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THE

Canadian Agriculturist.

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THE WHEAT CROP.—MIDGE.—WHAT SHALL BE DONE?

From nearly all parts of the Upper Province we hear the most alarming accounts of the ravages of the "Midge"—that most destructive of all the insect enemies of the wheat-grower. In the counties of Kent, Lambton, Middlesex, &c., it has proved more disastrous this year than ever before, if the accounts that have reached us can be relied upon. In the counties of Lincoln, Welland, and Haldimand, its depredations have deprived many a farmer of his bread. East of Toronto, in the counties of Durham and Northumberland, bitter complaints are also made of its blasting influences. The counties of York and Peel, and the county of Simcoe, so far as we have been able to learn, have escaped with slight injury. There is something remarkable in this apparent immunity. The *Midge* has devastated the wheat fields East, West and South of these counties, but has given them a mere taste of its quality. To what is this owing? The superior culture, the better varieties of wheat, or the geological character of the soil? Geologists tell us that the tract of country embraced within the counties of York and Peel, and part of Ontario, is of a different character from that on either side. Our soil is a drift deposit of immense thickness, averaging about 200 feet. The rock which underlies this drift is called the Hudson River group, or Lorraine shales. The Niagara limestone bounds it on the west in the county of Halton, and the Trenton limestone on the east in the county of Ontario. We do not even give it as our opinion that the peculiar geological character of the soil in this neighborhood has anything to do with the attacks of the "Midge"; still if a particular tract or belt of country is found to have escaped for a succession of years, and if that tract differs geologically from those which suffer, the fact is well worthy of investigation.

It is much to be regretted that no steps have been taken to ascertain exactly and reliably the extent of these insect depredations in Canada; the townships most subject to the pest; the kinds of soil, varieties of wheat, and system of cultivation which it seems to prefer; and on the contrary, those soils, varieties of wheat, and modes of culture which seem to preserve from its attacks. As we have remarked on former

occasions, a mere essay or compilation of the history and peculiarities of this insect to be found in the writings of Harris, Fitch, Kirby, and others, will prove of little value. We have read them all and so far as prevention or remedy is concerned, find ourselves but little wiser for our pains. What the country wants, is the organisation of a system of observation and experiment, to be carried on for a series of years in each township. The observers might be selected from the most intelligent members of Agricultural Societies. They should be furnished with specimens in the *fly* as well as the *larva* state of the various insects to be noticed, together with a short description, and their proper scientific as well as popular names. A formula should be drawn up as a guide to each observer, so that results may be properly recorded and classified. If any remedy exists, if any means can be adopted to rid the country of this pest, or to check its progress, this is the way to find it out, and secure for it when announced the public confidence. When will the Bureau, or Board of Agriculture move? How long must the farmers of Canada wait to see the fruit that was promised when these departments were established?

The injury which Canada will sustain this year from the depredations of the *midge*, may be estimated at millions of dollars; next year, as we have every reason to fear, it will be worse. Some have recommendeded the total abandonment of wheat culture for two or three years. This remedy may indeed be the only one that will effect a cure. But has any one counted the cost; have the consequences been duly considered? It is estimated that we exported last year, about nine millions of bushels, at an average price of a dollar-and-a-half per bushel. Now, what will be the effect upon our industrial interests, upon our trade and commerce, upon our public improvements, upon our financial credit, at home and abroad, upon the public revenues, which an extravagant legislature and a reckless government have pledged to their full amount for the next twenty years if this chief source of income be suddenly dried up, even though the drought last but two years?

Mr. Mechi, the agricultural experimentalist, naively remarks in a book he has lately put forth, that "a month's holiday to the British stomach would settle all our manufactures, commerce, and philosophy." And, an English politician once suggested as the only remedy for the political grievances of a certain troublesome community, that the Island they inhabited should be submerged for about fifteen minutes! The cure proposed in our case, appears to belong pretty much to the same category. That our farmers have, for some years, grown too much wheat in proportion to other crops; that they have not prepared their fallows with sufficient care, frequently growing wheat *after wheat*,—which we believe is the chief cause of the rapid increase of insects—must be admitted, and we think it will be found that in sections of the country where good cultivation is practiced, where the wheat stubble is ploughed in the fall, and *ploughed deep*, where wheat is never allowed to follow wheat, and where hardy varieties are generally sown, the insect gives but little trouble. Of course, the advantage of such a plan cannot be fully ascertained, so long as farmers here and there, adhere to the old system. One field in a township allowed to stand as a breeding-patch for the *larvæ* of the midge, will be sufficient

to perpetuate the species to an injurious extent, and probably nullify every attempt to procure its extinction. Any remedy of this kind, therefore, to be effectual, must be general. Hence the necessity for the aid and the interference of authority.

THE WHEAT DESTROYERS.

The subject of insect depredation appears to excite a greater interest this season among the wheat-growers of Canada, than at any former period. The obvious reason is that those depredations have come to be serious for the present, and alarming for the future. As appears from communications in the newspapers, a good deal of misapprehension still exists as to the kind of insect now doing the mischief. The most common mistake is that of calling it the *weevil*. If this name were popularly applied to the same insect, the mistake would be of little consequence. But we notice that it is applied indiscriminately to the larvæ of the midge, and the wheat-moth, or caterpillar. This creates confusion, and renders the statements as to its operations of little or no value for the purpose of estimate, comparison, or scientific enquiry. We shall state in a few words the peculiarities of these three insects,—the Weevil, Midge, and Caterpillar. We had hoped to have presented, in this number, engravings of each of these insects in their *fly* as well as *larvæ* state, but the only wood-engraver within reach, could not, on account of illness, prepare them in time. Probably they will be given in our September number.

The WEEVIL (*curculio granaria*) of Linn., (*calandra granaria* of modern entomologists) is so seldom seen in this latitude that it is unnecessary to describe it at much length. The perfect insect is a slender *beetle*, of a dark and pitch-red colour with a long slender snout, a punctured thorax, and furrowed wing-covers. In the Southern States, wheat stored in mills or granaries suffers considerably from its attacks, but it is seldom seen as far north as Canada.

There are several *Grain-worms*, or caterpillars. The kind we have noticed in our own fields,—and the same appears to have extended over a large part of Canada—is apparently the *Tinea granella* of European entomologists. The moth or miller lays its eggs on the grain, and the grub or worm when hatched feeds on the grain. Each worm appropriates a kernel to himself. It is said that rye, oats, and barley are subject to its attacks as well as wheat. The worm of this moth, says Dr. Harris, "is a soft naked caterpillar, with sixteen legs, and measuring four or five-tenths of an inch. The colour is a light ochre or buff colour, with a reddish head." We may add that the specimens we have examined have three whiteish lines along the back. They spin a web, though we have never found them "enveloped in a web" as mentioned by Mr. Gaylord in his essay, published in 1843. Though by no means a desirable visitor, they cause but little injury compared with the *midge*.

The MIDGE (*cecidomyia Tritici*) was first observed on this continent about the year 1828. It began its depredations in Lower Canada and the adjacent States. It has since extended over all the Northern and Eastern States, and within the last two or three years has invaded the great wheat-growing districts of the West. We have

seen no better description of this dreaded pest than that given by Mr. Gaylord in 1843, and published in the "Transactions of the New York State Agricultural Society" for that year. We shall copy the substance of his remarks on the subject.

"The wheat fly is in form somewhat like a musquito, only smaller; body orange colored; legs long and slender, as usual with the gnat family; and the wings transparent, changeable in color, or reflecting the colors of the rainbow. Having had frequent opportunities of examining the parent fly of our grain worm, which agrees well with the description given by Kirby and Spence, we think it the same insect—one that has been known and described in England for nearly one hundred years, It is possible, however, there may be some shades of difference, but their appearance and habits as described by Gullet and Masham, (see Dr. Harris, page 437), are so like ours, that they may be considered the same for all purposes. These flies make their appearance in June, or at the time wheat is usually in blossom, in great numbers, and are most active in depositing their eggs immediately after dusk; few being found in the day-time, or after nine o'clock in the evening. In the day-time they are secreted among the leaves and stems of the grain, rarely coming forth until after sundown. The female is provided with an ovipositer, or retractile tube, which she thrusts with her eggs between the scales of the chaff, depositing them in clusters from five to twenty. In some instances from thirty to forty larvæ have been found within the chaff of a single grain. The larvæ when first hatched are colorless, but they soon become of a deep orange, or bright rust color; are true maggots without feet, working their way with difficulty from one place to another. They gather around the central point of the chaff where the formation of the kernel commences, and completely nullify or destroy the grain. When full grown, the maggot is about one-eighth of an inch in length. Some few are changed to the pupa state in the ear, but the greater part fall to the ground, where they finish their transformations, and appear in the spring or summer as perfect insects, ready to deposit their eggs on the growing wheat crop. So great and wide-spread has been the damage occasioned by this insect, that ample opportunity has been had to try all the preventives usual in such cases, and we are sorry to say with very little effect on the whole. Fumigating the fields with sulphur, or smoke from any other materials will retard their action for a time, and could they be continued might destroy them. All pungent odours are offensive to the grain fly, as they are to the musquito, and that most offensive of all odours, the one proceeding from the skunk, has been tested, and highly recommended as a preventive. Quick lime strewed over the field while in blossom, has been highly recommended by Mr. Colman and others, but its success does not appear to be uniform, perhaps owing to its not being applied at the proper time or in sufficient quantities. A half bushel of lime mixed with the same quantity of ashes, and sown on an acre, has produced good results. In the case where lime has failed, Mr. C. has suggested that the sowing took place too early, and that two or three sowings might be advisable, so as to certainly cover the time of the fly's appearing. A friend who is an extensive farmer in Rensselaer county, N. Y. assures us that the present year, wheat sown early in autumn, and which of course came forward early in the spring, has wholly escaped the grain worm, while the late sown has suffered materially; and that his experience in former years has convinced him, the same will hold good as a general rule. Where spring wheat is sown, it is found the early sown suffers the most, it being in blossom at the right time for the action of the fly. Sowing spring wheat as late as it will ripen, say the 10th or 15th of May, will save it from the worm; but such late wheat is very apt to blight, and be of inferior quality. Perhaps, where the worm prevails, giving wheat up for a short time, taken in connexion with burning stubbles and deep plowing, would be the safe course."

Bones as a Manure.—A late number of the *Country Gentleman* has an elaborate article by Levi Barlett, of New Hampshire, on bone manure. He concludes that there is no other manure whose effects are so lasting as an application of ground bones. Besides the increase of crops he says it supplies phosphate, which grasses generally lack, on old and long grazed fields in New England, and the want of which, cause what is called "bone disease" in cattle. Mr. W. recommends that the bones be pounded, and thus broken to pieces, boiled or ground, and then spread evenly over the soil, and mixed with it. He has a field that was thus dressed years ago, and the effect is yet very perceptible on clover.

AGRICULTURAL BOOKS AND PERIODICALS.

Germany and Great Britain are the only countries which afford a market for works on Agriculture.—In France the mass of the people scarcely ever read any thing except light novels. But books on farming, printed in the French language, find a market, because that language prevails throughout Europe, especially in the farming districts of Holland and Flanders. Russia and Hungary scarcely possess a work on the subject,—and Spain and Portugal have never succeeded in supporting any permanent or periodical work on culture, although entirely dependent on vine culture for prosperity. Italian books are circulated in the south of France, and Spain, and in Spanish America,—Scotland finds the Authors and Publishers, and England finds the readers,—England forms the example and model farms, and Scotchmen direct and control them. So with regard to Agricultural Implements, the Scotch are for the most part the inventors, improvers, and modellers, and the English the manufacturers, buyers, and users. In North America, Agriculture engaged the attention of Authors, as early as 1744, and from that time to this, the United States have published continually some of the most useful works, have invented the best labor-saving machines, and reprinted all the best European works on the subject. Scotland has produced the best authors, as Stephens, Loudon, Morton, Lindley, and has become tutor, with England and America for its pupils. Germany has furnished almost all the most eminent Chemists, who have specially devoted their studies to chemical analysis of vegetable matter, soils, and minerals, as Liebig, Voilckner, &c. The result of all research, and chemical analysis has been to elicit the following facts, corroborated by statistics :—

1.—That all soil however rich becomes gradually less and less fertile, so long as it is uncultivated, until it becomes absolute morass, moor or marsh, or impenetrable forest.

2.—That soil covered with forest trees retains its luxuriance for the greatest length of time, and when cleared of the forest, proves the most durable of any for the purposes of cultivation.

3.—That on land uncultivated, Nature maintains to a certain extent a regular rotation of crops, each plant in succession gradually diminishing in size, until the barren moor is all that remains.

4.—That pasture land when neglected, (though of the richest quality), gradually decreases in value, until it produces only the most worthless and valueless grasses.

5.—That the plough, labor, and a scientific use of manure will restore any land, even the most worn-out, to its original staple quality.

6.—That to maintain land in its proper, and original staple condition, manure must be supplied in proportion to the properties exhausted by the crops, and that such replenishment of exhausted properties, can only be contrived, (except under special circumstances), by a judicious rotation of crops, and by the economical use of the various reproductive substances everywhere provided by Nature.

Experimental farming has proved all this, and a great deal more,—without which practical farming could never have been carried on. Scientific books have in times past, been for the most part used only by the experimental, or amateur farmer. But so great have been the advantages derived from the application of science, that practice without science has become almost as profitless, if not as ruinous, as science without practice. It is on the union of practice with science that the success of the farmer must ever depend, so that farming now forms the most interesting, as well as

the most necessary subject for periodical literature.—Independently of the higher works already alluded to, of too expensive a character for a very wide circulation, America issues no less than 100 periodicals almost exclusively devoted to the farm, including the *Canadian Agriculturist*, which is the cheapest farming journal extant. In this the New World, would seem to take the precedence of the Old, but when it is recollected that Canada trebles England in extent, and every person in the country is is or may be a land owner, it is a matter of surprise that the *Canadian Agriculturist* is not issued every week, instead of every month, and as eagerly looked for as the *Mark Lane Express*, or *Bell's Weekly Messenger*, or the more scientific but scarcely less practical *Gardeners' Chronicle and Agricultural Gazette*, all of which are full-priced papers. There is also the *Magnet*, a cheaper paper issued in London, at 4d. a copy, and the Irish and Scotch weekly papers, also full-priced. Their united circulation will be found to exceed 60,000 copies, a week, and to be supported by annual subscriptions amounting to some £75,000 Sterling, or to $375,000. The whole of British North America does not subscribe towards farming literature probably more than £1000 currency.

NOTE BOOKS v. MEMORY.

Observations on the seasons and weather are essentially necessary especially in a climate, like that of Canada, supposed by many theorists to be undergoing a change, as the country becomes clear of forest, year by year. John Young, an English author asserts that "the climate of Europe was 2,000 years ago, precisely the same as that of the greater part of British America at the present day," and argues that the amelioration of climate is as certain to progress with the cultivation of the soil and consequent decrease of forest, and with the increase of cities and population. Severe winters, however, are as much the characteristic of Canada as before, while extreme summer heat seems, in some measure, to have declined cold springs and wet weather in May and June, are becoming, it is said, of more frequent occurrence. The present season is one of the most extraordinary in this respect, ever remembered. In England it is safer to trust to memory, than in a new country. There are numerous marks, by which to remember the exact times of sowings, mowings, reapings, and the setting in of winter, such as the fixed feast and rent days of Lady Day, Midsummer Day, Michaelmas Day, and Christmas Day, invariably falling on the 25th of March, the 24th of June, 29th of September, and 25th of December. By these divisions of time, the farmer recollects, that in 1843 he had not cut his corn by the 29th of September, and rent day came, with nothing got off his farm, wherewith to make his payment. In Canada, with no rents to pay, few regular fixed fairs, and fewer annual and periodical meetings, it is more essential to note every thing that may be a guide to the future. In England, a wet season like the present would almost invariably lead to a bad harvest. Few of the cereals, without extraordinary care, and without the use of antidotes to the injurious effects of continued wet, by underdraining and top dressings from artificial manures, would come to ordinary perfection, and light samples, or rusty corn would inevitably be the rule, more or less,

as the after season improved. In this drier atmosphere, the same mischief may not ensue, and indeed a wet season here may possibly prove a good one. "A dry summer never begged its bread," is a proverb many an old countryman will remember, —and it is one of the truest ever uttered, heavy samples of wheat and large burthens to the acre invariably follow, while hay crops, and root crops may fail, compensated in general, in some measure, by a heavy supply of aftermath in the fall, and generally by a long, dry, and fine autumn. The compensation for a wet summer, and light crops of cereals is of course, an abundance of pasture, and every kind of root crop, but not of pulse, which is usually full of maggots in wet seasons. A daily note of the condition of the weather,—the work done on the farm, would occupy about five minutes, and every farmer would find it of incalculable use for the future,—to mark the progress and results of singular seasons like the present, and compare them with ordinary years.

ENGLISH IMPLEMENTS IN HUNGARY.

At the recent great Agricultural Show at Buda-Pest in Hungary, a number of English implements, as well as live stock were exhibited. The following notice of the show is from the correspondence of the Mark *Lane Express*:—

The show commenced on the 6th of June, and virtually finished on the 11th; but three days more were occupied in the distribution of the prizes, and the sale and disposal of machinery. So strong was the desire to do business, on the part of the Hungarians, that several of the English exhibitors were occupied up to the last hour, either in taking orders or in sending away what they had sold. It was remarked by several of the leading visitors that, had it been known that the English intended to appear in such strong force, and make such an excellent display of implements, a much larger number of the Hungarian cultivators would have been present. The desire is very great, on the part of the latter, to possess themselves of labour-saving machines of the best construction from the necessity of adopting the most economic means of cultivating the soil, now that the peasant is free, and hand-labour exceedingly scarce and high-priced.

The exhibition of English machinery and implements was exceedingly good. We shall simply enumerate the leading exhibitors and objects, as they are all well known and do not call for particular notice at our hands. Clayton and Shuttleworth exhibited thrashing machines and engines; Ransomes, thrashing machines, engine, crushing mills, chaff cutters, ploughs, and harrows; Garrett, thrashing machine, drills, and horse-hoes; Howards, ploughs, harrows, horse-rakes, and horse-hoes; W. Dray & Co., crushing-mills cart, corn-dresser, chaff-cutters, rakes, and steam-cooking apparatus; Coleman, cultivator; Barrett, Exall & Co., thrashing machine and engine; Smyth & Son, drills; Davy, Brothers, engine, and thrashing machine; Burgess & Key, improved M'Cormick's reaper; and Hornsby and Sons, thrashing machine, drill, and engine.

The jury paid great attention to the several essays (trials) made by the machinery and implements. The thrashing machines all did their work well, the difference between them we have endeavoured to indicate in our preceding remarks. There were two circumstances, however, connected with the trials, which are deserving of special observation, as they stand out so prominently from the general proceedings, and certainly each, in its way, excited a very large amount of interest. The trial of Howard's ploughs was one, to which we have already alluded, therefore we shall not attempt to describe the excitement and interest which they awakened throughout the duration of the show; and the trial of the reapers was the other, which we shall now more specially refer to.

Next to the plough there is certainly no machine or implement that is more required in Hungary than the reaper. The scarcity of labour on the one hand, and the impossibility of gathering in the corn on the other, large quantities of which are annually lost on the plains in the south of Hungary, has imparted an extra interest to the practical powers of the reaper; therefore it may be imagined that the trial, to which we now briefly

allude, must have excited great attention and would be watched with the most intense anxiety by the Hungarian proprietors.

The trial took place in a field of rye, about four miles from Pest. So great was the interest excited, that the Archduke Albert and several of the leading functionaries of State attended, to watch the proceedings and report the results. The field, it is almost unnecessary to remark, was crowded by the leading landed proprietors and farmers, who had bought largely of machinery for agricultural purposes, and who paid great attention to the respective operations of the reapers.

There were only three reapers on the ground; one by Baron Ward; a second by M. Szabo, of Pest; and the third, Burgess & Key's improved M'Cormick. Sometimes the reapers were drawn by oxen, and sometimes by horses, in order to test their working power under different circumstances. M. Szabo's machine very quickly got choked, and had to retire from the field; and we have some recollection of having seen one of similar construction, exhibited by Wray & Son, at Gainsborough, in 1852. The delivery is by endless bands, moving horizontally; but the Pest machine did its work in so clumsy a manner, and required such a heavy draught, that it was at once pronounced a failure. Baron Ward's machine, which we have already described in our notice of the trial at Flinsdorf, did its work very fairly; but, independent of being heavy in draught, and frequently leaping right over the corn, and leaving large patches not cut, but trampled down, requires two men to rake off what it cuts; and such is the severity of labour, that no two men of ordinary strength could last a couple of hours at such work. The Archduke pithily remarked, that it would not be a bad machine if the Baron could only manage to do without his two men. There were four horses required to draw Baron Ward's reaper round the first cut, although the crop was by no means of a heavy kind, and four oxen the second and third; but after every effort to make it succeed on the part of all who saw it, it came out but midlingly from the trial. The interest, therefore, was naturally concentrated upon Burgess & Key's M'Cormick, and, as it had not worked at the Vienna show, great anxiety was felt as to the results of its operations. It is also just to remark, that great regret was expressed by several gentlemen, who had a deep interest in the question, that W. Dray & Co.'s reaper was not in the field, as it worked so much to the satisfaction of those who saw it at Flinsdorf. It appears, however, that it only arrived one day after the fair, by mistake, or by unavoidable delay. Burgess & Key's M'Cormick it is, however, but just to state, not only came up to what was expected of it, but went far beyond that point. After making one round with a couple of horses only (the horses are light in Hungary,) the approval of its working capacity was so marked, that there was not even the shadow of a doubt in any one mind in the field, as to its marked superiority over the others, and of its apparently answering the various requirements of such a machine in Hungary. This reaper did its work clean, easy, and in comparatively quick time, besides requiring much less draught, not so many men to attend it, and doing no injury to the corn. The Archduke, after seeing the reaper tried, first by horses and then by oxen, and quietly following it along the field, congratulated the representative of Burgess & Key, and emphatically remarked, that it was immeasurably the best machine there, and that it fully answered all the requirements that he could conceive of such an implement. On this declaration the whole company took off their hats and gave a hearty cheer, at being honoured by English machinery in assisting them in their field work. The success of this machine, as far as Hungary is concerned, was certainly of a very decided character.

High Farming.—Mr. F. Mechi, whose name is associated with the first triumphs of American reaping machines in England, which occurred on his farm at Tiptree, has recently written a little work called "How to Farm Profitably," in which he disposes, in a good humored manner, of all those who have taken grounds against *high farming*. He says:—

I have often been much amused by the compassionate look and manner in which my friends inquired after my doings at Tiptree. The translation of these sentiments is this: "Mr. Mechi, you are kindly losing money by your experiments to oblige the country, and we ought to feel grateful to you." But I sternly ejaculate that what does not pay in agriculture is not an improvement. The fact is, for several years I have been deriving a most gratifying return for my expenditure, and it is of a very enduring and continuous character; but the world does not believe it.

TRIAL OF REAPERS AND MOWERS AT SYRACUSE, N. Y.

This important trial came off as announced, and has, no doubt, resulted in much benefit to the agricultural interests of the country. Although it was held at one of the most busy seasons of the year, a large number of persons interested in agriculture attended during all the days of trial. It is to be hoped that arrangements will be made by the Agricultural Association, to hold a similar trial in Canada next year. It ought to have been done this year, for the number of machines—some valuable, some nearly worthless—that are now offered to the Canadian farmer, renders it very difficult for those who have not studied the subject to make a proper choice. We copy an interesting account of this great American trial from the *New York Tribune*. The final result will not be officially stated for a few weeks.

The great event has now been completely realized, the labours of the Jury have been brought to a close, and already the most of the members are on the way to their widely-separated homes. At this juncture, it is fitting to pass in review the objects sought to be attained in this trial, and see how far the careful examinations of the past week have tended toward establishing a worthy precedent for the trials of other Societies.

The important distinctive features of this trial are its magnitude, its national character the excellent fitness of the Board of Judges, the severity of tests to which the machines have been submitted, the thorough dynamometer trials, and the philosophical principles sought to be established in the investigations; and I propose to advert as briefly as possible to each of these in succession.

First, as to its magnitude. A few weeks since there was published in the *Tribune* a list of the notifications of entry, amounting to the very unusual number of *ninety-six* machines, coming from fourteen different States: and much surprise has been excited in the public mind that so many machines, adopted simply to gathering our grass and grain harvest, should actually be manufactured and absorbed by popular demand. We felt apprehensive that if the proposed competitors should actually fulfil their contracts, and present their machines upon the trial field, the Jury would be so embarrassed with the immense number as to be obliged to give only a very incomplete examination into their merits, and thus defeat the high expectations which the public entertained in respect to the thoroughness and impartiality of the National trial. The sequel proves, however, that it is much easier for a manufacturer to feel such high expectations of success as to make notification to a Society that such or such a machine will certainly be on hand to compete, and on sober second thought to bravely buckle on the armour and enter into the conflict; for of the ninety-five original entries, but *forty* have been made actual by the payment of entrance fees. This, although much less than was expected, is still a larger number than would be agreeable to the Jury, for to give patient attention to their separate characteristics they have been compelled to use great diligence, and have experienced no little embarassment to the speedy progress of the trial. If, then it is fortunate that the number of machines in actual competition was less than was to be anticipated from the notifications of entry, how much more so is it that the fine haying weather prevented the attendance of five or ten thousand visitors. Even with a small proportion of that number the machines were followed by anxious crowds, and at times, the Judges were completely hemmed in by spectators. With such great disadvantges as these to contend against, what Jury can do its work in a decent and thorough manner? And is it all strange that, both to protect the crop against being totally ruined by being trampled under foot, and to give them full liberty to examine with care and attention the intricacies of construction and working, the Superintendent and Judge should issue peremptory orders to keep the crowd back as far as the boundary fences? The nationality of the trial is shown in the aims and objects of the United States Society, the different States whence were sent the competing machines, and by the selection of the members of the Jury. The States represented by machines were: New York, New Jersey, Ohio, Illinois, Massachusetts, Indiana, Maryland, New Hampshire, Vermont, Michigan, Pennsylvania, Texas, Deleware and Kentucky. If all the entries had been made good, their number would have been still greater; but those actually here prove how wide

spread has been the interest in the trial, and how important will the decisions be considered. There probably has never been called together a Jury on Agricultural Implements so influential, so competent, and so impartial as the one at this Fair. The Superintendent, Joseph E. Holmes, of Ohio, was Superintendent of Machinery at the Crystal Palace, New York.

The competitors felt some dissatisfaction that they and their teams should be kept sweltering under the rays of a July sun, while the Jury were quietly going on with their tests with the Dynamometer (or *Doxology* as one of them expressed to me). Some of them thought *draft* was not of much account, and could not be persuaded to cast a mental balance between so many pounds of draft and so many bushels of oats; but for all that Liebig, and Bence Jones, and Johnson, and every other person acquainted with the laws of animal life, maintain that all animal exertion produces waste of substance, and consequently the more strain is put upon the muscles in a day's work the more rapidiy will a horse or an ox become attenuated and need new supplies of food. To show the agricultural public which of two or more reapers and mowers will cause the greatest loss in this way, and consequent drain upon the farmer's pocket, the Jury at this trial have quietly continued on the even tenor of their way and now at the end of their weeks work can show the records of a more perfect investigation into the construction and properties of reaping and mowing machines than was ever before made public.

The new Dynamometer (power-measurer) invented by W. B. Leonard, Esq., Secretary of the American Institute, is constructed as follows: A square box of cast iron, to the front and back plates of which are attached links for the appliance of the machine and the power used, contains at the bottom a piece of ordinary clock-work, the object of which is to give a constant revolving motion, to a circular table covered with leather.—Near the top of the box, on either side of this revolving table, are stiff spiral springs, which are fastened to the front and rear plates of the box. Directly over the revolving table is a spindle, the two parts of which slide upon each other, like a telescope, as the power applied draws out the spiral springs; and in the centre of this spindle is a brass wheel which revolves at right angles with the circular travel of the table. At the extremity of this spindle is a disk on which revolving hands mar by proper figures the total amount of strain made by the team. Now attach the team to the front link and the machine to the rear one of the box. The parts are drawn asunder, thus straightening out the spiral springs, pulling the sliding portion of the spindle and causing the upper brass wheel to pass off the centre of the revolving table, where of course, it previously was at rest, and to revolve itself by the forward travel of the table which it touches.—As this wheel goes round, it turns a pinion wheel at the other end of the spindle, and by an arrangement of one or two cog-wheels the hands go round the disk, faster or slower as more or less power is applied, and a perfectly accurate registry is made of the draft of the machine attached. This machine is most wonderful in its adaptation of mechanical principles, and after careful testing by watch and weights, has proved itself accurate and reliable. The machine sent to be used by the United States Society on this occasion should have been made entirely of wrought iron, instead of which the box and slides raised were nothing but brass and composition, and of course gave way before the rough usage to which they were subjected. If Mr. Leonard will make the box more durable, he will be able to give the public a splendid instrument, and one that is necessarily destined to come into general use. When the Leonard Dynamometer box broke, the Superintendent was fortunately enabled to borrow from Messrs. Emery Brothers, of Albany, an oil dynamometer which they had upon the ground. This instrument is a strong cylinder of iron, in which, as in a steam engine, there is a piston rod, in which is fitted a puppet valve and there is made a small orifice. The cylinder is filled with pure-strained oil, the piston introduced and the cap hermetically closed. At the end of the piston is one link, and at the other extremity of the cylinder another, to which are respectively attached the team and machine. As the power is applied the piston-rod is slowly drawn out at such a rate per minute per rod as more or less force is exerted, controlled by the oil being forced through the tiny orifice in the piston. When the machine has run a certain distance, by reference to the length of rod drawn out and time consumed, the actual draft is got at by the single rule of three. This, as well as the Leonard instrument, worked admirably, and lent much to the examination. The yoke for testing side-draft, which was invented for the trial by Mr. Holmes, the Superintendent, I have described in a former letter. It will suffice to say that it was shown to be correct and a valuable assistant.

Not only were the exhibitors obliged to go through the fiery ordeal of these tests, but the grain cut, and the uneven surface of the fields, all conspired to render the trial a most searching one. It was remarked to me by one competitor who had been to scores of trials in this country, and had even worked an American machine at the imperial trial in France, that this was the most rigid test he had ever been put to, and moreover, he had never competed with so many machines at once. The report of the Judges will be presented at the United States Fair at Louisville, Sept. 1, and from their intelligence and the close examination made by them at Syracuse, it will undoubtedly prove a most valuable acquisition to our manufacturing public. One thing is certain: the influence of this trial will be felt at all subsequent ones, and you may rely upon it, any uninformed carpers to the contrary notwithstanding that the trial has been, in the accomplishment of the object sought, a most decided success.

It will have the effect of showing the farmers of the United States, that although they may nourish predilections for certain machines because they do good work in cutting, yet the only test of their excellence is to be found in putting them under a rigid examination, based upon scientific principles, and every sensible editor and farmer in the country can do nothing else than feel respect for the initiative taken by Judge Gould and his associates.

One test applied to the machines was to make the team walk as slowly as they could so that they put one foot ahead of the others, and causing the cutter bar to go click, click, tick, click, like the pendulum of a clock. The Jury would take particular notice how the grass was cut at this slow motion. The team would be gradually stopped, and then started again without backing the machine. Some of the competing mowers utterly failed in this test, thus proving that a high rate of speed was required for them to perform their work, and the team would consequently be the sooner tired out.

Of the new machines on the list there is one, a self-raker of very excellent principle and simple construction, invented by the veteran *Pells Manny, of Freeport, Ill.* He is the father of J. H. Manny, and original inventor of the widely-known "Manny's machine." The old gentleman has succeeded, he thinks, in obtaining a reaper and mower much superior to his son's, and, old as he is, fearlessly enters the lists. The patriarch of all reapers, Obed Hussey of Baltimore, was here with a novel reaper, which cuts a swath ten feet wide. There is no raker needed with this machine, for the grain as it is cut falls upon a tilting platform.

When enough for a gavel accumulates upon the platform, a hand riding behind the driver pulls a long iron bent lever, and the platform is caused to tilt up and drop its load behind it, while the machine goes on its way. I am surprised that so experienced a man as Obed Hussey should come to exhibit a machine so manifestly imperfect as this mammoth reaper, and cannot wonder at his quitting the field after going once around his lot. Besides these, there was the "Illinois Harvester," invented by Jonathan Haines, of Pekin, Ill. This harvester cuts off only about 18 to 24 inches of stalk with the grain head, and by means of a laterally travelling endless apron and elevator, the grain is loaded immediately into a waggon driven alongside. With five hands and three teams, beside the two employed to push forward the machine, thirty acres of wheat can be well cut and stacked per day. The President and some of the Judges and reporters went down yesterday to see it put to work, and the opinion was unanimous that it was entitled to much praise for its excellent performance. It is not fit to cut oats or barley or grass, but simply wheat, and therefore will be principally valuable to large wheat-growers at the West.

We in New York have no conception of the extent to which these wonderful reapers and mowers are made and sold. Why, Sir! what must be your surprise when I tell you that one single shop in Illinois has turned out this year, so far, *four thousand six hundred and fifty one* combined reapers and mowers, which, at $145 each, the retail price for the average of the sales amounts to $674,395, *nearly three quarters of a million of dollars.* And a rival shop in the same State has made 4300 this year at the same price. Old Pells Manny told me that there would be 20,000 machines made in Illinois this year! The widow of the patentee of a certain popular machine has an income from the sales of $150,000 per annum. Is it any wonder then that manufacturers should gladly seize upon such occasions as this National Trial to enter for competition and bring their machines before the farming public? The fact is, the rush of emigration westward, and the

prevalent thirst for large farms, causes more land to be brought under cultivation than there is labor to till it, and to, in some manner, compensate for this crying want, the farmer has been supplied with these reapers and mowers already, and is each year craving more and more a steam plow. In view of these facts then, it will readily be understood that this Syracuse Trial is looked upon by manufacturers with great anxiety, and its decisions must exercise an important future influence.

One of the Judges, writing to an Agricultural Journal, gives the following as the names of the principal mowing machines tried :—

Nineteen machines entered the contest, as follows :—

1. Warder, Brokaw & Co., Springfield, Ohio—Ohio reaper and mower.
2. W. A. Wood, Hoosick Falls, N. Y.—Manny's patent with Wood's improvement—combined mower and reaper.
3. T. R. Hussey, Auburn, N. Y.—Hussey's combined machine.
4. W. F. Ketchum, Buffalo, N. Y.—Ketchum's mower.
5. W. A. Wood—Manny's mower with Wood's improvement.
6. Miller, Wingate & Co., Louisville, Ky.—Kentucky Harvester.
7. D. M. Osborn, Buffalo, N. Y.—Kirby's mower.
8. A. H. Caryl, Boston, Mass.—Heath's mower.
9. Rufus Dutton, Dayton, Ohio—Atkins's Automaton reaper and mower.
10. T. D. Burrall, Geneva, N. Y.—Burrall's mower.
11. M. Hallenback, Albany, N. Y.—Hallenback's mower.
12. Wm. H. Hovey, Springfield, Mass.—Hovey's mower.
13. Ball, Aultman & Co., Canton, Ohio—Ball's mower.
14. P. Manny, Freepart, Ill.—Manny's mower,
15. Ball, Aultman & Co., Canton, Ohio—Miller's mower.
16. Hull & Sanford, Poughkeepsie, N. Y.—Ketchum's improved combined machine.
17. Seymour & Morgan, Brockport, N. Y.—combined machine.
18. R. L. Allen, New York, N. Y.—Allen's mower.
19. Pruyn & Lansing, Albany, N. Y.—Newcomb's mower.

He adds,—"It appeared that lots enough had not been laid out in the field above mentioned, and it was therefore deemed expedient to try three of the machines in another field, which prevented the comparison of all under precisely the same circumstances.

There was a striking contrast in the character of the work performed by the different machines. A few operated in an almost unexceptionably manner and approximated closely to *perfect work*; others cut the grass nearly as well as is ordinarily done with the scythe, while others cut it in an inferior grade, down to leaving nearly half the crop uncut. My position as one of the Board of Judges, precludes my giving a comparative view of the machines, as to their working, and in other respects, until the awards have been announced. I do not think, however, that I transgress any rule of propriety by stating that the Heath machine, which took the $1000 prize in Massachusetts last year, has disappointed its friends in this trial. This should, perhaps, cause the exercise of some caution in regard to purchasing it."

Salting Hay.—We frequently find notices of salting hay, and also of the injurious effects, in many instances, resulting from it. We give from the farm report of L. D. Clift, of Putnam county, N. Y., in the volume of Transactions of the N. Y. State Society for 1855, a preparation that has proved highly beneficial, and obviates the difficulties attending the use of salt:—

"Preparation for Hay in the Mow.—I have used, for several years, the following preparation for my hay: *Two parts of slacked or quick lime to one of salt.* The salt to be mixed with the lime until dissolved and the mass becomes a powder. Upon a load or ton of hay, at intervals in mowing or stacking, use from ten to fifteen quarts, dusted evenly over the hay. I formerly used salt alone, but the men would often use too much, so that it was injurious to the stock. The above mixture obviates this—it corrects the acidity and sourness of hay, and I do not recollect a sick animal since I commenced its use. Horses troubled with the heaves are greatly relieved by feeding upon hay thus prepared, and I am satisfied it is a preventive of the heaves. My horses are kept in the stable the year round, well groomed, and they do far more work and wear longer than when suffered to run during the summer."

THE CURCULIO.

This insect is one of the most troublesome enemies with which the fruit-grower has to contend. It is sometimes known by the appellation of the gum moth, and ordinarily commences his attacks upon the plum tree early in the spring. Its appearance, however, depends in a great measure upon circumstances. Its eggs are deposited in the embryo fruit, and may be easily destroyed by a preparation formed of one bushel of wood ashes, one quart of soot, and half a pound of sulphur. The most favourable time for applying this is in the morning, when the foliage is wet with dew. The quantity applied should be sufficient completely to cover the leaves, limbs, and fruit. The application rarely, when properly made, fails to destroy the insects, though they are extremely shy in their habits, and are not easily got rid of by any other means.

In isolated positions and in places surrounded by salt marshes, the smooth-skinned fruits are usually prolific, and seldom subject to disease. This exemption is frequently experienced in cities and towns on the sea-board, and it has been remarked that trees growing in the vicinity of salt water—especially if near it—are rarely, if ever, attacked by the gum moth. On the contrary, the plum, the nectarine, the apricot, &c., fruits which are invariably infested by it in interior localities, and in open and exposed situations, are rarely injured by it when so situated as to enjoy the sea breezes, or the spray of the ocean during storms.

As a general thing, the curculio, though it will attack most fruits, seems to have a peculiar *penchant* or preference for those which are smooth and thin-skinned. Few of these escape its ravages. The various descriptions of the cherry, though to a limited degree obnoxious to its depredations, if growing in exposed situations, frequently escape. This exemption has been attributed by promologists to the superior hardness of the skin of that fruit, but I am inclined to think it is indebted for its escape to other causes. The farmer and gardener who devote a part of their time to the cultivation of stone fruit, often tell us that their choicest selections fail, cast their fruit prematurely, and, indeed, seldom if ever fully renumerate them for the labour and expense involved in their cultivation. For this they are unable oftimes to assign any adequate cause; and yet it is the result of the injuries inflicted by the curculio, and one of the surest indications of its presence. The small minute egg, which by means of a nidus prepared by a small puncture, is deposited in the soft palaceous substance of the incipient fruit, becomes in time a worm, which eats its way to the stone and causes the fruit to drop. Immediately upon this result, the worm forsakes its former *nidus*, prepared for it by its parent, and seeks a lodgment in the soil, and early the next spring, about the time the fruit becomes visible on the bough, it emerges from its terrene bed a winged insect, and endued with the same instincts, and prepared to pursue the same round of action as that pursued by its parent of the year before. Although furnished with wings, it is seldom seen to use them—ascending to the scene of its depredations generally by the bark of the trunk, and but rarely trusting itself to the air when it can exercise or find use for its legs. It is frequently the case that on examining the fruit of a tree infested by the curculio, every plum or cherry will be found to have a small puncture on its surface which indicates the position of an egg. The motions of this insect are surprisingly quick and agile, and it is only by the most exact and persevering attention, that one is able to discover them; they seem to have been endowed by nature with an instinct which teaches them to shun the human face and to secrete themselves at his approach. Dr. Gage remarks that he had a tree of the "Prince's Imperial Gage Plum," a variety, although the most productive of its class, that could never be made to produce a crop of fruit on account of the injuries produced by the curculio. He however adopted the following method, and finally succeeded in securing a crop of fruit. Early in the spring, or about the period of inflorescence, he deposited near the tree a hen-coop, containing an early brood of chickens. After the insects had emerged from the soil, and before they were able to ascend the tree, every one of them was taken up and destroyed by the brood.

The most effectual method of warding off the attacks of this troublesome insect, is by showering the mixture above named over the foliage, and permitting hens to run among the trees. If this course is adopted, and the soil about the trunks thoroughly and frequently irrigated with a solution of salt and water, valuable fruit may be raised in any and every section and without fear of the curculio.

GYPSUM AND PLASTER.

To the Editor of the Agriculturist.

Sir,—Although the time for the sowing of gypsum or plaster is, for this year at least, past, pardon my inappropriate application for the solution of a question concerning its real utility,—a question which has not, to my knowledge at least, been satisfactorily answered in any of your issues.—*Does plaster materially enhance the fertility of the soil, or does it act as an exhauster by overtaxing its energies.* I am aware there is a class of individuals who positively assert that farming, conducted without the aid of plaster, is perfect madness; and I am also aware that there is another class who tell us that they have used plaster from year to year without deriving any sensible benefit therefrom. So, Mr. Editor, if you would take the matter in hand, and give us a scientific and chemical solution of the question by examining into the nature of the substance, I think you will give satisfaction to both parties, at least, you will set the question at rest, so far as regards its intrinsic value.

Yours, truly,

Scarboro', June 19th, 1857. John Jacques, *C. S. Y.*

Remarks.—We have frequently given our views on the subject above referred to. Our correspondent desires us to undertake a scientific or *chemical* solution of the question. We would remind him that Davy, Liebig, Johnston, and many other distinguished practical chemists have very thoroughly investigated the nature, composition and action of gypsum upon plants, and upon the soil. All that science can do has probably been done to solve the question, still, we must not limit discovery on this subject, or any other. Experiments carefully made and often repeated, must clear up any doubts or difficulties which the chemists laboratory has failed to remove. We have no faith in the formula, analyses, or dicta of amateur chemists in regard to soils, plants, gases, minerals, &c. There is no branch of chemistry which requires greater skill, knowledge, and patient labor to eliminate truth, than that which undertakes to explain the laws of vegetation, the constituents of soils, and the action of manurial substances. There are probably not a dozen men on this continent capable of making an accurate quantitive and qualitative analysis of any given soil. As we make *no* pretensions to *practical* skill in this matter, we regret that we shall be under the necessity of declining the suggestions of our esteemed correspondent. We are compelled to refer him to the "books," where he will find far more reliable information than any non-professional investigator will be able to afford him.

Plaster will not benefit all soils alike. This fact was soon ascertained, and it is only another proof that the exercise of judgment and skill is necessary in every agricultural process, if we would avoid disappointment and loss. If, for instance, any soil contains naturally an abundance of lime, we should not expect plaster, which is one of the compounds of lime, to produce much effect. So much chemical knowledge as this every farmer ought to possess. We have used plaster upon clay-loam and light soils, with the most decided advantage to the first and second crop; and as the roots of the clover and other grasses were both larger and more numerous than they

would have been without it, and as these roots, when ploughed under, became food for the succeeding crops, we have not been able to discover any injurious effect from the use of plaster on the soils and crops referred to. We refer Mr. Jacques to the May number of the *Agriculturist*, page 126, for some further observations on this point.

PROPER TIME FOR CUTTING GRASS.

At the recent trial of Implements at Syracuse, N. Y., it was arranged that discussions on various subjects connected with agriculture should be held during the evening. A brief report of one of these, which we find in the *R. N. Yorker*, of Rochester, may be worth copying. The subject is one of considerable importance. Says the report:—

"On Wednesday evening Sanford Howard, Esq., was announced to deliver a lecture on the 'Grasses, Proper time of Cutting, &c.' The weather being exceedingly warm, and the speaker much fatigued by the labors of the day, it was proposed that a general conversation be had on the question. Mr. Howard opened the discussion by saying that the subject was very important, as the hay crop was now one of our most valuable products, and it was well to know when to cut it, and how to make it. We should first settle the principle, what is the best condition of the grass for cutting, and why? He believed all plants contained the most nutritive matter when in full bloom. The object which nature seeks is the production of seed. Plants, when they first come from the ground, contain more water than at any other time. At flowering, a crisis arrives, and all the energies of the plant, from that time, are directed to the formation of seed. If seed was sought, it would be well to wait until it ripened or matured, before cutting; but as herbage is sought in hay, it should be cut before the formation of seed, as they are not digestible, not one seed in a million being digested in passing through the animal; therefore, all the substance used up in the formation of seed is lost. Timothy, and all grass, should be cut when it contains the greatest amount of nutritive matter. Convenience, and other things may sometimes operate against carrying out this principle. For instance, Timothy is an imperfect perennial. Further south it is uncertain in endurance. It is found necessary to allow the seed to mature, so as to keep the ground seeded. Sinclair stated that the amount of nutriment contained in grass was ascertained by the proportion soluble in warm water. Prof. Johnston and others had proved that test incorrect, and, indeed, Sinclair had not much faith in it himself.

As to the mode of curing, he could call attention to the method generally practiced of preserving herbs. No one would think of drying them in the sun, or where the dew and rain would fall on them. So with grass, cut when dry, dry it as little as possible in the sun, and let it cure by sweating. A certain degree of decomposition is beneficial, turning the starch into sugar, and making the hay more tender. In answer to a question as to the value of hay caps, Mr. Howard stated they were used by all large farmers near Boston, and were considered very useful.

Mr. Vick inquired if any better test of the value of grass as food had been discovered than the proportion soluble in water. And, also, whether the experience of the farmers present would go to prove or disprove the statement of Mr. Howard, that the best time for cutting Timothy was when in flower. He cared little about the theories of Mr. Johnston, or any other chemist. This, like all other things in agriculture, must be proved by repeated and careful experiments. He would like the experience of farmers.

Mr. Wilson, of Iowa, gave the experience of a neighbor, who raised and sold great quantities of hay. He always cut when in flower; his hay was always prized and sought after by the proprietors of stages, and he got fifteen per cent. more than the ordinary price.

Mr. Stanton Gould, of Hudson, N. Y., made a glowing speech in defence of chemical science, and the doubts attempted to be cast upon the reliability of chemical experiments. The matter which our bodies is composed now is not the same as that which composed

them ten years since, A constant waste is taking place. Chemistry shows us what plants can supply that waste.

Mr. Vick did not design to attack chemistry or chemists; but he did think theories founded on chemical science, unsupported by experiments, should be received with caution, until proved or disproved by experience. Liebig tells us that all we need do to grow a certain crop is to find its mineral elements, and furnish the soil with these, and success, under ordinary circumstances is certain. This theory, so confidently advocated for many years, I suppose it will be admitted, has been proved false by experience, and generally abandoned.

Mr. Gold, of Connecticut, stated that in the north there is no difficulty in raising good Timothy hay, if it is cut early, as it gives a good aftermath, and is better the next spring for being so cut.

Mr. Capron, of Illinois, thought if we would follow the teachings of agricultural chemists we could raise larger crops, and cheaper than we now do.

Mr. Vick thought that as there was a good deal of difference in the theories of agricultural chemists, it would be well for them, or us, to agree as to which is right, before undertaking to follow either.

Mr. Worthington, of Ohio, had a different experience to relate than that expressed by some others. The seed, it is true, does not digest; but it is so small, in proportion to the whole plant, that but little of the nutriment of the plant can be used up in perfecting it; and the most of this, he thought, came from the soil, and not from the leaves and stem of the plant. If the seed should be ground, it would be of but little account.—Grass, when cut in flower, is harder to cure than if cut later; and sometimes is troublesome, if the weather is unfavorable. My experience, and that of my neighbors is, that the best time to cut Timothy grass is when the seed has so far matured as to germinate. We have all tried cutting in the flower, and abandoned it. Cutting in flower injures the roots, and if continued, destroys our meadows. Prof. Kirtland has made this question a matter of careful and diligent study, and he has found that the best time to cut is when the stalk becomes dry at a point above the first or second joint of the stem. If cut earlier than this, the roots send up new stalks, and thereby become weakened, and die out during the winter.

Mr. Howard relied for his statements on the experience of his neighbors, as well as on the opinions of chemists. The question raised by the gentleman from Rochester, whether the experience of farmers agrees with the theories of chemists, is certainly a very important one. John Johnston, of Geneva, in discussing this matter with one of his neighbors, agreed to leave the question with a flock of lambs, and they soon decided it, by eating up clean that which was cut in flower, but of the later cut, a great part was left and wasted.

Mr. Haines, of Illinois, had found that the best time to cut grass was when the blossom on the earliest heads was falling. Experienced the same difficulty as Mr. Worthington with the Timothy dying out; and the only way he could preserve his meadows was to drag them in the spring, which seemed to invigorate the roots and give them a new start.

Cucumber Bugs.—Dr. Heckerman, of Tiffin, writes:—Most gardeners are very much annoyed by these bugs, which prey alike upon the cucumber, melon, pumpkin, and squash—the latter being its favourite. Various plans have been devised for their protection, such as soot, &c. A method which I have practised with nearly entire success, is to form a mixture of equal parts finely ground black pepper and wheat flour, and dust the plants, while the dew is upon them, with this mixture, using an ordinary flour or pepper box. It is a fact generally known, that black pepper is so obnoxious to most insects, that few will approach or stay in its presence. The object of the flour is to combine with the pepper, and with the water or dew to form a paste, which will adhere to the leaves for many days unless washed off by heavy rains; and in which case the application should be renewed.

Farmers, don't eat in the Kitchen.—It is the custom with some farmers, to make a constant practice of taking all meals in the kitchen; but this habit *marks a low state of civilization*. The occupation of farming is the natural employment of a human being, and it ought to be made a refined and noble pursuit, not a mere way of earning a rude subsistence. It is among the sons and daughters of the farmers, that the pith and marrow of a country are to be found, and every grace that belongs to rural life should find its highest examples in the home and family of the intelligent American farmers.—*Tribune.*

TRAINING STEERS TO THE YOKE.

Perhaps, in all agricultural practice, there is nothing in which we differ so far from the dictates of reason, by which we ought to be guided, as in the training of steers for the yoke. The child, with all his reason, is subject to a gradual introduction into the various fields of labor in which he is expected to operate. The man who is to be initiated into the Masons' Lodge, has to be assured over and over again, that he "wont be hurt," before he will venture to tread the halls from which "no tales are told." In fact it is a rule of reason, in every other instance, to train gradually the eye, the ear, and the sense. But when steers are to be trained for the yoke, no heed is given to the dictates of reason. They are broken in some way to draw, and to walk before the ponderous load; but whether according to the teachings of mercy or reason, is a subject of investigation with neither the philanthropist or moralist. The result but gained—the labor performed, and no inquiries are made.

When a pair of animals are to be broken, or more properly trained, to the yoke, the farmer secures the aid of boys and men enough to yard them, catch them, and put upon their necks the yoke, and about their horns the ropes by which they are to be led. The poor beasts, frightened almost beyond the power of moving, stand trembling amid their captors, subdued by naught save brutal force. Once secure with the bows about their necks, they are told to "go." They may start away with all their might, endeavoring by the use of their every power to free themselves from the presence of their captors, but they are fully as apt to stand trembling in mortal fear. If they do not start, the whip is applied, if this does not start them their tails are wrung, clubs are used, and last of all fire, or the approach of some cowardly dog gives them the use of their limbs, and they—go! Two of the ablest youths among their captors, guide their movements on either side and endeavor to hinder their "running away." But on they gallop at their highest speed, urged on by the very presence of their drivers, until perhaps brought up by some fence crossing their route. Here spectators again approach, and remarks upon the probable disposition of each—their ease to break—their appearance, future value, &c.

But I need not describe further this oft repeated scene,—it is familiar, and has had many witnesses. It can, as a system, have no advocates, when the better way which we are about to describe, becomes generally known. And yet it may. unless a certain class —opposed to book-farming—can have the privilege of learning it from some travelling conjuror, at a cost of five or more dollars, instead of from the RURAL for nothing.

The training of cattle for the yoke, may be done as easily as of colts for the harness, and with as little expense to the spirits of the animal. But in order to accomplish this, we must possess ourselves of abundant patience. We must also have a will for the work—it should be a love—coupled with unflagging resolution. Possessing these, we should accustom to be taught (for what is it but teaching) to our presence, and if possible to being handled. But if this is impracticable from lack of time or other cause,—provide a well fenced "prison yard" or "schoolroom," in which to exercise them; in some place where they have been in the habit of running when unrestrained. The yard should be about five or six rods long, and from two to three rods wide—if the cattle are very wild, not so long, so that, with all their efforts, they may not be able to escape but a little way from the presence of their teacher. In getting your animals—not more than four—into the yard, use care that they may not be frightened, and begin by taming, and accustoming them to your presence. Keep them moving about the yard at liberty, making use of the signals common in driving trained cattle. Your first object is to weary them while under your power, and as they have much farther to travel than you, this will soon be done, so that you may manage them considerably; turning them about and perhaps stopping them. Proceed no faster than you can do without whipping or forcing, or what is more important, scaring them. When they are sufficiently trained so that you can handle them without alarm, you may put the yoke on them, but they can be taught as fast for a considerable time without the yoke—until they may be driven about and stopped, and turned round at pleasure. Of course specific directions for action in every case cannot be given, but the system is capable of general adoption, and is better for wild, unmanageable steers, than any other. Its advantages are, that the animal is trained to the yoke with-

out fright, and being taught without running away, is less liable to do so when at work.

We think that no one can read the foregoing, without being convinced that it is better to accustom animals to the presence of the driver where they cannot escape from him, than to run and chase over many a weary mile, tiring both parties, and effecting no more than by the quiet, easy method described. We hope, at least, that all merciful men will be found on the side of mercy.—*Cor. Rural New Yorker.*

OREIDE—SUBSTITUTE FOR GOLD.

The manufacture of this new metal Oreide, under the French patent of H. Migeon, granted in this country, March 3, 1857, has been commenced on a large scale in Waterbury, Conn., and it will undoubtedly soon be in use, as it is already in France for various articles of domestic economy and all sorts of ornamentation, as it bears relation to gold similar to that of German silver to pure silver; like German silver, it may be used in a pure condition, or as a base of gold plating. It bears so strong a resemblance to gold, that when manufactured into fine articles, such as we have become accustomed to see made only of gold, we are at once convinced that the article we are handling is really the pure metal, yet it is made of a material that cost only eighty cents a pound as it comes from the furnace where the several metals of its composition have been refined into ingots.

The Oreide is not a new metal—it is only a new compound of old metals, so refined in the process as to have done away with a great part of their disposition to oxidise, as it only tarnishes in about the same degree as silver, and though ebulition takes place, if tested with nitric acid, it does not leave a black spot, so that it may be actually cleaned with acids which would destroy such metals as copper or brass. We have examined this metal in bars and sheets, prepared for the manufacture of various articles, and also in its manufactured state—in spoons, sugar-tongs, napkin-rings, goblets, buttons, watch chains, various articles of plain and chased jewelry and cast ornaments, and plates of various thickness, from tin foil to the sixteenth of an inch thick, combined with gold, so as to show gold upon one side and the Oreide upon the other, and it was certainly very difficult to tell which was gold and which was Oreide. That it is an improvement in the arts there can be no doubt; and that it so much resembles gold as to make it necessary for our legislature at once to require, as in France, that all articles should be stamped "Oreide" to prevent great frauds, will probably be found out after a great many people have been severely cheated.—*N. Y. Tribune.*

Crystallization of Iron.—At a meeting of the Society of Civil Engineers, in England, one of the members stated that a large anchor, which had been in store for more than a century at Woolwich Dock, and was supposed to be made of extremely good iron, had been recently tested as an experiment, and had broken instantly with a comparatively small strain, the fracture presenting large crystals. In this case the effect was believed to be produced by magnetic influences, dependent on the length of time the iron had been in the same position. Another member stated that at the gas works, under his direction, wrought iron fire-bars, though more expensive, were generally preferred. A pan of water was kept beneath them, the steam from which would speedily cause them to become magnetic. He stated, further, that he had frequently seen these bars, when thrown down, break into three pieces, with a crystalline fracture.

Gooseberry Bushes.—To prevent the gooseberry from being affected by mildew, cover the soil around the roots with a stratum of salt hay, two or three inches thick, and allow it to remain through the season. Irrigating once a week with soap suds, taking care to sprinkle all the foliage with the fluid, will also be very beneficial. One thing, however, should be observed in the cultivation of this fruit, and that is, never to plant the bushes under trees or in the shade.

Cress (or Pepper Grass) is very good in salads along with lettuces, white mustard, or rape. It should be sown in little drills *very thick*, (as should the white mustard and the rape) and *cut before it comes into the rough leaf.* A small quantity, in the salad season, should be sown every six days. This salad, as well as the mustard and the rape, may be very conveniently raised in the corner of a hot-bed made for radishes or cabbage plants.

CHOICE OF A SITUATION.

In choosing a site for a dwelling house, one should never omit to regard, as of primary importance, its healthfulness and comfortable exposure. Elevated sites are not always the most healthy, nor are valleys invariably less exposed to winds than high places. A dry tract in a sheltered valley is unusually healthy, while one that is cold and damp, how great soever its elevation, is always unhealthy. It may be considered an axiom, that a dry situation is in any country preferable to the damp one, being less exposed to pestilential vapors in a warm climate, and to the predisposing causes of pulmonary complaints in a cold climate. A large proportion of the coughs and catarrhs to which our people are subject, might be avoided, if our dwelling houses were placed upon dry and protected situations. When it is not in the power of the proprietor to choose such a site, he should obviate the evils arising from a damp soil, by a thorough system of drainage. If his pecuniary resources are too limited for the expense that would attend it, he would be wise to finish the interior in a plainer style, and use the money thus saved to pay for his draining operations.

The dryness of any tract depends more on the character of the soil and the subsoil, than upon its elevation. A subsoil of clay, and a foundation of rock, are unfavorable in this respect. Slopes of either description are commonly wet and springy. Those swells of land which are termed by geologists *moraine*, are most free from springs and from superabundant moisture, consisting of pebbles, gravel and loam. All these circumstances affect our comfort and convenience, no less than our health. Mud is abundant in wet weather around a house which is placed on a clay foundation, unless it be drained and covered with gravel; and the most disagreeable dust in dry weather is produced by clay.

There are other considerations worthy of particular notice. No little circumstance puts the female members of a well ordered household so greatly out of humor, as the bringing into the house the mud from the streets and enclosures. When, therefore, the soil and the subsoil are both of clay, they ought to be covered with eight or ten inches of good gravel, and subjected to complete drainage. The children of a family are more comfortable in a place that has a sandy or gravelly foundation, natural or artificial, and they annoy the housekeepers less by bringing mud into the house upon their feet. This evil is not avoided by simply raising the house on a terrace, if the grounds are left in their natural condition outside of the embankment. The best method of avoiding mud and dampness, is to elevate the house, if it be placed upon a flat, and build a gravel slope, extending several rods in all directions from the house. The more gradual the slide the better, as a deep descent is liable to be furrowed by the streams that come from showers.

Under the head of location, position may very properly be made a theme of discourse, for a house may stand on an excellent site, and yet be so inconveniently placed, as to lose many of its advantages. A house on the slope of a hill is liable to be exposed to the water that flows from the summit. Hence it should not be set on a level or in a hollow, but on a gentle swell of land, causing the streams that run from the hill to circle round it. Many of these points, which would seem too obvious to need mention, are frequently overlooked or disregarded, while the proprietor squanders his money upon needles embellishments and ostentatious follies.

A dwelling house ought to be conveniently accessible from the street; and it is better to forego some advantages of prospect, than to place it so far upon a declivity as to render it difficult to be reached, either on foot or in a carriage. Neither should a house in the country stand directly on the road side; it should be placed far enough from it to escape the dust, without causing inconvenience to the occupants on account of distance.

It may be further remarked, without encouraging that idle propensity that causes certain persons to prefer the opportunity of seeing the objects in the streets, to any other circumstance connected with location, that it is confessedly, at certain times, an agreeable and rational amusement, to look out upon this varied procession of moving objects. In winter especially, after the female members of the family have passed several weeks in the seclusion of their home, an occasional sight of other human beings in the street affords a cheerful recreation. To an invalid, likewise, who is confined to the house, these scenes are important trifles that may seriously affect his spirits; and they furnish points which are not unworthy of our regard, in the choice of a site for a dwelling house. —*Hovey's Magazine of Horticulture.*

CURRANT WINE.

This article, as usually manufactured, is rather a cordial than a wine, and is entirely inferior to the commonest imported wine; but when properly made, it will be found to be a very superior healthy beverage, particularly for summer drink when fully diluted with water.

We have experimented carefully on the making of currant wine, and the following will be found to give a result which we have found no difficulty in selling in large quantities at $1 per gallon.

Before pressing the juice from the currants pass them between a pair of rollers to crush them after which they may be placed in a strong bag and they will part with the juice readily by light pressure, such as a common screw, heavy weights &c. To each quart of juice add three pounds double refined sugar, single refined sugar is not sufficiently pure—then add as much water as will make one gallon. Or in other words, suppose the cask intended to be used to be 30 gallons. In this put 30 quarts of currant juice, 90 lbs of double refined sugar, and fill the cask to the bung with water; roll it over till the sugar is all dissolved. This will be told by its ceasing to rattle in the barrel. Next day roll it again and place it in a cellar, where the temperature is sure to be even. Leave the bung loose for the free admission of air. In the course of two or three days, fermentation will commence. By placing the ear to the bung hole, a slight noise will be heard, such as may be observed when carbonic acid is escaping from champagne or soda water. Fermentation will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases, drive the bung in tightly, and leave the cask for six months—the wine may be drawn off perfectly clear without any excess of sweetness.

The reason why double refined sugar should be used may be thus understood. Ordinary sugar contains one-half per cent. of gum, which, when dissolved in water becomes fetid. Suppose then, four or five ounces of gum dissolved in a barrel of water, we can readily understand that at the end of a few months this water will be very foul in flavor.

No alcohol should be added. The practice of putting in small quantities of brandy and other liquors makes a cordial and not wine. All the sugar used may be so fermented as at least to change its character chemically, and this change will produce all the alcohol required.—*Working Farmer.*

CUTTING OFF COWS' TEATS.

It is a very common thing for cows to have one or two supernumerary teats, on the udder, just behind the four teats, from which the milk is drawn. These small teats are often very inconvenient and troublesome in milking, on account of their diminutive size and length; and they are often so near the other teats that when a calf is sucking it will draw milk from both the large and small ones; and then, after the calf is weaned, if the small teats are not milked, there is a tendency to inflammation of the udder. Four teats are enough for any cow; and that is the usual number for cows—although we have seen six well developed teats on the udder of a cow, the hindermost ones being quite as large as the foremost ones. And, since a cow will give no more milk from five or six teats, than from four, they had better by far, be off the udder than on it.

I have a young cow that had five teats on her udder, the fifth one being so close to the others as to be very inconvenient about milking. The calf would suck it, and it soon became as long as the others. With no little hesitancy and doubt, we ventured to try an experiment in cutting it off. About the first of May last, we tied the legs of the cow, and then put a piece of common bonnet wire around the teat, and with the pliers twisted the ends firmly together, so that the wire seemed buried in the teat. It was twisted up so tightly as to stop, almost entirely, all circulation of the blood. The wire was put on about one-forth of an inch from the udder. The wire was *annealed* before using, by allowing it to become red hot in the fire when the fire is about to go out, and to become cool, very gradually, as the fire disappears. This process make it very tough, so that it can be well twisted. After the wire had been on about fifty days, the teat dropped off, and gave us no more trouble. The wire never produced any inflammation; and the *issue* of the teat, which we feared might not be well closed after the teat was cut off, is completely healed over.—*Cor. R. N. Yorker.*

HOW TO FARM PROFITABLY, PARTICULARLY ON STIFF HEAVY SOILS.

BY MR. SHERIFF MECHI, LONDON.

We have read this pamphlet with much interest. Mr. Sheriff Mechi gives full particulars of his management, and shows that if good husbandry will not pay—then in Great Britain there is no husbandry that will. He concludes his pamphlet of about 10 pages, as follows:—

"Take my own case as an illustration of the principle which I am endeavouring to enforce. The original rental of my farm was a little over 20s. per acre. It is now more than double that sum, the excess being interest on improvements; now instead of £1 per acre difference in the crops as compared with what they used to be, 14 years experience has taught me that the difference is from £3 to £5 per acre, and in some crops £7 to £9 per acre. The average yield of the crops now and before the improvements may be represented as five to three at the very least. On comparing notes with an intelligent neighbour of mine, he admitted that my extra expenses of £2 per acre, as compared with his, were more than compensated in my increased crops. In conclusion, if I find a heavy land farm properly drained, free from unnecessary fences, with good covered yards centrally placed, and proper and modern machinery; if I find it free from weeds, and above all, if I know that on that arable farm at least 200 lbs. weight of meat is made per acre per annum, the result must be a certain profit. Nothing can prevent this but gross mismanagement or ignorance of the business. But how few such farms does merry England exhibit! Truth replies, how few!!! All my life it has been my habit, in order to arrive at truth, to examine and compare various systems, with a view to form a judgment on the facts. I am quite satisfied that the mass of mankind do not adopt my practice, else it would be impossible that such miserable and unprofitable discrepancies could exist in Agriculture. There are none so blind as those who will not see, and if self-interest will not prompt our landlords and tenants mutually to improve, nothing that I can say can have that desirable effect.

"The food question is an important one: a month's holiday to the British stomach would settle all our manufactures, commerce and philosophy. We must make the acres we have yield up a large increase, as we cannot extend them. It is true we are enabled to get corn from our neighbors by paying for it, but meat we cannot get, and unless much more meat is produced per acre than at present the prices will naturally rise much higher, and cramp consumption. I can scarcely have patience, when asked 'But where is the money to come from for all these improvements?' when I see daily the tendency to invest in every new speculation, British or foreign, except 'National Agricultural Improvement.' In conclusion, having proved my case, and exposed my farm for many years to public inspection, it is now my intention to sit down quietly and enjoy the privacy of agricultural peace and plenty."

The time is at hand when in Canada we shall have to depend upon improved farming, if we expect farming to pay.

A FLOWER IN YOUR ROOM.—A fire in winter, a flower in summer! If you can have a fine print or picture all the year round, so much the better; you will thus always have a bit of sunshine in your room, whether the sky be clear or not, But, above all, a flower in summer!

Most people have yet to learn the true enjoyment of life; it is not fine dresses, or large houses, or elegant furniture, or rich wines, or gay parties, that make homes happy. Really wealth cannot purchase blessings of a higher sort; these depend not on money, or money's worth; it is the heart, and taste, and intellect, which determine the happiness of men; which give the seeing eye and sentient nature, and without which, man is little better than a kind of walking clothes-horse.

A snug and clean home, no matter how tiny it be, so that it be wholesome; windows, into which the sun can shine cheerily: a few good books and papers, (and who need be without them, in these days of universal cheapness?) no duns at the door, and the cupboard well supplied, and with a flower in your room!—and there is none so poor as not to have about him the elements of pleasure.

THE MIGHTY WEST.—The scream of the steamer's whistle is now heard twenty-seven hundred miles above St. Louis, in the upper waters of the Missouri and Yellow Stone.

THE HORSE CHARM; OR, THE GREAT SECRET FOR TAMING HORSES.

The horse castor is a wart, or excrescence, which grows on every horse's fore legs, and generally on the hind legs. It has a peculiar rank, musty smell, and easily pulled off. The ammoniacal effluvia of the horse seems peculiarly to concentrate in this part, and its very strong odour has a great attraction for all animals, especially canine, and the horse himself.

For the oil of cumin, the horse has an instinctive passion—both are original natives of Arabia, and when the horse scents the odor, he is instinctively drawn toward it.

The oil of Rhodium possesses peculiar properties. All animals seem to cherish a fondness for it, and it exercises a kind of subduing influence over them.

The directions given for taming horses are as follows:—

Procure some horse-castor, and grate it fine; also get some oil of Rhodium and oil of cumin, and keep the three separate in air-tight bottles.

Rub a little oil of cumin upon your hand; and approach the horse in the field, on the windward side, so that he can smell the cumin. The horse will let you come up to him then without trouble.

Immediately rub your hand gently on the horse's nose, getting a little of the oil on it. You can then lead him anywhere. Give him a little of the castor on a piece of loaf sugar, apple or potatoe.

Put 8 drops of oil of Rhodium into a lady's silver thimble. Take the thimble between the thumb and middle finger of your right hand, with the fore-finger stopping the mouth of the thimble, to prevent the oil from running out whilst you are opening the mouth of the horse.

As soon as you have opened the horse's mouth, tip the thimble over upon his tongue and he is your servant. He will follow you like a pet dog.

Ride fearless and promptly, with your knees pressed to the side of the horse, and your toes turned in and heels out; then you will always be on the alert for a shy or sheer from the horse, and he can never throw you.

Then if you want to teach him to lie down, stand on his nigh or left side; have a couple of leather straps about six feet long; string up his left leg with one of them round his neck; strap the other end of it over his shoulders; hold it in your hand, and when you are ready, tell him to lie down, at the same time gently, firmly and steadily pulling the strap, touching him lightly on the knee with a switch. The horse will lie down immediately. Do this a few times, and you can make him lie down without the straps.

He is now your pupil and friend. You can teach him anything, only be kind to him, be gentle. Love him, and he will love you. Feed him before you do yourself. Shelter him well, groom him yourself, keep him clean, and at night always give him a good bed, at least a foot deep.

In the winter season, don't let your horse stand out a long time in the cold, without shelter or covering; for remember that the horse is an aboriginal native of a warm climate, and in many respects, his constitution is as tender as a man's.—*Selected.*

IRON AND TIN IN GALVANISM.—Ordinary tin plates, or plates of thin sheet iron coated with an alloy of tin and lead, with a small proportion of antimony, form a native element for galvanic batteries so stern as to be scarcely affected by the sulphuric acid, and answer the purpose as well as platinized silver, at a very trifling cost. It is also found that iron coated with an alloy of lead and tin, in which the quantity of lead is nearly equal to or exceeds that of tin, will answer as well as lead or galvanized iron for roofing, cisterns, baths, pipes, gutters, window frames, and many other purposes.

THE POPPY.—A letter received at the Patent Office from Germany, says the poppy is cultivated in Southern Germany to a large extent, as a substitute for sweet oil. It has supplanted the use of the imported olive oil wholly in that country. It is further stated that the soil and climate of the New England States is highly suited for the culture of this article, and they might provide the whole Union with sweet oil, and therefore save a large sum of money, which goes to France and Italy.

IRON CHURCHES, seventy feet long, forty feet wide, and twenty feet high, capable of accommodating seven hundred persons, and costing about $5,000 each, have been erected recently in the neighbourhood of London. They are lined with wood, which is covered with convass and papered. They can be taken down and moved to other locations if desired.

THE IMPORTANCE OF SALT FOR ANIMALS.

All kinds of stock require salt to keep them in good health, especially at this season, when the pastures are rich and they are eating large quantities of green food. Every farmer has observed that his cattle, horses, &c., are very fond of licking the salt earth of the barn yard and stables.

Whenever you observe this, you may be sure the animals want salt, for nature is a pretty safe guide in such matters,

Governor Emerson says:—

"In Spain, they give their sheep salt with great regularity: 112lbs. in five months to 1000 sheep. Mr. Curwen gave salt to his live stock daily for years.

For horses he gave	6 oz. per day
Milch cows	4
Feeding oxen	6
Yearlings	3
Calves	1
Sheep	2 to 4 per week

if on dry pastures; but if they are feeding on turnips or coles, then they should have it without stint. Some give it to the live stock on a slate or stone, some lay lumps of it in the cribs or mangers. It is an asserted fact, that if *sheep are allowed free access to salt they will never be troubled with the disease called the rot.* Some recent experiments also lead me even to hope that I shall one day or other be able to prove it to be a cure for this devastating disease. I have room but for one fact. "Mr. Rusher, of Stanley, in Gloucestershire, in the autumn of 1823, purchased for a mere trifle 20 sheep, *decidedly rotten*, and gave each of them for some weeks, an ounce of salt every morning. Two only died during the winter; the surviving 18 were *cured*, and have now," says my informant, "lambs by their sides."

The late Mr. Butcher, of Brook Hall, in Essex, for years employed salt for his cattle and sheep, on his farm near Burnham, in Norfolk. One of his fields was so very unfavorable for sheep, that before he used salt he lost 10 or 14 sheep in a night, when feeding on the turnips; but after he had adopted salt, he never lost one. He used to let the sheep have the salt without stint; and he remarked, that the sheep always consumed four times the salt on this *particular field* than when feeding on any other on the farm. Mr. Butcher one year let this field of turnips to a neighbour, who did not use salt; and consequently after losing 10 sheep the first night, gave up the field in despair.

THE FACULTY OF FEIGNING DEATH.—There are cases on record of persons who could spontaneously fall into a death-trance. Monti, in a letter to Haller, mentions several. A priest of the name of Caelius Rhodaginus had the same faculty. But the most celebrated instance is that of Colonel Townshend, mentioned in the surgical works of Gooch; by whom, and by Dr. Cheyne and Dr. Beynard, and by Mr. Shrine, an apothecary, the performance of Colonel Townshend was seen and attested. They had long attended him for he was an habitual invalid; and he had often invited them to witness the phenomenon of his dying and coming to life again, but they had hitherto refused, from fear of the consequences to himself. Accordingly, in their presence, Colonel Townshend laid himself down on his back, and Dr. Cheyne undertook to observe the pulse; Dr. Beynard laid his hand on the heart; and Mr. Shrine had a looking-glass to hold to his mouth. After a few seconds, pulse, breathing, and the action of the heart were no longer to be observed. Each of the witnesses satisfied himself of the entire cessation of these phenomena. When the death-trance had lasted half an hour, the doctors began to fear that their patient had pushed the experiment too far, and was dead in earnest; and they were preparing to leave the house, when a slight movement of the body attracted their attention. They renewed their routine of observation, when the pulse and sensible motion of the heart gradually returned, and breathing and consciousness. The sequel of the tale is strange —Colonel Townshend, on recovering, sent for his attorney, made his will, and died, for good and all, six hours afterwards.—*Phantasmata, by R. R. Madden.*

MANAGEMENT OF CHEESE.

According to the French authorities in dairy matters, those cheeses which have received pressure in too fresh a state, and from which the whey is not entirely separated are liable to rise, and have in their centres holes or reservoirs of air, which cause a spongy and disagreeable look. When this takes place during the manufacture, and if the fermentation is considerable, the cheese should be placed in a cool and dry situation, piercing it with skewers of iron in the parts where it rises the most; the air or gases escape by these openings, the cheese subsides, and the interior presents fewer cavities. An experienced dairyman, Mr. Harris, says that the only way to make good cheese, is to produce lactic acid from the sugar of milk by fermentation. The case in milk will of itself change the sugar into lactic acid and curdle the milk; but before it does this, it has itself begun to ferment under the influence of light and heat, and by the absorption of oxygen from the air. If curd be exposed to the atmosphere for a few days and then added to milk, it coagulates it as quickly as rennet, and is often used for this purpose. As cheese-making is a fermenting process, it is influenced materially by heat, proceeding within certain limits; faster or slower as the temperature is raised or lowered. The heat of the milk when ready for the rennet may be one hundred degrees. If the rennet is good, the milk will curdle hard enough to cut in thirty minutes. After the whey which rises is dipped off, which is done by putting a strainer over the tub, the curd should again be broken with careful handling, as too much squeezing works away the richest part of the curd. The whey first dipped off is put into a tin heater, set in a kettle of water, and heated, during which process it can be worked fine, so that the curd will scald evenly.

When the curd feels a little tough, it is sufficiently scalded, when it should be strained and worked till the whey is well worked out, and it is then to be salted—the quantity of salt being determined by the taste. In pressing, all the whey should be pressed out before the rind forms—say twenty-four hours—in which time the cheese should be turned twice into clean cloths. When the cheese comes from the press, it should be greased and bandaged; the grease most suitable is made from whey cream, churned into butter, and fried in an iron kettle over a slow fire, until it becomes clear like oil; then a little annotto may be added, to give the cheese the proper coloring. The cheese should be turned and greased every day, to prevent moulding.

Cream cheese may be made by taking one quart of very rich cream, a little soured, putting it in a linen cloth, and tying it very closely to the cream; let this hang up to drain a couple of days—then take it down, and carefully turn it into a clean cloth, and hang it up for two more days—then take it down, and having put a piece of linen on a deep soup plate, turn the cheese upon it. Cover it over with the linen, keep turning it every day, on to a clean plate and clean cloth, until it is ripe, which will be in about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt upon the outside, when it is turned. If it is wanted to ripen quickly, keep it covered with mint, or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger they can be made so.

Advice to Wives.—A wife must learn how to form her husband's happiness, and in what direction the secret lies; she must not cherish his weaknesses by working upon them; she must not rashly run counter to his prejudices; her motto must be, never to irritate. She must study never to draw largely on the small stock of patience in a man's nature, nor to increase his obstinacy by trying to drive him; never, never, if possible, to have scenes. We doubt much if a real quarrel, even if made up, does not loosen the bond between man and wife, and sometimes, unless the affection of both be very sincere, lastingly. If irritation should occur, a woman must expect to hear from most men a strength and vehemence of language far more than the occasion requires. Mild as well as stern men are prone to this exaggeration of language; let not a woman be tempted to say anything sarcastic or violent in retaliation. The bitterest repentance must needs follow if she do. Men frequently forget what they have said, but seldom what is uttered by their wives. They are grateful, too, for forbearance in such cases; for, whilst asserting most loudly that they are right, they are often conscious that they are wrong. Give a little time, as the greatest boon you can bestow, to the irritated feelings of your husband.

WHEAT CULTURE.—FACTS AND INFERENCES.

In 1850 the wheat crop of Maine was less than in 1840 by more than 500,000 bushels —that of New Hampshire was less by more than 220,000 bushels—of Massachusetts by 120,000 bushels—of Connecticut it was less by more than one-half, being 87,000 in 1840, and only 41,000 in 1850. In Rhode Island it dwindled from 3,000 bushels in 1840, to 49 in 1850. In Vermont alone, of all the New England States, it was greater in 1850 than in 1840, being in 1840, 495,000 bushels, and 1850, 535,000—an increase of 40,000 bushels. The whole wheat crop of New England, Vermont included, was less in 1850 than 1840 by more than 720,000 bushels—or a diminution of more than one-third in a single decade. Ohio raised less wheat in 1850 than in 1840 by more than 2,000,000 bushels. Yet the three States, New York, Pennsylvania and Ohio, raised *more* wheat in 1850 than in 1840 by nearly 1,000,000 bushels. Kentucky raised less wheat in 1850 than in 1840 by more than 2,500,000 bushels. Virginia, on the other hand, and Maryland and Arkansas, and all the newer Western and North-Western States and Territories, grew so much more wheat in 1850 than in 1840, that during these ten years the annual aggregate wheat crop of the United States was increased from 84,000,000 to 100,000,000 bushels—an advance of nearly 20 per cent.

The inferences we draw from these facts we proceed to state in a few words. They are abundantly confirmed by experience:

1. In the older States the wheat culture is, on the whole, greatly on the decline. Climate in the North-Eastern States, and careless culture, with a general disregard of the demands of the soil, almost everywhere, are among the most active causes of this decline.

2. In all the newest States the wheat crop is greatly, for the present, on the increase. The reasons for this fact will be obvious, when it is remembered that the virgin soil of the new country is still rich, and that large tracts of lands are still annually cleared or broken up and brought under cultivation.

3. In the Middle States, where a favourable soil has been supported by careful culture and suitable manures, the wheat crop has "held its own," quite well.

We hope these facts will not fail to impress their obvious lesson on the farmers of our new Western States. The example of Great Britain proves that old lands, if properly managed, may continue to grow abundant crops of this most coveted of all the cereals.—*R. N. Yorker.*

WROUGHT IRON CARS.

There is now nearly completed in Patterson, N. J., a first-class passenger car, a little larger than the ordinary size, constructed almost entirely of wrought iron. This material is employed to obtain great strength, with less weight than usual, and to avoid the injuries to passengers due to the destruction of ordinary cars in any kind of a smash. The experiment, which is being conducted on a most liberal scale, and with a view to establish conclusively the practical superiority of this system, is made at the expense of Mr. E. W. Sargent, a merchant of New York, under the patent of Dr. B. J. LaMothe. The frame-work is in effect an extremely strong and stiff, yet elastic, basket, each joint or intersection being strengthened by rivits, and the whole being further protected by making the entire platform at each end one strong spring of steel. If the construction runs off the track, falls down a precipice, or comes into collision with another in such manner that the springs at the ends cannot absorb the shock, the car itself will spring, collapse, twist or crumple up, but cannot break and crush its contents with the fragments. One of the great dangers in collision, &c., arises from the disposition of ordinary cars to penetrate each other with their timbers, or to shut together like the parts of a telescope, and another arises from the facility with which the tops and sides, the seats, &c., separate from the more substantial floors, and are precipitated forward with the passengers. Neither of these, nor many other minor evils, could arise from any violence to this style of car, which is also much lighter than the wooden ones, and thus will absorb far less power in hauling it. The car is constructed entirely of strips, so connected as to be practically without joints. We hope to see this car perfectly successful in practice, and that it may revolutionize the mode of constructing these important carriers of human freight. The principle is beyond doubt an excellent one.—*Sci. American.*

RAISING STOCK.

The rearing of good dairy stock is an object of great importance to the farmer. The cow ranks high among our domestic animals. Probably no other is of more importance to us. She furnishes both the necessaries and luxuries of life. To the farmer she is a source of both luxury and profit. How desirable, then, that in rearing dairy stock, he should produce animals of the best qualities for his purpose! And the question, how this can best be accomplished, is one of much interest to breeders of neat stock. If "like produces like," too much care and skill can hardly be exercised by the breeder in the selection of his breeding animals. He should select such as have the style and qualities desired in their offspring.

In rearing heifers for the dairy, such should be chosen as have descended from good milking stock. It is not only important that the dam should have been a good milker, but equally so that the sire should have been bred from a good milking race. It is generally believed by breeders of experience that the male has as much influence upon the milking qualities of the progeny as the female. Hence the necessity of having well selected males as well as females, in attempting to rear good stock for the dairy. The breeder should not only use superior animals to breed from, but reserve for himself the better portion of their progeny. If a heifer shows an aptitude to fatten easily, she is considered worth more for the shambles than the dairy, and consequently, goes into the hands of the butcher; while some hard-hided one, which could not easily be fattened is reserved for the milk pail.

The opinion is very prevalent among farmers, that a heifer that takes on flesh rapidly will not make a good milker. Perhaps the fact that most good milkers become thin of flesh when in full milk leads to this opinion. But such cows generally fatten quickly when dry. It would seem that the fact of a heifer's fattening easily, should lead to the belief that she would make a good cow for butter, her aptitude to fatten showing her system to be such, that all the carbon of her food is not required for heat and respiration.—*Flint's Ag. Mass.*

POINTS OF A GOOD SHORT HORN.

The appearance and points of a good Short Horn may be thus briefly summed up. The head of the male is short, but, at the same time, fine; very broad across the eyes, but gradually tapering to the nose, the nostril of which is full and prominent, the nose itself of a rich flesh color, neither too light or dark: eyes bright and placid, with ears somewhat large and thin. The head crowned with a curved and rather flat horn, well set on to a lengthy, broad muscular neck; the chest wide, deep and projecting; shoulders fine, oblique, and well formed into the chine; fore legs short, with the upper arm large and powerful; barrel round, deep, and well ribbed up towards the loins and hips, which should be wide and level; back straight from the withers to the setting on of the tail, but still short, that is, from the hip to the chine—the opinion of many good judges being that a beast should have a short back with a long frame. As a consequence of this, the hind leg itself must be lengthy, but well filled in. The symmetry of frame at present to be found in a well bred Short Horn reaches as near perfection as possible, while few animals handle so well, or to use a still more technical term, have "so fine and mellow a touch." The hair is plentiful, soft and mossy, with a hide not too thin; and, in fact somewhat approaching the feeling of velvet. The female enjoys nearly all the same characteristics as the above, with the exception of her head being finer, longer and more tapering; her neck thinner, and altogether higher, and her shoulders inclined to narrow towards the chine Like most well proportioned animals, the Short Horn often looks smaller than he really is. The rapidity with which he puts on flesh, and the weight he frequently makes, are facts so well known that it is scarcely necessary to dilate upon them. Still we may mention that it is no uncommon occurrence to see steers of from four to five years old realizing 140 stones of 14 pounds; many ranging as high as 150 stones.—*Enc. Ag.*

CORIANDER is an annual plant some persons use in soups and salads. It is sown in spring. The seed is also used as a medicine. A small patch, probably two square yards, will be enough.

PROVINCIAL AND STATE SHOWS, 1857.

Alabama, at Montgomery	Oct.	27, 28, 29, 30.
Connecticut, at Bridgeport	Oct.	13, 14, 15. 16.
Canada East, at Montreal	Sept.	16, 17, 18.
Canada West, at Brantford	Sept.	29, 30, & Oct. 1, 2.
East Tennessee, at Knoxville	Oct.	20, 21, 22, 23.
Illinois, at Peoria	Sept.	21, 22, 23, 24.
Indiana, at Indianapolis	Oct.	4, 5, 6, 7, 8, 9, 10.
Iowa, Muscatine	Oct.	6, 7 8, 9.
Kentucky, at Henderson	Oct.	12, 13, 14, 15, 16.
Maine, at Bangor	Sept.	29, 30, & Oct. 1.
Maryland, at Baltimore	Oct.	21, 22, 23, 24, 25.
Massachusetts, at Boston	Oct.	21, 22, 23, 24.
Michigan, at Detroit		
New-Hampshire, at Concord	Oct.	7, 8, 9.
New-Jersey, at New-Brunswick	Sept.	29, 30, & Oct. 1, 2.
New-York, at Buffalo	Oct.	6, 7, 8, 9.
Ohio, at Cincinnati	Sept.	15, 16, 17, 18.
Pennsylvania	Sept.	29, 30, & Oct. 1, 2.
Tennessee, at Nashville	Oct.	12, 13, 14, 15, 16, 17.
United States Agricultural Society, at Louisville, Ken	Sept.	1, 2, 3, 4, 5, 6.
Vermont, at Montpelier	Sept.	30, & Oct. 1, 2.
Virginia	Oct.	28, 29, 30, 31.
West Tennessee, at Jackson	Oct.	27, 28, 29, 30.
Wisconsin, at Jonesville	Sept.	29, 30, & Oct. 1, 2.
Montreal Horticultural Society	Sept.	16, 17, 18.

VERMIN ON POULTRY.

Poultry sometimes suffer exceedingly by vermin or lice, which irritate and render them uncomfortable. We have found that blowing together smoke among their feathers will kill them. Where hens have a chance to dig into a bed of ashes, or lime and ashes, and throw the dust up among their feathers, they will keep themselves pretty free from vermin. The *Michigan Farmer* quotes the following from a foreign Journal. We do not know what is exactly meant by the substance which is there recommended as "Black Sulphur." It is probably some of the sulphurets, perhaps it is sulphuret of antimony, or crude antimony powdered. This is a black or dark color, and contains a good proportion of sulphur. The paragraph alluded to reads thus:—

John Douglas, a regular, poultry breeder, and who sometimes has 2000 head under his charge, writes to the *Agricultural Gazette*, that where poultry is kept somewhat confined they are apt to get infested with lice. This is particularly the case with setting hens. He recommends that with the sand and lime in the dust corner where the poultry will roll, there should be mixed half a pound of black sulphur. This will not only keep the fowls free from parasites, but will also give their plumage a fine, glossy, healthy appearance. When fowls are infested badly, Mr. Douglas first damps the skin under the feathers, and then dusts on the Black Sulphur. The insects will disappear in about twenty-four hours. Mr. Douglas once had charge of an Ostrich, which was pining from the effects of lice with which he was infested. The feathers next the skin were damped and the black sulphur applied. The lice were found dead the next day, and the Ostrich recovered rapidly.

Butternut Pie.—Boil 1 quart of milk, with the rind of 1 lemon. When it has flavored the milk strain it; have the meats of 8 butternuts mashed fine and mixed smoothly with a little milk; stir into the boiled milk, set it where it will boil; sweeten to the taste; let it 4 minutes, take from the fire and bake directly or the crust will not be good.

Gooseberry Cake.—Stew 1 quart of gooseberries in 2 quarts of water, when soft add lemon, sugar to the taste, butter the size of a hen's egg. Have ready good buttermilk biscuit, baked in flat tins. Open them, turn the sauce upon the lower half, place the other above, as in jelly cake. Serve up hot.

EDITOR'S TABLE.

PROVINCIAL ASSOCIATION.

We are glad to hear that the preparations for the coming show at Brantford are progressing favourably. £1800 have been already contributed by the local municipalities. This, with the receipts at the gates and other funds applicable to the purpose, will render successful the pecuniary part of the exhibition. We notice with pleasure that an attempt will be made to remedy the defects of which we complained last month. The President has issued a Circular, from which we have only space for two or three extracts. He says:—

"I am assured by the Local Committee, that every effort will be made to secure, in the vicinity of Brantford, fields of late spring and clover, *to test the harvesting implements;* and from the unusual lateness of the season, it is hoped we may yet be able to accomplish that desirable point. I am further permitted by the Managing Directors of our railroads, to state that every accomodation will be afforded, at reduced fares to the public, whereby persons residing as far distant as Toronto, Buffalo, London, and Stratford, may come by the morning trains to the Exhibition, and return home each evening."

"Although it has not been made by the Board a positive requirement of the successful Exhibitors of grain and other farm products, (except for the Canada Company's Prize,) that they should render a written statement of their respective systems of husbandry by which they have attained to such results, it is yet hoped that many will make an effort to furnish such information, for the Board of Agriculture to arrange and publish in their "Transactions." Such information should embrace the character of soil and subsoil, system of rotation, the time and manner of applying manure, quantity of seed sown, the best and most practical method of raising the different root crops, the most important points to be attended to in cheese-making, &c. &c.; each Exhibitor studying how he can impart knowledge bearing upon his particular department. To bring out all the results of our Provincial Exhibitions, we require in addition to the most energetic official management, the zealous co-operation of the leading practical men of our country. Upon them it is that we depend for that reliable knowledge, which would be of the utmost value when published. To obtain and circulate such information, is, beyond doubt, one of the greatest functions of this national institution. I would further mention that the Exhibitors of all implements of husbandry, and of manufactures of general utility and importance, should furnish a description of the articles, the price, and the place where they can be bought, as the Board intends publishing a descriptive list of the articles exhibited, for the benefit of the manufacturers and the public."

GREAT SALES OF STOCK.

We direct the attention of our readers to the important sales of thorough bred Stock advertised in this number of the *Agriculturist*. The entire herd of Mr. R. Wade, who was unfortunately killed in the Desjardin's massacre, together with a portion of Mr. John Wade, and Ralph Wade Senior's herds, will be sold on the 26th August. These herds contain as good blood as any on this continent.

Mr. Stone's sale offers a rare opportunity to breeders to infuse newly-imported blood into their Stock. His selections in England were made from the most celebrated herds in that country.

Mr. Allen's sale of Devon Cattle at Black Rock, N. Y., is also worthy of notice to those who prefer that kind of Stock.