*, *Northern Whites* and *Rock Whites* are all of the same family, or nearly related. They are yellow-meated, watery, and sometimes rank-flavored. They mature early, particularly the Junes, on which account they are a good deal cultivated, and generally escape the rot and yield fairly.

California Potatoes are oblong-shaped, yellow-meated, parti-colored skin, great size, immense yielders, strong, watery, unfit for the table (of Christians), but are fit successors to the old and discarded Merino Potatoes, once so popular throughout New England, and still cultivated in some places for stock.

The *Dikeman* is a native of Oneida County, N. Y., where it was started from the seed about fifteen years ago by a well-known farmer whose name it bears. The tubers are round, white, with pink eyes; it ripens earlier than the Mercer, and generally escapes the rot; is a good yielder, and is extensively cultivated as an early potato for this market. It degenerates rapidly, however, in this vicinity, so that a yearly removal of seed from its native locality is necessary.

Western Reds are one of the best of the yellow-meated varieties, and when raised on Long Island, or in New Jersey, are very fair table potatoes. They are in large demand for shipping, and are every Fall exported to Bermuda for seed, their product—the highly prized *Bermuda potato*—being returned to us in the Spring. It is remarkable that all other varieties tried in the Bermudas have failed.

NEW VARIETIES.

We note a few prominent new varieties, as follows :—

The *Black Mirror* was introduced into New Jersey some four years ago from Western New York. It is shaped much like the Mercer; the flesh is entirely white, the skin very dark and thick. It is very late, requiring the whole season to mature; yields largely, producing twice as much as the Mercers. If peeled before cooking the quality is good, particularly in the Spring, though not so dry and light as the Mercer. The dark skin is prejudicial to the sale, and it has rotted badly the last two years, so that many are now abandoning its cultivation.

The *Buckeyes* have been grown one year, in Monmouth County, N. J., and with remarkable success. They are handsome, round potatoes, white throughout, except a little bright pink at the bottom of the eye, and cook dry, mealy, and are fine-flavoured. They were introduced from Ohio to the vicinity of Rochester three years ago, and grown there by D. S. Whitlock, Esq., from whom J. S. Whitlock of Monmouth County, N. J., obtained seed for himself and neighbours. J. S. W. planted three acres of sward ground, which averaged 250 bushels per acre; on corn-stubble he had an average of 165 bushels per acre. His brother, G. S. Whitlock—same neighbourhood—planted three acres corn-stubble which averaged 200 bushels per acre—in both instances giving a yield more than double that of Mercers in the same fields. They were free from rot, while all other varieties in the same neighbourhood rotted badly. They were first sent to this market by J. S. W., and, from their large size, handsome appearance and fine quality, sold readily at the highest rates—constant inquiry continuing for them after the supply was exhausted. They are one of the most promising new varieties.

The *Prince Albert* is a seedling imported from England, and introduced into Massachusetts a few years ago by an Englishman, whose name we are unable to learn. They were introduced to this market for seed by Messrs. Steers & Edwards, some four years since, at very high prices. The demand for them for seed has kept pace with the supply, and we learn that S. & E. have just sold fifty barrels to one of our seedsmen at $5 per barrel.

They are an oblong shape, a little flattened, entirely white, very few eyes, which lie upon the surface, scarcely indenting the thin, smooth skin, being one of the most beautiful potatoes ever grown. They are an early variety, ripening with the Mercer, and grow to a handsome size, sometimes very large, and yield largely and have never rotted. C. G. French of Monmouth County, N. J., raised about two acres the last season, surrounded by three other varieties, all of which rotted badly, while the Prince Alberts entirely escaped. They have not yet come in the market for general consumption, but are highly praised by many that have tried them as a table potato.

The *Peach Blows* and *Shepard Reds* are seedlings from the Western Reds, started by Mr. Shepard of Saratoga county, N. Y. They are round, with whitish-yellow meat, and deep eyes. The former have a parti-coloured skin; the latter a rough red skin with pink streaks in the outer portions of the flesh. The Peach Blows are a very fine table potato, cooking dry and light. They have been grown to some extent in Monmouth County, N. J., with promising success, though they did not the past season attain the size of those raised at the north. The quality, however, was decidedly improved by change of climate and soil, being smoother, whiter, cooking dryer and lighter, and selling 50 cents per barrel higher than those of Northern growth. The Shepard Reds have a less attractive appearance and have not been tested in this market. Both varieties ripen late, and like all late potatoes are more liable to rot than the early sorts.

Dovers are a small, round, red potato, deep eyes, white flesh, and from their superior quality, sell to a limited extent at good prices. They are not economical for the table, and we presume their yield is light. They grow principally in Rhode Island.

As we have aimed to embody facts of practical value, we have abstained from remarks upon other varieties that have not attained character in this market sufficient to warrant extensive cultivation or authorize us to give them a recommendation.

James F. C. Hyde of Newton Center, Mass., speaks highly of some new varieties that he grows, as follows:—

"*Davis Seedling Potato.*—This is one of the very best potatoes grown, taking everything into consideration—size, productiveness, hardiness, &c. I do not mean to say it is of the best quality for eating when compared with the State of Maine or Carter; but I do mean that it is a good eating potato, which, added to all its other good qualities, makes it a very desirable variety. Its colour is red outside and white inside, slightly tinged with pink just under the skin; large size, and very free from rot. This variety originated in Sterling, Mass., and has been under cultivation some eight or ten years. It is so far superior to Peach Blows, Vermont Whites, Pinkeyes, and those common sorts that are raised in the country, that I should advise all who grow potatoes for market in Fall or Winter, to raise this sort for one. It requires a full season to mature. It yielded better than any other out of the forty kinds I raised last year.

"*State of Maine.*—This is a fine eating potato, unsurpassed by any in the whole list, not excepting the Riley or Carter. It is not more than half as productive as the Davis, but superior in quality for the table. It is white outside and inside, and shaped somewhat like the White Chenango. This variety is quite early, being not more than a week later than the Chenango, to which it is superior. Should not consider it so profitable a variety for the market, except for early, as the above-named variety.

"*Jackson White.*—A sort of recent introduction, and promises well. I have grown it two years with fair success, but have never had it dry and mealy as the State of Maine. This is a white potato, nearly round, medium size, eyes deeply sunk, fair as to productiveness and hardiness, worthy of trial.

"*St. Helena.*—This is an old and well-known sort that was formerly cultivated in this region, but for some years has been neglected, but now comes out under other names, Such as Laplander, White Mountain, Seedling, &c. It is a very productive sort, very handsome on account of its good size and whiteness. Quite free from the rot. This pototo is apt to be foggy, and for that reason is not so highly esteemed."

Out of all the sorts described, it certainly does appear to us that farmers generally can select some new varieties that will prove more advantageous to them than to continue to grow such kinds as they have always cultivated, and perhaps, their fathers before them.

PROPORTIONAL AVERAGE OF CROPS IN SCOTLAND.

It may gratify a reasonable curiosity in some of our readers, to be informed in regard to the proportion which the various field crops raised in Scotland bear to one another, or, in other words, what proportion of every 100 acres in tillage is occupied by each of the crops commonly cultivated. This information may not, indeed, be of any direct *utility*, but cannot fail, we think, to be highly *interesting*, especially to those who have the means of comparing the facts with similar statistics in their county or State. The information of this description which follows, is derived from the tables of Scottish Agricultural Statistics, which have been recently published. The proportion varies in different counties, but taking the whole country together, the proportion of the different crops in every 100 acres is as follows :—

	1857.	1856.	1	1854.
Wheat	6.274	7.428	5.419	4.765
Barley	5 578	4.675	5.271	5.879
Oats	26.391	25.912	26 449	26.430
Rye and Bere	.776	.564	.594	.621
Flax	.043	.077	.098	.189
Vetches, Turnip Seed, &c.,	.607	.586	.517	.421
Beans and Peas	1.206	1.277	1.212	1.243
Turnips	13,403	12 979	12.731	12.292
Potatoes	3.931	4.213	4.163	4.052
Mangold	.079	.100	.064	.055
Carrots, Cabbage and Rape	.144	.125	.068	.074
Summer Fallow	.523	.436	.637	.740
Grass and Hay under rotation	41.045	41.628	42.777	42.239
	100.	100.	100.	100.

It will be seen at a glance at the above table, that oats are cultivated to a much greater extent than any other grain ; and that the large proportion of the soil devoted to grass and turnips, besides the permanent pastures which are not included in the above, indicates very manifestly that the feeding of stock for dairy and other purposes, must be one of the principal branches of agricultural industry in that country.

The following additional items in regard to the crops of Scotland during the past year, may be interesting to several readers :—

Of wheat, the whole amount raised was 6,154,986 bushels; and the average produce about 28 bushels per acre.

Of barley, the whole amount raised was 6,494,534 bushels, and the average produce about 32 bushels per acre.

Of oats, the whole amount raised was 32,750,763 bushels, and the average produce about 33 bushels per acre.

Of beans and peas, the whole amount raised was 1,037,760 bushels; and the average produce about 22 bushels per acre.

Of turnips, the whole amount raised was 6,690,109 tons; and the average produce about 14 tons per acre.

Of potatoes, the whole amount raised was 430,468 tons ; and the average produce about 2¾ tons,—ranging, however, in different counties, from 1 ton 8 cwt. to 5 tons 11½ cwt. per acre.

These averages, it will be observed, are considerably higher than any averages which have as yet been reached, according to census reports, in this country. The larger crops of wheat, &c., of which Scotland may boast over this country, are unquestionably owing principally to a higher and more careful cultivation. An advance in our mode of cultivation, would give us also an advance or increase in our crops. Probably neither country has yet come very near to the end of all perfection.

SULPHUR fed to sheep is pronounced a certain remedy against the ticks which frequently infest very injuriously, these animals.

FARM ACCOUNTS AND STATISTICS.

We can only *generalize* from *particulars*, and upon the truth of the items, statistical and descriptive, depends the value of all deductions and inferences. This is particularly applicable to agricultural generalizations. They are too often made up from guesses—from random estimates—and mislead those who rely upon them for practical information.

What a mass of valuable particulars might be readily obtained, did farmers generally keep an account with their crops—of cost and product—of soil, culture, and circumstance. Few, very few, know how much (with any exactness) a crop of wheat or corn has cost them, or the expense attached to rearing animals for use and sale. A large class cannot even tell what their cash receipts and expenses are for a year, save as they remember the different items; yet they carry on a large business.

In that business, how can they proceed understandingly? How can they tell what branch of farming is most profitable? How do they know but they are losing money by that to which they give the greatest prominence, and making good profits upon that which they consider of very little importance? A correct account of capital, expenses, and receipts with each branch of farm products, would settle all these questions.

Any farmer who wishes to determine his stand-point for the future, should now commence with an inventory of lands, stock, grain, implements, &c. With the opening of our spring work, a journal of its labours should be kept, and these, posted weekly to the different classes of crops, &c., to which they belong, will show him at the end of the year what each crop has cost. A little care in measuring, weighing, &c., will show its approximate value, and then he has in black and white the result of his season's work. There he would find the material for many hours of thoughtful cogitation while maturing plans for the future, and thence he could draw stores of facts and particulars, useful to his brother farmers, to be disseminated by the public press.

Another thought. Who would think of carrying on any sort of a manufactory without a book-keeper and carefully kept accounts? No one, surely. But the farm is as much a manufactory as any which can be named, and its operations cannot be conducted skilfully and intelligently unless the same system is pursued.

TRIAL OF REAPERS AND MOWERS AT SYRACUSE.

The following remarks by the Committee appointed to test the mowing machines entered for that purpose at Syracuse last summer, will be read with interest by all manufacturers of these implements in Canada. They will also serve to direct the attention of purchasers to those points of the mowing machine which require to be thoroughly made and well adjusted to render it durable and capable of giving satisfaction :—

1. We believe there has never before been any systematic attempt to analyze the total amount of power consumed, and to distribute it among the various parts. We think this has been as satisfactorily established as could be expected on a first attempt. Table D. (of draft) shows that the average of all the machines for total power is 418.6 lbs.; while Burrall's (the minimum) is 352.9 lbs.; and Caryl (the maximum) is 483.1 lbs. This very wide difference is calculated to awaken the attention of the mechanics to the variations of detail on which this difference depends—many of which are disclosed in tables F. and G. The power expended solely in cutting, differs from the general average, and among different machines far more widely than the apparent simplicity in the cutting apparatus would lead a casual observer to suspect. The general average of power thus expended is 131.7 lbs.; the maximum is F. J. Frelinghausen's, 181.6 lbs; the minimum is Walter A. Wood's 66.8 lbs. The power expended in giving vibration to the knife averages 60 lbs.; the minimum being 26 lbs. in Burrall's, and the maximum 90 lbs. in Pruyn. These facts offer interesting problems for the study of mechanics, and we cannot doubt that their solution will lead to vast improvements in the construction of these machines.

2. Sufficient attention has not been paid to lightness, in the construction of these machines. This point has probably been overlooked because dynamometer trials almost invariably take

place on level ground, where the waste of force is masked. We would invite the attention of mechanics to the remarks already made on this topic, believing that attention to them on their part, will lead to great economy of power.

3. We believe this trial has shown that grass is cut more easily when the angle of the apex of the knife is obtuse, or the angle between the cutting-edge and the base of the knife is acute – since it then approximates more nearly to a saw cut, and less to a chisel cut. If we are correct in this, very many of the machines may be improved, as may be seen from table F.

4. It seems clearly settled by this trial, that a broad, wedge-formed guard is superior to a straight one, for the reasons assigned on page 52. It is obvious that when the grass is drawn over at an angle of forty-five degrees, as it is in some machines, the area of the cut section is much greater than when cut standing perpendicularly, and must therefore absorb more power. The cut in the latter case is much more analogous to the saw, and it affords a much better protection against stones. We think it a great error in Pruyn & Lansing's machine, that the lower part of the guard is smaller, (narrower) than the upper part. The effect of this arrangement is, that the force of the cut is expended on the root of the grass, which tends to draw it out and break the fibres, which will either kill it, or retard its starting in the fall. This effect is less apparent when the knife is sharp, but will become very serious when it is dull. The *tendency*, however, exists at all times.

5. It has long been understood by mechanics, that internal is better than external gearing, where it can be applied, because the larger wheel more nearly coincides with the smaller in form, and therefore brings a greater number of cogs in contact. We were therefore surprised to see so many machines geared externally, and would recommend a change in this respect.

6. Nothing has been more clearly demonstrated, in our judgment, than the value of balance-wheels in promoting the smoothness of working of the machines, where they were properly adjusted and judiciously located. Some were too small to act well at the velocity with which they worked; in others the weight was not sufficiently distributed to the rim, and in others the counterpoise was so placed as to increase, rather than overcome the momentum of the knife. We recommend to all builders of these machines, a careful series of experiments, with a view to ascertain the exact size of balance wheel which will best overcome the momentum of the knife at their respective velocities. We also advise that the wheel shall be located near to the pitman, as a remote location gives rise to a twisting and irregular action on the journals.

7. Most inventors seem aware of the value of a light knife in diminishing the momentum, although we think there is much room, by the use of an improved quality of materials, to reduce its weight still farther; but some seem to forget that the weight of the connecting-rod, as well as the weight of the knife, is an element of momentum. Some of these were very unnecessarily long and heavy. A reduction of these dimensions will therefore be followed by a material reduction of power expended.

8. It is often overlooked, that time, as well as force, is an element in the consideration of power. A variation of ten pounds in the draft of two machines is looked upon by many as a mere bagatelle. It is not considered that this force is extended throughout every second of time of working. If, then, the two machines work for ten hours, the difference of force is not represented by 10 lbs., but by that number multiplied into the number of seconds in 10 hours, viz: 10 h. ⋈ 60 m. ⋈ 60 sec. ⋈ 10 lbs.=360,000 lbs. Our excuse for an allusion to a principle so entirely elementary, must be found in the fact that it is so strangely overlooked by many farmers and mechanics; and we hope that the remark may stimulate inventors to attempt every possible reduction of force, even if it be apparently very small—being assured that in the long run, it will be very considerable.

9. It seems fully settled, that the most desirable position of the knife is in a line with the centre of the driving-wheel, as in Ketchum's machine.

10. It is also very clear, from this trial, that the cutter-bar should be flexible, as connected with the frame of the machine. The grass is cut more evenly, and side draft is prevented; for when the knife on a stiff machine, rises over a knoll, or other obstruction, the pressure on the surface of the ground increases the resistance and causes side draft. For this reason, those machines which have flexible fastenings of the cutter-bar to the frame, have the least side draft, provided the draft is properly attached. Hence, such machines as Ball & Aultman's, Kirby's, and the last made mower of Ketchum's, &c., are to be preferred in this respect.

11. Much difference of opinion exists among the builders, with regard to the comparative merits of cast or wrought iron fingers or guards. We do not suppose that our judgment will settle conflicting opinions on this point; yet we deem it proper to say, that be believe the cast iron finger to be be the best, on the whole. We think that it is better that a guard should break, than bend. In the latter case, the friction will be very greatly increased, consuming an increase of power, which is expended in wearing out and deranging other parts of the machinery. Many country blacksmiths are not qualified for such a job, and make it worse by their attempts to repair it; while any farmer can take off a broken guard and replace it by a new one in a few minutes. It is probable, however, that considerable improvement may be made by a proper mixture of metals in casting them. The guards in Allen's machine seem of a very excellent quality,and we are informed that they were produced in this way. We think, too, that Allen's concave knife is a step in the right direction for reducing friction, and for diminishing the weight of the knife without lessening its strength.

12. We noticed with pleasure, on some machines, contrivances for increasing the comfort and security of the driver. Ball, Aultman & Co., R. L. Allen, Seymour & Morgan, and some others, have comfortable springs to the seats, which make the work of the driver much less laborious. We think when the cutter-bar is not in a line with the shaft of the driving-wheel, it should be in *advance* of it. There have been many instances, where the driver has been shockingly mangled by the knife, being thrown from his seat. This would not have occurred if the knife had been before the driver's seat.

13. We would invite the especial attention of builders to the wedge-form cavity in the guard under the knife, as described on page 43 in connection with Hallenbeck's mower.

14. We speak of the cam principle with diffidence. The simplicity of structure which it admits is a strong temptation to use it; yet it will be seen from Table D. that the ease of draft which ought to follow simplicity of structure, has not been attained in practice. Pruyn & Lansing required 446 lbs.; F. J. Frelinghausen's, 492 lbs.; and Caryl's 493 lbs. Or, according to the more accurate statement on Table E, Pruyn & Lansing required 8.494 lbs.; Frelinghausen, 8.946 lbs.; and Caryl, 8.502 lbs., per inch of cut to drive them.

Notwithstanding this result, we are not quite incredulous with respect to the application of the cam principle to the propulsion of mowers and reapers, and we would invite the attention of inventors to the utilities which may lie latent in the cam. There was much in the mechanical arrangement of all these machines which may account for their tendency to expend their power in hammering themselves to pieces, without charging it to the fundamental principle of the cam. Accuracy of adjustment, the avoidance of loose play between the respective parts, and smoothness of surface where the parts rub or roll on each other, are indispensable to perfect cam action; yet, all these points were neglected in all three of them.

Pruyn & Lansing's machine complied more nearly with these conditions than the other two, and the result is seen in its reduced draft. We think if this machine were altered from a straight to a curved zig-zag*—if there were increased precautions against the intrusion of dust and dirt—if larger friction wheels, made of composition metal, were employed, and more accurately adjusted to roll on the face of the cam, without any play—if the length of vibration of the knife could be shortened without injury to the cutting power—and if the momentum of the knife could be arrested just before changing its direction, by an elastic spring placed at either end of the machine, we might hope for a decided improvement over everything now in existence.

15. A difference of opinion also exists with respect to the advantages of wooden and iron finger-bars. In our opinion, iron-finger bars, (which can be made much narrower than wooden ones,) are better adapted to the cutting of *fine, short* grass than wooden ones, on which, from their greater breadth, the grass piles up and tends to clog the knife; but in ordinary grass, we prefer the wooden finger-bar, as in case of accident farmers would be able to repair or renew it without recourse to the mechanic's shop.

16. When grass is long, and the wind is blowing in the same direction that the machine travels, it is very difficult, if not (in some cases) impossible, to cut without a reel. In other cases, it is much better to cut without one, as the grass after cutting, is in a much better condition for drying. We therefore consider it desirable that mowers should be furnished with reels which can be quickly and easily removed and replaced. They would then be enabled to cut under all circumstances.

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* I have not had time to investigate the ordinates of the proper curve, but presume, from analogy, that it would be a cycloid.

17. Most machines are now made portable by a small removable wheel, which may be attached to the outer end of the cutter-bar at pleasure. We very much prefer those, which like Wood's, Ball's, Aultman & Co.'s, Pell's, Manny's, &c., are *permanently* portable. In lodged clover, or grass of any kind, it is often desirable (in farmers' phrase) to fetch the swaths. In such cases it is very inconvenient, and with spirited horses, dangerous for the driver to get off and upon the end wheel.

18. The driving-wheel should in all cases be covered, as in Allen's machine, and should be furnished with a convenient box to hold the necessary wrenches and other tools, with a compartment for an oil can, where it can be carried without risk of spilling.

19. The oil holes should be covered with tin covers, and supplied gradually to the journals by candle wicks, or some similar contrivance.

20. A knife is much wanted which shall be easily detached from the bar, for grinding, &c., and which is not liable to become loose from the rapid motion of the bar. If Mr. Hovey's contrivance does not answer the purpose, we think the attention of inventors should be directed to the making of one.

IRON HURDLES IN CANADA.

The following communication was read at a Meeting of the Board of Agriculture in Toronto. Its importance will justify its publication in the *Agriculturist*:—

AILEY LODGE, March 20th, 1858.

MY DEAR SIR,—Mr. Buckland spoke to me, a few days ago, upon the subject of iron hurdles, asking my opinion of their adaptation for farm fences in this Province, and their probable cost. I told him that as to my own experience I found them answer every purpose as a fence, and all that I could desire. Where cattle have been bred and raised upon the farm, and not accustomed to roam at large in the bush, I consider them to answer every purpose as a fence, as in no instance have any of my cattle attempted to break over them. But for cattle that have been permitted to contract bad habits by roaming at large in the bush, I am not prepared to say they are a sufficient guard against trespass. But, indeed, in such cases, I know of no kind of fence that is proof against such depredators. The few hurdles (100) which I imported for my own private use in 1854, were six feet in length, three feet six inches in height from the flange that rests on the ground, and weighing 53 lbs.; cost, 5s. 3d. sterling each at the manufactory. These fasten together with a bolt passing through a socket three inches long, secured with a nut. This mode of connecting was a suggestion of my own, and makes a very firm, resisting line of fence, but it is attended with more trouble, and takes up more time in planting and removal than the hurdles connected in the ordinary mode, and adds 3d. sterling to the cost of every hurdle, and, without care in the removal, the bolts and screws are apt to get lost. The extra cost of 3d., however, I consider compensated for by the three inches gained between each hurdle, being equal to three hurdles in the 100. Hurdles of the same weight and dimensions, connecting in the ordinary way—viz., with a link twisted in the form of a figure 8, secured to one hurdle, and passing over the head of the upright bar of the other at pleasure, can be purchased at the rate of 5s. each. Hurdles upon this construction are more conveniently handled, and

free from the danger of losing the connecting link. But still I prefer the bolt and socket,it makes a much firmer fence, and the extra cost is regained by the additional space of ground covered, and a few dozen extra bolts and sockets, at 3s. per dozen, can be added to supply the place of loss. The prices I have named would, of course, be subject to the fluctuating price of iron,and would either be reduced below, or increased above the prices quoted, in accordance with the price of iron at the time. But even under any change, either up or down, I do not think the price of hurdles would be affected above 3d. each, above or below the cost I have named. I am firmly of opinion, too, that if the Provincial Government would admit the importation of wrought iron hurdles at the moderate duty of 2½ per cent on the invoice price, that hurdles of the very best description and quality of iron of 6½ feet in length (with two uprights) three feet six in height,and weighing 56 lbs each, could be laid down in Toronto at from 7s. 6d. to 8s. 9d. currency, each. The revenue, instead of losing, would be benefitted by the operation, to the extent of 2½ per cent, as any higher rate of duty would act as a prohibition to their importation. This permission on the part of the Government would in no way affect,or encroach upon, the interest of the mechanic, as none whom I have spoken to upon the subject, would undertake to make the same kind of hurdle for less than 20s. to 25s. each, and then of inferior iron. For the reasons assigned, I am fully persuaded that if the Agricultural Board would communicate with the "Governor General in Council," setting forth these facts, and the urgent necessity that exists for the introduction of a better, more endurable, and economical kind of fence into the Province than any at present in use, and so obviously to the advantage of the Province, the boon denied to an individual would be willingly conceded to the Agricultural Society.

The larger the quantity of hurdles ordered, the greater would be the advantage in purchasing, and economy of freight upon the simple principles of commerce. 1000 can be bought and shipped upon better terms than a tithe of that number ; on that account it would be advisable to ascertain what number of gentlemen in the country would join in the importation, and what number of hurdles each would take. For one, I would take 100, on my own account at least, and doubtless many others would take a like number, so that a respectable Invoice would be ensured to begin with.

The 100 hurdles which I imported in 1854, were under every disadvantage, but that of purchase, which was at the lowest cash price of the time. The hurdles were manufactured in the interior of the country and subject to 50 miles inland carriage to port of shipment,—the freight across the ocean was paid by measurement instead of by weight, and the duty exacted 12½ per cent. Yet in defiance of all these untoward circumstances, including inland carriage from Montreal, and Insurance, I consider that my hurdles do not stand me in more than 12s. 6d cy. each. At that period, there were no vessels sailing direct to Liverpool from the Upper Lakes, and returning with freight cargoes, as now obtains, affording a better chance of procuring freight upon more reasonable terms, and of delivering the goods in Toronto without trans-

shipment, and consequently in better order. It is well that I should state also, that I have tried the use of wooden hurdles, which I contracted for at 5s. 6d cy. each. I found them bulky and inconvenient to handle, and to store away when not in use,—very perishable and continually out of order. Out of 150 made some eight years ago, not more than 50 now remain, and those in a dilapidated condition. Whereas the Iron hurdles, with proper care and an occasional coat of paint applied, are all but indestructible, and will endure for years.

I have thus been minute and particular in what I have advanced, in order that no one might be led astray ; my observations are intended for the general good, and not for the private advantage of any one, as in that case I would be no party concerned. Should the Board deem what I have submitted to be worthy of consideration, and have any wish to question me on the subject either verbally or in writing, I will, most willingly attend to their wishes, and give what additional information I may have it in my power to convey. I remain, my dear Sir, very truly yours,

JOSEPH BECKETT.

To W. McDougall, Esq., Yonge Street.

ENGLISH AGRICULTURAL IMPROVEMENTS.

Several improved machines and processes have recently been produced in England. One, by Alfred Newton, relates to the cultivation of land by spades, operated by locomotive power as the machine progresses in the field. It breaks up, disintegrates and turns over the sward more thoroughly than can be done by the plough. A series of spades is made to enter the land in succession, and cut it into the arc of a circle, when the cut slices are suddenly thrown up against a shield plate, at once reversing and breaking them almost into powder. This machine is only a new form of steam plough, at which English mechanics are still trying with unabated activity. Mr. John Fowler has also invented an improvement in the mode of operating the ordinary steam plough, which greatly simplifies its movements, and enables it to travel through the furrow with more certainty and freedom. Mr. William Dray of London has patented an improvement in ploughs, which applies to such ploughs as are provided with a share in the form of a pointed bar, and consists in the means of securing the bar in its position after being pushed forward, as may be from time to time required by the wearing away of the point thereof. The patentee claims the construction of ploughs which are provided with moveable share bars, in such manner that the bars can be tightened or slackened by means of an eccentric roller or collar. Mr. Robt. Reeves, of Wiltshire, has patented a cart body for the purpose of delivering manure over a field without requiring it to be thrown out by hand. The bottom of the cart body is supplied with longitudinal openings, in which revolve drags or blades attached to an axis under the body. As the cart moves, these drags pull down the manure in a condition of complete pulverization.

A NEW MANURE.

In a report of experiments with different manures, contained in a recent issue of the *North British Agriculturist*, we observe that one of the manures used was saw-dust steeped in chamberlye for six weeks. This, like the other manures reported, was employed as an application to a crop of turnips. Nothing is said about the manner in which it was dried and made fit for sowing, whether by exposure to air and sun, which, we think, would rob it of some of its most valuable properties, or by mixing it with some dry and pulverulent substance. Should any of our readers try this new manure, it would be well to employ some absorbent of ammonia, as charcoal dust or seasoned muck, in the reduction of it to a dry state. Neither is the quantity which was used mentioned, all that is said under this head being that it was "sown with a good handful along the drill." The effect of this manure upon the turnip crop is about equal to that of four and a half cwts. of Peruvian guano, costing about $16; the produce of the plot manured with the soaked saw-dust, being at the rate of 17 tons, 8 cwts. of turnips per acre, (white globe,) and that of the plot manured with Peruvian guano being at the rate of 17 tons and 18 cwts. per acre.

We presume that this new manure will be tried by many both in Great Britain and this country during the coming season. The individual who reports upon it, says that the saw-dust steeping was an idea of his own, and that it will be tried next year on a more extensive scale by several farmers.—*Country Gentleman.*

COST OF GROWING A BUSHEL OF WHEAT.

A correspondent in Bucks county, Pa., says—I have been making a calculation of what it costs me to raise a bushel of wheat. The result I enclose you, and would like to know whether it costs others as much as it does me.

Plowing, say ½ day,	$1.25
Harrowing three times and rolling,	1.25
One-half cost of 25 loads manure,	12.50
Hauling and spreading,	3.00
Plowing and harrowing, ½ day,	1.25
Harrowing, rolling and drilling,	1.25
1¾ bush. seed, cost in 1857, $1 75	3.06
Rolling,	25
Interest on $1000, 6 per cent,	6.00
	$29.81

Yield 25 bushels, or about $1.19 per bushel. Weight of wheat Sept., 1857, 63¾ lbs. per bushel.

The estimate I think is rather under than over the mark. The interest or rent of the land I have charged at six dollars per acre, but land that will produce 25 bushels of wheat per acre, is held in my neighbourhood at from $125 to $150, which would make the interest $7 50 to $9. I have often noticed that when a farmer's attention is called to the price of an agricultural product, his reply is—"Oh! you must not charge the cost of your own labour, at the same price you would have to pay if you hired your work done—farming would never seem to pay if you did that." That is, you must allow less for your own labour, than you pay your hired men. Is this a correct way of showing farming to be profitable!—*Country Gentleman.*

VARIETY OF FARM PRODUCTS.—A celebrated French agriculturist, Gasparin, speaking of the advantages of cultivating a variety of farm products, eloquently says:—"We write upon our flag, *Variety!* That's my device. That rapid locomotion which explores the world, which interrogates all climates—that spirit of investigation which is the characteristic of our age all will concur in concentrating upon our soil the young productions snatched from rich countries, and which we shall find means to naturalize. The most humble table shall be covered with new gifts: like that of the rich, it shall enjoy a diversity of food, which is the pledge of health, strength and contentment. Uniformity, whatever may be the scale that we assign to it, is the worst of conditions: It is the spleen of the North; it is the misery of Ireland; it is the rule and the chastisement of convents, the home-sickness of the barracks."

HUNGARIAN GRASS

(*From the Rural New Yorker.*)

Eds. Rural :—You will excuse me for troubling you with a few paragraphs on a topic that I conceive to be of real importance to agriculturists and all directly or indirectly concerned in their prosperity, which would include, I apprehend, that vast concourse, "all the world, and the *rest* of mankind."

The subject of which I design writing is a peculiar kind of grass introduced into this neighbourhood some four years since. This product, from its being brought here by that band of Hungarian exiles, who, under Ujhazy, settled in Decatur Co., is called Hungarian grass. This much of its "pedigree" will suffice. I will, in a very few words, state its commendable qualities, now well established, after a fair and thorough trial.

1st. This grass will yield from three to seven tuns per acre, according to soil and season. A fair average crop on ordinary soil and fair season is four tuns per acre.

2d. Its nutritious qualities are not excelled by any product now in use as provender for any kind of stock. Cattle, horses, hogs, and sheep, all devour it with great avidity and relish. In fact they will leave most other articles of food, when opportunity offers to get this grass.

3d. The yield of seed (which is said to be of much value for the manufacture of oil) is very great. It yields a crop of seed ranging from twenty to forty bushels per acre, soil and season favourable.

These facts, which can be incontestibly established by the evidence of hundreds of the worthiest farmers in this portion of Iowa, are what has given this grass so great a popularity throughout this and adjoining States. Two years ago every one seemed to regard it as a doubtful experiment, but each succeeding year has won for it new and better commendations. This season it has won immensely on the good opinions of all acquainted with it. It is almost a stranger to failures. It but wants a trial to speedily supplant all other kinds of provender for stock. The stalks and blades are rich in saccharine juices, while the seed is among the very richest grain grown in this or any other country. For Iowa this grass will be of almost incalculable value. The elevated prairies are very unfavourable to the production of the grasses ordinarily relied upon for winter food for stock. None of these last do well in this soil, and consequently can never be relied on here. But the Hungarian grass is a highly satisfactory substitute. I am fully impressed with the conviction that your readers who know nothing personally of the production of which I am speaking, will regard what I have said as a rather *gassy* as well as *grassy* article, but I am conscious that my statements can be fully substantiated by the testimony of the great bulk of farmers hereabouts, and their statements will receive the confirmation of all the loafers, lawyers, doctors, preachers, honest men, and boys in the country.

About four years ago this grass began to be cultivated in this county as an article of provender, by two or three farmers who had got hold of the seed. Now nearly every farmer in the country is raising as much of it as he can get the seed to sow and ground to put it in. In fact numbers of merchants and gentlemen engaged in other business in this vicinity have actually turned their attention, to a considerable extent, to raising this article of food for stock. Quite a number, whom I could name, last spring hired all the ground they could come at and bought seed to sow it at $4, and even $6, per bushel. The result is, they get, generally, about five tuns per acre of the best of hay, worth $6 per tun, as a remuneration for this singular venture. A pretty fair compensation for so small an outlay of labour and capital. This grass is an annual, requiring to be sown each season. It will yield two crops per year on the same ground, in this latitude, but this is generally thought to be too exhausting to the soil. At the solicitation of a friend, I have been induced to give you these simple facts in relation to this article of agricultural production, with a view to advance the interest of a most useful class of our fellow citizens, the farmers, by bringing to their notice, in the older States, an article that needs only to be known to be universally appreciated as the best reliance for food for all kinds of stock raised on the farm.

Albia, Munroe Co., Iowa, 1857. J. N.

Soot in Chimneys, by taking fire, and dropping burning cinders on dry shingle roofs, causes many conflagrations. Most fires in the country originate in this way. Be particular to clean or burn out soot once a month when the roof is wet.

CAN BEEF-MAKING PAY.

A sound maxim in farming is to get manure. More manure, more crops, and more crops more stock, and more stock more manure. So that on a good farm well managed, the tendency should be to increased fertility of the soil, by the sinking therein increased capital in the manure annually applied. We must keep stock. The questions then arise, how can we best dispose of it? Shall it be lean or fat, young or old?

These questions require answers differing much under the conditions of the persons making them, as well as the place wherein made. In the peculiar corn growing regions of the Western States, a different answer may be given from what we should expect in our own State, or in the New England States. I purpose, however, to confine the enquiry mainly to our own State; in the outset presuming, however, that where the farm is adapted for the purpose, no business is so uniformly profitable as a well conducted dairy.

The first consideration is, what does it cost to make a pound of beef? In a former number I showed that it had been satisfactorily settled, that it would require, at least, 4½ lbs. of corn meal to make a pound of beef, and it must be fed to the best advantage to do this. It was also shown that 18 lbs. of good hay would do the same thing, and for the present I shall confine myself to stall-feeding.

The average price of corn in this State is not less than 50 cents for 50 lbs., or a bushel, and $6 per ton for hay. We will allow two tons of hay, or 50 bushels of corn as the product of an acre. An acre of corn will produce, then, 560 lbs. of beef, and an acre of grass, in hay, 222 lbs. The value of the hay would be $12—of the corn $25, so that with hay, it would cost 5 cents and 4 mills per lb., and with corn 4 cents and 4½ mills. But as it would not but be as profitable to feed all hay or all corn, we will feed half hay and half meal, which would make the cost of a pound of beef at 4 cents 9½ mills, or say 5 cents. Allowing a daily consumption equal to the making of 4 lbs. of beef, or rather to the adding of 4 lbs. to the live weight of the animal, the two tuns of hay would feed it for 55½ days, and the corn for 140 days. Putting the corn and hay together, and it will furnish feed for two animals for nearly 100 days—about the usual time for stall-feeding.

No allowance has been made in the foregoing for attendance, interest on cost of animal, nor upon the fixtures necessary for its protection—for without warm shelter the quantity of food must be largely increased to produce the required improvement in the animal. Will the manure pay for these items? Let us see. Von Thaler says that it is safe to estimate the dry food and litter as doubled in weight by its transformation into dung, by which is meant the solid as well as the liquid excrements. Assuming that data, we get six tons and a half of manure, which, if applied to half an acre, would give nearly ten ounces to the square foot—a very liberal manuring—and would add to the productive capacity of the land, in the two following crops, at least fifteen bushels of corn, or its equivalent. We get then, for our trouble in feeding, and the use of capital, $7 50, or nearly one cent per pound for the increased live weight. I would be very willing to furnish barn room and all the necessary litter and attendance for the manure made by stall-fed animals, and would even pay the interest on the cost of the animals while feeding.

The actual cost, then, under the most favourable circumstances, of increased weight of stall-fed cattle is five cents per lb., and good animals for feeding, in high condition, can usually be bought about the 1st of December for from three to three and a-half cents per lb., live weight. The sales from the stables are usually made in about three and a-half to four months, or from the 15th of February to the 1st of March—the average being not far from 100 days. During that time 400 lbs. has been added to its live weight at an expense of $20. Supposing the animal when first put up, to weigh 1,200 lbs., costing on an average at 3¼ cents per lb., $40, and at the 100 days the total cost would be $0 for 1,600 lbs. live weight or 3¾ cent per pound.

That these estimates are more or less liable to variation there is no doubt; but it is quite certain that actual experiment would show a cost more likely larger than smaller. To bring it within even these figures will require a skillful managing of the material used, so that none may be wasted, and all made to produce its full measure of increase. Neither too much nor too little must be given. From what is known now in regard to stall-feeding, is it not safe to say, that at least three-quarters of all the farmers who feed, actually lose money, unless the manure be worth much more than the estimate here placed upon it?

But we are told by our Western cousins that they can beat us out of sight in making beef, and that we cannot possibly compete with them, and this idea has induced many to sell their

farms in this State, and in New England, and go to this land of magnificent promises. Perhaps, after all, the difference in their favour is more apparent than real. Corn will average 20 cents per bushel over the greater portion of the Western States. Now, in their slovenly method of feeding, want of shelter, and proper care, it will require at the least 11 lbs. of corn for 1 lb. of increased live weight—or a bushel of corn will only give about 5 lbs.—making cost 4 cents per lb. Taking the increased expense of reaching market, and the greater loss by shrinkage at 1 cent per lb. against them, and the competition is not very alarming after all. Will somebody correct my figures and theory?

P.

SMOKE FOR WOUNDS ON ANIMALS.

Mr. Editor.—I have two valuable remedies, and not being able to find either of them in any agricultural work with which I am conversant, I place them at your disposal. They are *smoke* and *molasses*. My father once had a vicious horse eight or ten years old, which he altered, hoping to make him more manageable. The operation being not well performed, the cord dropped off, the poor animal bled till he could scarcely walk without reeling, and the parts swelled to an alarming degree, and father having in vain tried every expedient at his command, to remove the inflammation, gave him up for lost, and told me to drive him into the woods and there let him die. Fortunately, at this stage of the case, an old Pensylvania teamster came to our relief, and recommended smoking with old shoes. A smoke was made of old shoes, soles and all, cut to pieces, in a hog trough, and placed under the swollen parts. In a few hours the swelling wholly subsided and the sore commenced discharging matter—the horse was saved.

Some years after this I heard two persons talking about a horse which had been gored in the abdomen. In this case too, everything had been tried in vain. The poor creature must die. At my suggestion he was smoked, and when I next heard from him the old horse was well. So much for *old* wounds.

In the same year I cut my foot with an axe. The lady of the house, seizing the foot while it was yet bleeding freely, held it over a pan containing smoking tag-locks. In a few minutes the bleeding stopped, and the smoke was removed, and a bandage applied to protect it from accidental blows. The wound never maturated, and consequently never pained me. I have seen this remedy tried in many similar cases, and always with the same results. Let the reader bear in mind that no liniment or salve, drawing or healing, should be applied. You have merely to smoke the wound well, and nature will do the rest.

I suppose the smoke of burning wood would produce the same results, but it would not be so manageable. There is a principle in the smoke of wood which when applied to flesh coagulates the albumen, thus rendering it unsusceptible of putrefaction. The same principle stops bleeding by coagulating the blood. It promotes healing, and may be applied with decided benefit to almost all ulcers, wounds and cutaneous diseases. See Turner's chemistry, by Liebig and Gregory, p. 1242.

For chapped hands and lips molasses is the best remedy I ever used. If my cows have sore teats, or an ox chafes off the outer skin so as to occasion the blood to start, I apply molasses.—*Cor. of Country Gentleman.*

The Spanish Horse.—Spain was early celebrated for her breed of horses, The Andalusian charger and the Spanish jennet are familiar to all readers of romance. The subjection of so great a portion of the peninsula to the Moorish sway, by introducing so much of the Barbary blood mainly contributed to the undisputed excellence of the Spanish horse. One breed, long in the limbs and graceful in all its motions, was the favourite war-horse of the knight; while another race, carrying the esquire, although inferior in elegance, possessed far more strength and endurance. The Spanish horse of the present day is not unlike the Yorkshire breed of England; perhaps with flatter legs and better feet, but far inferior figure.

Medium-Sized Horses.—These are, doubtless, better for common use, than very large ones they are more supple and active; they require less food; they are adapted to a greater variety of work; and for these reasons they are more readily bought and sold. To secure good medium-sized horses, take a good, compact mare, which weighs from 1,200 to 1,400 lbs., and breed to a horse weighing from 1,000 1,200 lbs. The mare should be larger than the horse, both should be vigorous, well knit, fine-shaped animals.

DR. FITCH'S REPORTS ON THE INSECTS OF N. Y.

These valuable reports issued by Dr. Fitch, on the Entomology of the State, have been read in this country with much interest and profit, and are, we are pleased to see, receiving abroad the commendation they deserve. In France, where this science finds its most profound and thorough students, liberal commendation has been awarded to them. Dr. Lindley in a late number of the Gardener's Chronicle, calls the work of Dr. Fitch, "a very valuable contribution to practical Entomology," and in speaking of the system employed in its arrangement, adds, "Such is undoubtedly the true way of rendering entomological information useful to the mass of mankind; and it is greatly to be regretted that the valuable observations of Curtis and Westwood, in this country, should not be collected and arranged in a similar manner. That Dr. Fitch is an observer of a high order is manifest upon every page of the volume before us; his statements are rarely made at second hand, and where they are so the reader is never led to suppose otherwise. What, too, is very important, the mode of applying to a practical purpose the knowledge he conveys respecting insect manners of life is always kept steadily in view; so that while on the one hand we are told what an insect does, and how he does it, on the other we are instructed in what manner he may be destroyed." After giving several extracts from Dr. Fitch, including most of his preface, Prof. L. says: "We shall occasionally extract other matter from Dr. Fitch's useful work; in the mean while we have only to add that it has an index, which might be taken as a model by some of our careless friends on this side of the Atlantic."

ARTIFICIAL WHALEBONE.

It would almost seem that science, in its rapid march, would finally procure for the great whales of the deep, a respite from the tormenting and deadly assaults of the harpoon. Artificially made oils and fluids are steadily displacing animal products for purposes of illumination, and now by a somewhat recent discovery the bone of the whale is no longer needed to supply our umbrella and skirt makers with skeleton frames. In 1855, Joseph Kleeman, of Meissen, Germany, obtained a patent for a mode of preparing a substitute for whalebone. The process has been put into practice by a firm in New York city, who are turning out about twenty thousand umbrella frames every week! It consists in taking sticks of the common ratan, and soaking them in a liquid extract, for about four days, after which they are immersed in a solution of any of the iron salts, which gives the ratan a deep black dye. Subsequently the sticks are exposed in a close vessel, for the space of about one hour, to the action of steam of about three or four atmospheres' pressure, and then thoroughly dried in a furnace or drying room, at a temperature of about 180 degrees Fahrenheit, when they become ready for the impregnating process.

The sticks are then placed into an iron cylinder, (capable of standing the pressure of at least ten atmospheres) connected by a pipe with an open vessel, containing a varnish made by dissolving 120 parts of shellac, and 200 parts of Burgundy pitch, in 90 parts of absolute alcohol. The air having been exhausted from the cylinder, the cock connecting it with the vessel containing the varnish is opened, when the atmospheric pressure will force the varnish into the cylinders and into the pores of the ratan.

The impregnation of the ratan is rendered more perfect by the use of a pump for forcing the solution into the cylinder. The ratan has now changed its character and become hardly distinguishable from the best quality of whalebone, except that it is somewhat more elastic and less liable to splinter and break. It has gained one hundred per cent. in weight by impregnation. After being removed from the cylinders, or impregnators, but little remains to be done in the way of drying, polishing, and fitting the ends, &c., to prepare it for use for umbrellas, parasols, &c., and various other purposes.—*Scientific American.*

FARMERS OF THE OLD SCHOOL.—Adam was a farmer, while yet in Paradise, and after his fall was commanded to earn his bread by the sweat of his brow. Job, the honest, upright, and patient, was a farmer, and his stern endurance has passed into a proverb. Socrates was a farmer, and yet wedded to his calling the glory of his immortal philosophy. Cincinnatus was a farmer, and one of the noblest of the Romans. Burns was a farmer, and the muse found him at the plough and filled his soul with poetry. Washington was a farmer, and retired from the highest earthly station to enjoy a quiet rural life, and present to the world a spectacle of human greatness.

Potato Yeast.—A New-Bedford lady vouches for the good quality of yeast made after the following recipe:—Cook and mash ten peeled potatoes, pour on a quart of boiling water and stir well, and add a cup of sugar; let this stand a few minutes; pour in a quart of cold water, wanting a gill, and when lukewarm stir in a pint of yeast, and set in a moderately warm place to rise. When well fermented, put into a stone jug, cork tightly, and tie the cork down and keep it in a cool place. After the first rising keep enough of this yeast for the second batch. A teacup of this yeast is sufficient for two large loaves of bread; most excellent it is for muffins and griddle cakes also. There is no need for hops or flour in it, and in my opinion it is the best yeast I have ever tried, and I have experimented in all known recipes.

To Cook Beans.—The way to cook beans, is, to parboil thoroughly, change the water, and after the dish is filled and the meat laid on to bake, sprinkle over the top a table spoonful of sugar to a six quart dish of beans. So says Mrs. James Evans, of this place; and I can testify to the enjoyment of an excellent dinner of the same, October 23, 1857. I found the beans thus cooked a good thing for a hunary man's complaint.

Clay Cake.—One pound of flour; 1 pound of white sugar; half pound butter; half pint sour cream; 1 teaspoonful soda; the whites of 12 eggs. The eggs should be put in the last thing. Flavour with lemon.

Potato Pudding.—Half a pound of butter; half pound of sugar; half pound of mashed potatoes; half gill of cream; 5 eggs; 2 tablespoonfuls of brandy; 1 tablespoonful of nutmeg; the same of cinnamon. Mash the potatoes with the cream, when cool, add the butter and sugar beat to a cream, then add the eggs, then the other ingredients. Bake in a rich puff paste.

Pop-Corn Pudding.—Three pints of new milk; 2 eggs; 3 pints pop-corn; half a teaspoonful of salt. Every kernel of corn should be popped perfectly and have a white fleecy look. Eaten with a rich cream sauce, it is an excellent and delicious desert. Bake half an hour.—*S. A. Cole, Gorham, N. Y.*

Salt a Universal Remedy.—Mr. Editor.—I had just finished reading Prof. Johnson's remarks on Mr. Cleveland's theory of salt as a "universal expounder" and a "universal remedy," when over went my inkstand upon a beautiful light drab table cover, to my great consternation, as my wife had often cautioned me against this very thing. I rushed for the *salt* cellar, and emptied its contents over the black mass of ink, and in five minutes the stain had wholly disappeared! I doubted Mr. Cleveland's theory before, but ought I to doubt it any longer? There is one point, however, in which my experience differs from Mr. Cleveland's theory—I emptied the salt over and upon the ink, and it descended into the cloth and effected the desired object. One thing is certain, whether salt be a universal remedy or not, viz: *it will surely if applied immediately, prevent ink stains.* A Subscriber.

A Cheap Potato Boiler.—This is a tight box, five feet long, and two and a half wide, with a bottom of good Russia sheet iron, instead of wood. The bottom should be nailed on firmly with a double row of good shingle nails; in nailing it on, some cloth list should be placed on the edge of the box, to make it tight. The box may be two feet deep; its top may be made like a batten door. This box should be set on an arch about ten inches high from the ground, and so narrow that the sides of the box are at least five inches away from the fire. The arch should be neatly built, and be plastered on the top with a little mortar, that the fire may not reach the sides of the box. The arch should be placed near the pig pen, or wherever the food is to be fed out. Other food, besides potatoes, may be steamed in this way.—*Ohio Farmer.*

Spiced Apple Tarts.—Rub stewed or baked apples through a sieve, sweeten them, and add powdered mace and cinnamon sufficient to flavor them. If the apples are not very tart, squeeze in the juice of a lemon. Some persons like the peel of the lemon grated into it. Line soup dishes with a light crust, double on the rim, and fill them and bake them until the crust is done. Little bars of crust, a quarter of an inch in width, crossed on the top of the tart before it is baked, are ornamental.

To Harden Tallow.—W. B. P. sends us a timely and valuable recipe, to wit: "The season is at hand when most farmers are feeding a beef creature for domestic use, and sometimes an animal gets so fat as to yield tallow too soft to make good candles. To harden it, beeswax or alum is sometimes put into the melted liquid, but with indifferent results. If you would succeed perfectly, when the tallow is placed in the kettles to 'try,' put in also one pound of alum in the lump to 20 or 30 pounds of tallow, according to the fatness of the animal. I will guarantee an exemption from soft, greasy candles Try it."

It is not generally known that hog's lard or animal oil of almost any kind, is an antidote to the awful poison, strychnine. Dose: as much as can be got down the patient, and that as quickly as possible.

SOLUBLE GLASS SOAP.—At a recent meeting in Berlin of the Association for Promoting Industrial Arts in Prussia, H. Wichgraf reported the results of a trial that had been made with the silicate of soda (soluble glass) as a substitute for soap in washing clothes at the prison of Spandau. At this place 5,936 articles of clothing are washed every week. The cost of soaking these with soap amounted to about $5 94, but with the silicate only $1 76. The linen is first steeped for twenty-four hours in a mixture of one pound of the silicate of soda to ten gallons of water, then it is washed with common soap suds rinsed in clean water and dried. The steeping of linen clothes in an alkaline or soap solution prior to washing in the usual manner affords time for the grease and dirt in them to unite with the alkali or soap, they therefore require but little rubbing and labor afterwards. Clothes treated in this manner involve less labor in washing than by the old method, without steeping. A great number of persons in our country pursue this system; still it is not a universal practice.

BUTTERMILK-MILK CREAM - C. R. D., in the *Ohio Cultivator*, recommends to place Buttermilk when taken from the churn over a slow fire until it scalds. Remove it from the fire and let it setile; pour off the whey and the remainder will be nearly equal to butter for mixing purposes. For winter use put it away in a cask or jar, with now and then a handful of salt as you add more milk.

APPLE CUSTARD.—Take half a dozen very tart apples and remove the skin and cores. Cook them until they begin to be soft, in half a teacup of water. Then put them in a pudding-dish and sugar them. Then beat eight eggs with four spoonfuls of sugar, mix it with three pints of milk; pour it over the apples and bake for half an hour.

VALUABLE LINIMENT. - As for lin ments, the best I know of for horses or human beings, for sprains, swellings, slight, consequent on blows, &c.,) in horses, and sore throats and rheumatism in horse-masters, is as follows: - Equal parts of hartshorn, (aqua ammonia,) oil origanum, olive oil, gum camphor, laudanum and spirits turpentine—all of best quality—to which add three parts good soft-soap. I have used this for several years.—*Cor. Country Gent.*

CURE FOR TOOTH ACHE.—If the tooth be hollow, get a small bit of lint or linen, and put a little flour of sulphur into it, soak it in the lint, which wet with spirits of turpentine; put it into the hollow tooth; it gives instant relief.

REMEDY FOR RHEUMATISM.—Get a small quantity of mustard, well mixed with vinegar, spread it on a linen cloth, and cover the mustard plaster with another piece of linen; sew it neatly round, and apply it to the part affected, and leave it on till it begins to blister.

PLANTS THAT MAY BE RAISED IN HOT-BEDS.—The time is near at hand when hot-beds should be built, some having already commenced, for the raising of the various salads. North of New York the first of March is quite early enough, with proper care, to raise the various kinds of plants required for the kitchen garden. Of these may be noted cauliflower, brocoli, cabbage, tomatoes, lettuce, peppers, egg-plants, and okra, (those that like it.) A three-light frame will hold enough for a small family—one light of cabbage another of brocoli, cauliflower and tomatoes; the other, the remaining sorts required. Those who require extra early and strong tomatoes, will find it best to have a frame later in the season built up for transplanting the tomatoes into. This encourages fibrous roots and fine stocky growth, which is increased according to the number of times transplanted. Left till all danger of frost is over, before planting in the open ground, they scarcely receive a check, and commence early to mature fruit. Always give the tomato crop sandy soil if attainable. A few seeds of the various kinds of the cucumber family, may also be sown in a hot bed, (best if in pots,) which are to be planted out after warm weather, and which will come into bearing a few weeks ahead of those sown in the open ground. The end of April a small sowing of celery will be in season for first crop. Never, however, sow the main crop early, as they are far more likely to run up to seed or "pipe."

SMALL POX AND VACCINATION.—Hall's Journal of Health has the following:—"From extended and close observation, the following general deductions seem to be warranted:—First, Infantile vaccination is an almost perfect safeguard until the fourteenth year. Second, At the beginning of fourteen the system gradually loses its capability of resistance, until about twenty-one, when many persons become liable to small pox as if they had not been vaccinated. Third, This liability remains in full force until about forty-two, when the susceptibility begins to decline, and continues for seven years to grow less and less, becoming extinct at about fifty—a period of life when the general revolution of the body begins to take place, during which the system yields to decay, or takes a new lease of life for two or three terms of seven years each. Fourth. The grand practical use to be made of these statements is! Let every youth be revaccinated on entering fourteen; let several attempts be made, so as to be certain of safety. As the malady is more likely to prevail in large cities during the winter, special attention is invited to the subject at this time."

VALUABLE DISCOVERY. - About three miles from Clear Lake, Napa co., California, and near the borax lakes, is a sulphur bank from twenty to thirty acres in extent, and supposed to be thirty feet thick, sufficiently pure for the use of the mint at San Francisco. The sulphur seems to be constantly forming from a dam, steam rising over the whole surface continually.

How to Examine Wells.—The following simple mode of examining a well to ascertain whether it contains any offensive substances, has been recommended as efficient:—"Place a common mirror over the well in such a position as to catch and throw the rays of the sun to the bottom of the well, which will be immediately illuminated in such a manner that the smallest pebbles, &c., at the bottom, can be distinctly discerned as if in the hand. The sun is in the best situation to be reflected in the morning or afternoon of the day."

Nicotine.—This peculiar principle is a product of the leaves and seeds of tobacco, by infusing them in acidulous water, adding lime, and distilling, and then washing the product with ether, when an ethereal solution of nicotine is obtained. One drop will kill a dog. It causes the pupil of the eye to contract, has a bitter acrimonious taste, and a pungent smell, and on the whole, is one of the nastiest things in creation. It is composed of 73.26 per cent. of carbon, 9.25 per cent. of hydrogen, and 17.09 per cent of nitrogen. It is related to a class of bodies called vegeto-alkalies, and is capable of uniting with an acid. On the human brain it produces a soothing effect, which is thought very pleasant, but can never be considered otherwise than unhealthy.

Fish Breeding.—A German gentleman named Muller has just put down about five million of the eggs of the Lake trout obtained from Lakes Ontario and Michigan, in streams leading into Lake Salstonstall, Connecticut. He has also put down about a million of the eggs of the white fish in the same lake. It is expected that in two or three years the fish will be of marketable size.

Construction of Stoves.—The desirable points to be secured in the construction and management of stoves, are, first, ready contrivances for regulating the draft; second, accurate fitting in the joining, doors, dampers and valves, to prevent the leakage of foul gases into the room; third, inclosure of the fire place, with slow conductors, as fire-brick or stone; fourth, a high temperature, attained by the rapid and perfect combustion of the fuel; and fifth, to bring all the heated products or the combustion in contact with the largest possible absorbing and radiating metallic surface, so that the iron in contact with the air may not be overheated, but give out its warmth at a low temperature. Large stoves, moderately heated, are therefore most desirable. The cooler the surface of the stove, or the nearer it is in temperature to the air of the room, the more agreeable and salubrious will be its influence. This desirable result is to be obtained only by exposing the greatest quantity of heating surface to the least quantity of fuel—a condition almost reversed in modern stoves. In Germany and Russia, stoves are commonly made of brick, earthen-ware and porcelain. They are generally made to project into the room from one side, like a chest of drawers or a sideboard, the door for the fire being sometimes in an adjoining apartment. These stoves heat more slowly, and consequently give out their warmth for a longer time than those made of iron.

Platinum.—This metal, which is rather heavier than gold, is of a greyish white color, and is capable of receiving a very fine polish. The tenacity of pure platinum is almost that of iron, and for all practicable purposes it may be regarded as infusible; like iron, it yields to the hammer, and can be welded at a white heat. None of the simple acids will attack it, and therefore it is used to make vessels for their manufacture, its only drawback being the great expense. It is dissolved by a mixture of nitric and muriatic acids. When in an extremely divided state, platinum has a peculiar property of absorbing great quantities of gas, and also of igniting and becoming red hot in a stream of hydrogen. Platinum was not known in Europe until the middle of the last century, although it was known long before on this continent, where it had received the Spanish name of platina, or little silver. It is found in Peru and Russia, which last country affords about one thousand pounds annually, and about six hundred pounds are given to the world every year by Borneo.

Why Drain Tile are Dearer in America than England.—1st. Men's labor in England is worth but 50 cents a day. In America we pay $1.00. 2d. Horse labor is one-fourth cheaper there than here. 3d. Boys in England, are hired for 25 cents per day, to set off the tile from the machine, and from their being born, as the saying is, with a tile in their mouths, can do it as well as men can here that we pay $1.00 per day. 4th. Tile in England are fetched from the yard by the parties using them, while here they cost to deliver them on board railroad or boats, at least $1.50 per thousand. 5th. Machines cost there about $60, while here the cost is $150. 6th, Bricks to build the kilns are worth but £4.80, and there is in each brick 150 cubic inches, while here there is but 62 cubic inches, and their cost is about $4.00 per thousand. 7th. Fire brick can be bought there for $10.00, while here their cost is $40.00 per thousand, same size; the cost for building the kiln is in same proportion. 8th. Money in England, in ordinary times, is worth but three to four per cent, while here it is worth seven. 9th. And last but not least. Coal in England is bought upon an average for $1 75 per ton, and one ton will burn two thousand tile, while here it is worth $7.00 per ton, and poor at that, and requires two tons to burn three thousand tile—and if you burn wood, it will take one cord of wood worth $5, to burn one thousand tile. Tile Making is not all profit; if it had been, tile works in Albany would not have changed hands so much.—*Albany Country Gent.*

VETERINARY SCHOOL.—We notice an article in the Canadian *Agriculturist*, from the pen of Hon. A. Fergusson, on "Veterinary Schools." The writer urges the farmers of Canada to use their means and influence for the purpose of endowing a Veterinary School in Canada. Very good advice; and it comes from the pen of a man who has much influence, and, no doubt, the *agriculturists* will take the hint.—*American Veterinary Journal, Boston, March*, 1858.

GRAFTING.—We have strange questions asked on the subject of grafting. Dr. Lindley, in a recent lecture, sums up the whole matter thus:—1. A scion will always form a perfect and permanent union with its stock, if both are from the same individual. 2. A scion will generally form a permanent union with its stock, if one is a mere variety of the other. 3. A durable, but not permanent union, may be effected when one species of a genus is worked on another species 4. No union, either durable or permanent, can be expected when stock and scion are widely different. 5. Bad workmanship will render any kind of grating perishable. Grafted plants, then are not necessarily worse than seedlings.

EDITORIAL NOTICES.

NEW ARRANGEMENTS!—The present number of the *Agriculturist* has been delayed for some weeks pending certain arrangements between the proprietor and the Board of Agriculture as to its future publication, which are all but completed. The particulars will be announced in the next number. The publication will, hereafter, be conducted under the direct control of the Board, and will, no doubt, be much improved. The price will be kept low, while the quantity of matter, and the labour, time, and expense devoted to the publication will be augmented. Full particulars will be stated in next number.

AGRICULTURAL AND HORTICULTURAL SEEDS.—Mr. James Fleming, of this city, Seedsman to the Agricultural Association of Upper Canada, has completed his extensive stock of the different kinds of agricultural and garden seeds, which he warrants fresh and true. He has a large assortment of barley, oats, peas, clover, grass seeds, and Chinese sugar cane, the latter imported directly from the best French growths of last year. From the care which Mr Fleming exercises in the selection of his stock, and the high respectability of the Houses with which he deals, both in Europe and the States, farmers may depend upon being supplied with the best articles at a moderate price.

Patterson & Brother, of Richmond Hill, request us to inform the agricultural public that they still continue the manufacture of their Canadian Reapers, and will be happy to supply all who may favour them with orders. Persons wishing for information will be supplied with circulars by applying to Messrs. Patterson or their agents. We can assure our friends that they may deal with Messrs. Patterson, and be sure of obtaining a well-made machine, at a fair price.

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